

# Letter: Closing the Evidence-Practice Gap

Jesse Basnak  
*Faculty of Medicine*  
*University of Calgary*  
*2500 University Drive NW*  
*Calgary, Alberta, Canada T2N 1N4*

**M**Y name is Jesse Basnak and I'm in my third year of the Bachelor of Health Sciences Program at the University of Calgary. Over the summer and during the fall of 2010 I worked with Dr. David Johnson, a paediatrician at the Alberta Children's Hospital. Dr. Johnson is a devoted advocate of knowledge translation: the process by which research is put into practice. We all know that research is of fundamental importance to society, be it in a clinical or lab setting; it drives the betterment of science and medicine and encourages the questions and competition that thrive therein. But many do not know of or consider the difficulties in applying research. Because, however important the question may be, and however healthy the competition, science and medicine cannot advance if research is not effectively applied in the hospital, in pharmaceuticals, or wherever the case may be. This is what knowledge translation is all about, ensuring that findings correlate with practicality in the field. If they do not correlate, then any further research is in a sense useless, as it isn't being utilized to help those it should be serving. Such disparity between knowledge and application is termed the evidence-practice gap, and it is a significant problem not only in health care but in all areas of research.

In health care the problem is markedly more pronounced and most obviously apparent. Like most people, I assumed that patients (especially children) receive optimal care every time they are treated, and that this care is founded on sound clinical evidence. I was surprised to learn that a considerable number of patients in Canadian hospitals do not receive such treatment. Take gastroenteritis, for example. Viral gastroenteritis (stomach flu) is the most common reason for children to visit an emergency department, and the leading cause of death in children under the age of five. A 2004 systematic review by Steiner et al. reported over 30 different tests for detecting dehydration in children's hospitals all throughout North America. And yet the gold standard of dehydration assessment consists of only four physical tests, all of which are non-invasive and reliable. There is a gap between the evidence put forth in the literature and the actual actions of physicians or health care workers in the emergency department. This leads to inconsistencies in diagnoses and thus unnecessary treatments. This can be a significant problem, as gastroenteritis is a disease that requires careful monitoring and quick treatment; treatments which ought to be based on gold standards and the best of evidence.

Over the summer, I learned this isn't always the case. When I started working, never had I heard of the evidence-practice gap, or considered the difficulties associated with converting research into practice. Fortunately, there are ways of addressing these difficulties, and ways of closing this gap. Dr. Johnson's initiatives are some such ways. He is heading a number of knowledge translation projects; including the development, implementation, and evaluation of several clinical pathways. These pathways provide guidelines for effectively diagnosing and treating common childhood illnesses. My project focused on developing a web curriculum to educate primary health professionals on how to best care for children with gastroenteritis. Through the use of E-learning and online communication, we plan to effectively disseminate a wide array of medical knowledge, and then measure the said effectiveness. More recently knowledge translation has been accomplished through live teaching sessions. However, these are not time efficient nor economically optimal, and there is evidence for a more effective method of dissemination: a recent systematic review by Cook et al. demonstrated that internet based learning has large positive effects compared to no intervention, and is at least as effective as traditional live teaching sessions. Such methods are often hindered by time restraints and the busy lives of physicians, and so to avoid this barrier we are offering our students the opportunity to access the learning modules at their own convenience, in the comfort of their own home. And, to facilitate their learning, the modules are highly interactive; case-based scenarios, audiovisual files of dehydrated children, and links to supplemental resources are all included. In this way we will provide a validated clinical score for assessing dehydration, explicit guidelines for rehydration and criteria for the judgment of rehydration failure, and parent education so as to minimize future visits to the hospital.

It's a large and ambitious project, for sure, but these qualities are necessary as it targets an even larger problem: the Evidence-Practice Gap. For research to benefit others (both doctors and patients), there must be strong uptake among those it's serving to help. This uptake constitutes a considerable difficulty, but there are solutions. And already I'm seeing one solution at work. I've learned a great deal so far, not only about gastroenteritis, but also how to best use the tools of online learning. By communicating knowledge through these tools, I've soaked up much of the knowledge myself, in a way that's enjoyable and at the same time highly rewarding. In fact, it doesn't feel like learning at all. At least not conventionally. Hopefully the health care workers who use our web curriculum will feel the same way, and get as much out of the experience as I have. Ultimately, I hope our findings will have an observable impact on how research is translated into practice, so that children in hospitals all throughout North America receive treatments based on well-founded evidence and the best of research.