

Pediatric Pain Letter

Commentaries on pain in infants, children, and adolescents

December 2007

Vol. 9 No. 3

www.pediatric-pain.ca/ppl

Editor: Carl L. von Baeyer, carl.vonbaeyer@usask.ca

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Commentary

Knowledge translation in psychological interventions for pediatric pain: Bridging the gap between research and practice

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It is now firmly understood that a child's response to pain is not simply a direct result of the level of tissue damage, but rather a combination of both physical and psychological variables. Establishing the multiple dimensions of the pain experience has served as an important first step in advancing the role of pediatric psychology in pain management (Kazdin & Kendall, 1998). Subsequent research has built upon this foundation and produced an array of psychological strategies to help children cope with their pain. Many cognitive-behavioral strategies have been deemed effective in managing both acute procedural pain (e.g. distraction, hypnosis, and guided imagery; Uman et al., 2006) and chronic or recurrent pain (e.g. multi-component cognitive-behavioral treatment packages; Dahlquist & Switkin, 2003).

Despite advances in the development of psychological interventions for pediatric pain management, research continues to suggest that evidence-based techniques remain relatively unused in clinical practice, and that children's pain continues to be undertreated. While part of the problem is the continued use of specific flawed approaches (e.g. reassurance; McMurtry et al., 2006), the majority of research findings indicate that some children are simply not provided adequate management of their pain (Cummings et al., 1996; Ellis et al., 2002) and that many pediatric hospitals continue to use outdated or unsupported pain intervention programs (e.g. O'Byrne et al., 1997).

The objective of this commentary is to identify some of the barriers in successfully translating psychological interventions from research to clinical practice, as well as to offer suggestions for bridging this gap. While psychological interventions may vary depending upon the type of pain (e.g. acute, chronic, injury-related, disease-related, postoperative), the purpose of the current commentary is to discuss the lack of knowledge translation for pediatric pain management in general, rather than knowledge translation issues related to specific strategies.

The knowledge to action process

Awareness of the research-practice gap, coupled with the growing focus on providing evidence-based and cost-effective healthcare, has oriented considerable attention to the importance of knowledge translation (i.e. the process of disseminating research findings into clinical applications). While many attempts have been made to transfer knowledge regarding psychological pain management to relevant health professionals, research on these types of training opportunities suggests that changing clinical practice requires more attention than simply sharing knowledge (for a review, see MacLaren & Cohen, 2005). In fact, obstacles to effective psychological pain management may not be solely a result of clinical struggles, but rather grounded at both ends of the

research process itself – from knowledge creation to knowledge application.

In their Knowledge to Action (KTA) process model (see Figure 1), Graham and colleagues (2006) provide a conceptual framework illustrating the development and integration of two key concepts: knowledge creation (i.e. research) and knowledge application (i.e. action). Using the KTA model as a framework, problems and difficulties in the process can be identified and subsequently solved.

Knowledge creation. Within the KTA framework, knowledge creation is depicted as a funnel whereby knowledge is repeatedly refined and synthesized, ultimately leading to knowledge tools and/or products. The first stage, knowledge inquiry, refers to the continually growing knowledge base in,

for example, pediatric pain. In the KTA model, knowledge inquiries are further refined through synthesized packages (e.g. systematic reviews). Finally, the funnel of knowledge creation ends with a concrete tool or product (e.g. practice guidelines) designed for use by key stakeholders of that knowledge (e.g. clinicians, policy makers).

While the focus in knowledge translation is naturally on dissemination, additional attention should be paid to the knowledge creation phase of the KTA process model. One important issue to address at this stage is the development of methodologically sound research that also considers the clinical setting (Kazdin & Kendall, 1998). Foundational studies of pediatric pain may not necessarily translate into clinically relevant results.

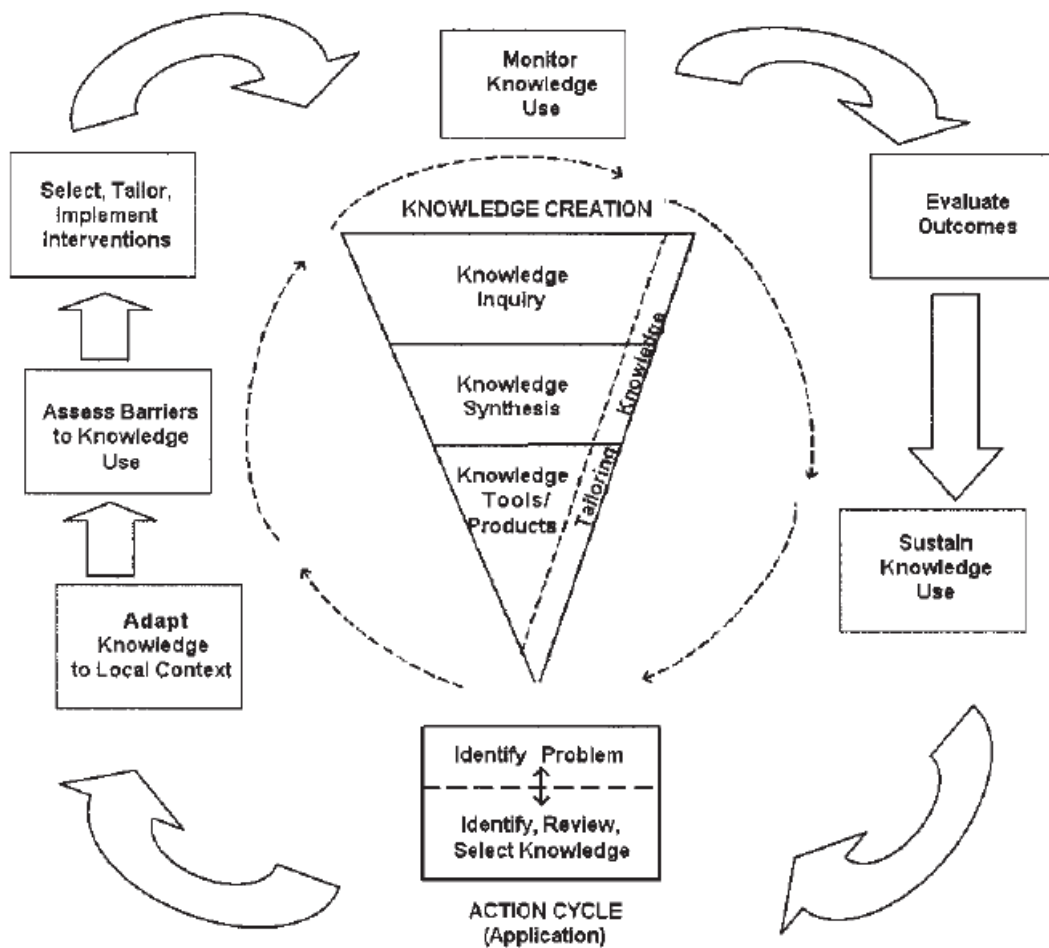


Figure 1. Knowledge to action process. From Graham et al. (2006, p. 19). Reproduced with permission of the author and publisher.

While this type of intervention research is still extremely important to developing work in pediatric psychology (Blount, 1987), the emphasis needs to shift towards creating clinically meaningful interventions. Additionally, original investigations often do not consider the pragmatic factors associated with the implementation of psychologically-based interventions in the real world. Factors worthy of consideration in this type of research include the intervention's utility, the time required for training and implementation, as well as health professionals' satisfaction with and preference among various available strategies (Blount et al., 1999). Finally, additional efforts need to focus not only on advocating for the use of psychological interventions, but also on creating interventions attractive to those in charge of making and implementing health care policies. As health care and insurance systems continue to attend to and support more invasive pain management strategies (Craig et al., 1996), psychological researchers need to be more prepared to advocate for their own non-invasive approaches. In the end, factors such as the cost-effectiveness of many psychological interventions may be of the utmost importance as constraints on the healthcare budget increase (Drotar, 1997).

Knowledge application. The knowledge application portion of the model is depicted as a cycle highlighting the recurring nature of knowledge translation. The starting point of the process is identifying a target problem and reviewing existing literature for the solution. Once identified, the knowledge is modified and refined to reflect the needs and constraints of the context in which it will be implemented. Next, barriers to knowledge use are explicitly identified, followed by selecting and tailoring the chosen intervention. Upon implementation, the final stages include monitoring the use of the translated knowledge, evaluating targeted outcomes (e.g. pain intensity) and finally, implementing strategies to sustain knowledge use over time.

While knowledge translation is the term most commonly used (Graham et al., 2006), it is often critiqued for suggesting a unidirectional process in which knowledge is simply translated to the

targeted population. The KTA process model, on the other hand, focuses on action (not translation) and aims to include feedback and suggestions from all necessary stakeholders at every step in the process. For pediatric pain, the relative simplicity of many psychological interventions (e.g. distraction) has facilitated the incorporation of multiple stakeholders in delivering appropriate pain management. In fact, many encouraging attempts have already been made to train health professionals (Lasch et al., 2000), paramedical professionals (Solomon et al., 1998) and parents (Manimala et al., 2000) to use these strategies to reduce and manage pediatric pain. However, additional efforts need to be focused on increasing the long-term success of these translation efforts (MacLaren & Cohen, 2005). Increased training in and exposure to psychological pediatric pain interventions provide not only the opportunity to increase knowledge about psychological pain management, but also to increase health professionals' motivation to change their own clinical practices (Craig et al., 1996). Involving hospital administration further serves to support these endeavors. Moreover, with the ever-increasing acceptance of psychological pain management strategies, the environment of healthcare is now optimal for incorporating multiple disciplines to manage pediatric pain. In the cost-conscious world of healthcare, the possible reduction of cost when incorporating non-pharmacological approaches (e.g. Cohen et al., 1999) and the ability to further reduce costs by incorporating multiple health professions in a medical setting (Powers, 1999) becomes increasingly important.

Broader issues

While beyond the scope of the current commentary, factors beyond the KTA model are also important to consider in improving knowledge translation efforts. Researchers are not typically trained in the art of policymaking; thus, increased exposure to this important aspect of knowledge translation should be included in the training of future researchers. Additionally, funding bodies, and even research ethics boards, have begun and will continue to press for researchers to explicitly

state the populations for which their results are intended. Considering this issue in the design phase of research may help to ensure the resulting knowledge is successfully translated to the target population. These broader issues will require additional focus and clarity over time, as knowledge translation efforts come to the center of attention.

Conclusion

Psychological interventions, though established as effective in managing pediatric pain, have not been successfully translated into everyday clinical practice. The problem of effective dissemination, as well as the lack of clinically meaningful research, creates a large gap between the care that could be given and the care that is being received by pediatric patients experiencing pain. While organizations such as the American Pain Society are attempting to provide large-scale, macro-level solutions to this problem (Ness et al., 2007), additional efforts at the level of the individual researcher are needed to supplement this work. As highlighted in the KTA process model, projects aimed at knowledge translation should continue to work towards developing better methods to create and translate effective interventions. In fact, though not exclusively focused on psychological interventions, many projects are currently underway using theory-driven translation

efforts (e.g. the Canadian Institutes of Health Research [CIHR] funded Team in Children's Pain, www.childrenspainstudy.ca). It is only through the development of clinically relevant interventions, continued advocacy and policy reform, effective dissemination, and incorporation of multiple health professions that children will be given the greatest access to the pain management strategies the field of pediatric psychology has spent so many years carefully developing.

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Acknowledgement

The author would like to thank Christine Chambers, Carl von Baeyer, and three anonymous reviewers for their editorial comments and suggestions on earlier versions of this commentary. She is supported by an IWK Health Centre Graduate Student Research Scholarship and an honorary Killam Pre-doctoral Scholarship. She is a trainee member of *Pain in Child Health*, a Strategic Training Initiative in Health Research of CIHR.

References

Blount RL. The dissemination of cost-effective psychosocial programs for children in health care settings. *Child Health Care* 1987;15:206-213.

Blount RL, Schaen ER, Cohen LL. Commentary: current status and future directions in acute pediatric pain assessment and treatment. *J Pediatr Psychol* 1999;24:150-152.

Cohen LL, Blount RL, Cohen RJ, Schaen ER, Zaff JF. Comparative study of distraction versus topical anesthesia for pediatric pain management during immunizations. *Health Psychol* 1999;18:591-598.

www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=10619532

Craig KD, Lilley CM, Gilbert CA. Social barriers to optimal pain management in infants and children. *Clin J Pain* 1996;12:232-242.

www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=8866164

Cummings EA, Reid GJ, Finley GA, McGrath PJ, Ritchie JA. Prevalence and source of pain in pediatric inpatients. *Pain* 1996; 68:25-31.

www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=9251995

Dahlquist LM, Switkin MC. Chronic and recurrent pain. In: Roberts MC, editor. *Handbook of pediatric psychology*, third edition. New York: Guilford, 2003. pp. 198-215.

Drotar D. Intervention research: pushing back the frontiers of pediatric psychology. *J Pediatr Psychol* 1997;22:593-606.

www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=9383924

Ellis JA, O'Connor BV, Cappelli M, Goodman JT, Blouin R, Reid CW. Pain in hospitalized pediatric patients: how are we doing? *Clin J Pain* 2002;18:262-269.

www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=12131068

Graham ID, Logan J, Harrison MB, Straus SE, Tetroe J, Caswell W, Robinson N. Lost in translation: time for a map? *J Contin Educ Health Prof* 2006;26:13-24.

www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=16557505

Kazdin AE, Kendall PC. Current progress and future plans for developing effective treatments: comments and perspectives. *J Clin Child Psychol* 1998;27:217-226.

www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=9648038

Lasch KE, Wilkes G, Lee J, Blanchard R. Is hands-on experience more effective than didactic workshops in postgraduate cancer pain education? *J Cancer Educ* 2000;15:218-222.

www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=11199239

MacLaren JE, Cohen LL. Teaching behavioral pain management to healthcare professionals: a systematic review of research in training programs. *J Pain* 2005;6:481-492.

www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=16084462

Manimala MR, Blount RL, Cohen LL. The effects of parental reassurance versus distraction on child distress and coping during immunizations. *Child Health Care* 2000;29:161-177.

McMurtry CM, McGrath PJ, Chambers CT. Reassurance can hurt: Parental behavior and painful medical procedures. *J Pediatr* 2006;148:60-61.

Ness T, Wesselmann U, Stone L, Mantyh P, Neubert J. The American Pain Society and translational pain research: a position statement from the American Pain Society. March 21, 2007.

www.ampainsoc.org/advocacy/downloads/translationalpain.pdf

O'Byrne KK, Peterson L, Saldana L. Survey of pediatric hospitals' preparation programs: evidence of the impact of health psychology research. *Health Psychol* 1997;16:147-154.

www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=9269885

Powers SW. Empirically supported treatments in pediatric psychology: procedure-related pain. *J Pediatr Psychol* 1999;24:131-145.

www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=10361392

Solomon R, Walco GA, Robinson MR, Dampier CD. Pediatric pain management: program description and preliminary evaluation results of a professional course. *J Dev Behav Pediatr* 1998;19:193-195.

Uman LS, Chambers CT, McGrath PJ, Kisely S. Psychological interventions for needle-related procedural pain and distress in children and adolescents. *Cochrane Database Syst Rev* 2006 Oct 18;4:CD005179.

www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=17054243