

Knowledge Translation: Process to Accelerate Knowledge into Practice



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Introduction

Have you ever wondered what would happen to patient care if folks simply figured out how to leverage the billions of dollars that are invested every year in generating emerging evidence and new scientific findings. The impact would be tremendous! But to answer this question, we need to increase our overall understanding of effective knowledge translation. In general, the healthcare community is really good at generating lots of new standards of care and evidence, but fails to systematically translate and make the information more relevant in everyday practice.

"50% of healthcare interventions are not based out of evidence-based research guidelines"

The transfer of research findings into daily practice is often slow and not systematic, which in turn translates into delays or poor patient outcomes based on the most current guidelines and best practices. According Balas, it takes 17 years to transfer and translate research into practice-based interventions amongst the healthcare sector. This in part is due to the vast amount of information coming out of the research world, delay in adopting findings into guidelines, complex healthcare ecosystems, and the sheer fact that human cognitive capacity cannot keep up with the growth of evidence. According to Graham and et al., 30% to 45% of patients are not receiving care according to scientific evidence and that 20% to 25% of the care provided is not needed or is potentially harmful. Other studies, such as McGlynn and et al., corroborate estimates of 50% of healthcare interventions are not based out of evidence-based research guidelines. For example, despite the decades of evidence suggesting that statins reduces the risk of further complications in post-stroke patients, studies have shown statins are under-prescribe for this patient population. Unfortunately for patients they would be receiving sub-par care and for companies who have invested millions in creating these medicines, they would not be maximizing their investment! On a more global scale, according to Haines and associate, there are 9.7 million deaths among children in various countries that could have been prevented by the use of evidence-based interventions in addition to other unnecessary injection or caesareans.⁴ These are just a few quantified examples of how the lack of interventions to translate evidence-based research into practice can have significant risk and likelihood of harm to patients as well as costs associated with them. Other qualitative evidence show that lack of adoption of evidence-based research can include consequences such as misuse/under use of treatments, safety, treatment effectiveness and efficacy and impact of perception of providers and patients on it. This is further illustrated by the overuse of antibiotics in children with upper respiratory tract symptoms.

What is knowledge translation?

The science of taking research evidence and applying to the real world is called, knowledge translation (KT). KNOWLEDGE is the information/ evidence that were gained through the research. And TRANLATION is defined as taking evidence from research and making them actionable or relevant (intervention) in real-life practice setting. The Canadian Institutes of Health Research (CIHR) in 2008 defined knowledge translation as “a dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically sound application of knowledge to improve the health, provide more effective health services and products and strengthen the health care system”. KT formalizes and defines the relationship between the researcher and end user. It provides a set of tools that can easily be used in practice by removing barriers to change. Many organization may consider education and information sharing as KT. Though these tactics are effective to a certain extent, the opportunity exists to enhance their impact to clinicians in everyday practice. Often to enhance the impact of current tactics one must take into consideration: complexity of evidence, implementation challenges related to cost, provider type and behavior, patient profiles, diagnosis variability and competence of provider, healthcare structure and infrastructure variability and many others. For these reasons, dissemination only tactics with provider and patients has not resulted in optimal adoption of evidence.

What does the evidence suggest about the impact of KT?

KT is a tool not an outcome. Directly linking KT to outcomes is a difficult but critical task. Applying principles of KT can fill the gap between information sharing/education and implementation or practice. There are substantial differences in application of KT and traditional education methods that have an impact on outcomes (Table 1).

Table 1. Comparison of Knowledge Translation to Traditional Methods

<i>Knowledge Translation</i>	<i>Traditional Methods</i>
<ul style="list-style-type: none"> • Interactive, multi-dimensional • Cyclical and a dynamic process • Interactive communication • Outcome and end user-focused • Focus on providers, systems, policy makers, and patients • Change management principles • Interaction of research, social marketing health education/promotion • Integrates a multidisciplinary approach to change 	<ul style="list-style-type: none"> • Information-sharing only • Conference presentations, printed material • Passive dissemination • Static email updates on guidelines • Put the burden on end user • Unidirectional, top-down approach • Vertical communication, and passive • Focus on providers only

Most studies report modest improvements in performance after KT interventions. Disseminating evidence through passive means such as emails/education sessions/marketing is generally ineffective in changing provider practices irrespective of topic or urgency of need for more effective interventions. Combining intervention types have shown to be more effective over time. Effective combination of strategies include:

- Educational outreach visits
- Reminders
- Point of care clinical decision support tools
- Tailored messaging
- Audit and feedback
- Interactive continuing medical education or professional development
- Support and utilization of local thought leaders
- Patient engagement
- Inter-professional exercises
- Knowledge brokering

Recommendations for accelerating translations of evidence into practice

Translating existing knowledge and evidence is a challenge task. Within its challenges, there are many opportunities to strategize and shape both the role and support of companies that in are in the business of knowledge generation and translation. Below I've outlined several strategies that companies can undertake to reframe the agenda and shape the direction of translation.

- 1. Insight Generation:** Stakeholder engagement in decision making such as patients, providers, health plans for understanding barriers to translation, needs of audiences, incentives for implementation and facilitation of evidence adoption into practice.
- 2. Goal Alignment:** Concept outlines in a 'learning health system' such as aligning and implementing evidence-based practices that come from science into the every day culture of provider practices, patient health seeking patterns, incentive-based approaches to translation, continuous quality improvement as a tool for translation.
- 3. Rapid Prototyping and Testing:** Designing and supporting systems for rapid development and evaluation of KT programs.
- 4. Use of Real World Data:** The use of big data for decision-making and measurement of translation diffusion clinical data, patient reported outcomes, and administrative data.
- 5. Analytics and Value-Based Evaluations:** Enhance analytics and organizational capacity to measure the use of data for value of translation for making healthcare decisions with the patient.

References

1. Balas E, Boren S. Managing clinical knowledge for health care improvement. In: Haux R, editor. Yearbook of Medical Informatics: Patient-centered Systems. IMIA; Heidelberg, Germany: 2000. p. 464.
2. Graham, ID, & et al. Lost in knowledge translation: time for a map? The Journal of Continuing Education in the Health Professions; 2006;(26)1,13-24.
3. McGlynn E, Asch S, et al. The Quality of Health Care Delivered to Adults in the United States. N Engl J Med 2003;348:2635-45.
4. Haines, A, Kuruvilla, S, & Borchert, M. Bridging the implementation gap between knowledge and action for health. Bulletin of the World Health Organization. October 2004, 82 (10):724-732.
5. Evers, M. & et al. Pharma medical affairs 2020 and beyond. McKinsey and Company.
6. Schuster M, McGlynn E, Brook R. How good is the quality of medical care in the United States? Milbank Quarterly 1998;76:517-63.
7. Grol R. Successes and failures in the implementation of evidence based guidelines in clinical practice. Medical Care 2001;39 Suppl 2:46-54.
8. Freemantle N, Nazareth I, Eccles M, Wood J, Haines A. A randomised controlled trial of the effect of educational outreach by community pharmacists on prescribing in UK general practice. British Journal of General Practice 2002;52:290-5.
9. Jones G, Stekettee RW, Black RE, Bhutta ZA, Morris SS and the Bellagio Child Survival Study Group. How many child deaths can we prevent this year? Lancet 2003;362:6-71.
10. Hutin YJF, Hauri AM, Armstrong GL. Use of injections in healthcare settings worldwide, 2000: literature review and regional estimates. BMJ 2003;327:1075-8.
11. Johanson R, Newburn M, Macfarlane A. Has the medicalisation of childbirth gone too far? BMJ 2002;324:892-5.
12. Sudsawad, P. Knowledge translation: introduction to models, strategies, and measures. The national center for the dissemination of disability research at the Southwest educational development Laboratory. August 2007.
13. Haynes, B, & Haines A. Barriers and bridges to evidence based clinical practice. BMJ 1998;317:273-6.
14. Wilson KM, Brady TJ, Lesesne C, on behalf of the NCCDPHP Work Group on Translation. An organizing framework for translation in public health: the Knowledge to Action Framework. Prev Chronic Dis 2011;8(2):A46. http://www.cdc.gov/pcd/issues/2011/mar/10_0012.htm.

15. Davis D, & et al. The case for knowledge translation: shortening the journey from evidence to effect. *British Medical Journal*; 2003;327(5),33-35.
16. Novotna, G, Dobbins, M, & Henderson, J. Institutionalization of evidence-informed practices in healthcare settings. *Implementation Science*;2012;7:112.
17. Larocca, R. The effectiveness of knowledge translation strategies in public health. Thesis submitted to the School of Graduate Studies in partial fulfillment of the requirements for the degree, Masters of Science in Nursing, McMaster University; 2011.
18. Estabrooks, CA, & et al. A Guide to Knowledge Translation Theory. *The Journal of Continuing Education in the Health Professions*, 2006 (26):25–36.
19. <http://www.bloomberg.com/news/2014-08-25/kdd-bloomberg-access-information-will-bring-transformation-markets/>
20. Agency for Health Research and Quality. Translating research into practice (TRIP)-II. Washington, DC: Agency for Health Research and Quality, 2001. <http://www.ahrq.gov/research/trip2fac.htm>
21. Schuster M, McGlynn E, Brook RH. How good is the quality of health care in the United States? *Milbank Q* 1998; 76:517–563.
22. Canadian Cancer Control Strategy. Canadian strategy for cancer control. Draft synthesis report. Ottawa, Ontario: Canadian Cancer Control Strategy, 2001.
23. Ford L, Kaluzny AD, Sondik E. Diffusion and adoption of state-of-the art therapy. *Semin Oncol* 1990; 4:485–494.
24. Kong T, Missouriis C, Murdah M, MacGregor G. The use of HMG CoA reductase inhibitors following acute myocardial infarction in hospital practice. *Postgrad Med J* 1998; 74:600–601.
25. LaRosa J, He J, Vupputuri S. Effects of statins on the risk of coronary disease: A meta-analysis of randomized controlled trials. *JAMA* 1999; 282:2340–2346.
26. Naylor CD, Tu JV, Slaughter P. Cardiovascular health and services in Ontario. An ICES Atlas. Toronto, Ontario: ICES, 1999.
27. Arnold S, Straus SE. Interventions to improve antibiotic prescribing practices in ambulatory care. *Cochrane Library*, 2005.
28. Barwick, M. A., Peters, J., & Boydell, K. (2009). Getting to uptake: Do communities of practice support the implementation of evidence-based practice? *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 18, 16-29.
29. Dobbins, M., Hanna, S. E., Ciliska, D., Manske, S., Cameron, R., Mercer, S. L., Robeson, P. (2009). A randomized controlled trial evaluating the impact of knowledge translation and exchange strategies. *Implementation Science*, 4, 61.
30. Dobbins, M., Robeson, P., Ciliska, D., Hanna, S., Cameron, R., O'Mara, L., Mercer, S. (2009b). A description of a knowledge broker role implemented as part of a randomized controlled trial evaluating three knowledge translation strategies. *Implementation Science*, 4.
31. Estey, E. A., & Zwarenstein, M. (2011). Evaluating knowledge translation interventions. A summary of Bhattacharyya, O., Methodologies to evaluate the effectiveness of knowledge translation interventions: a primer for researchers and health care managers. *Journal of Clinical Epidemiology*, 64(1), 32-40.
32. Grol, R. Successes and Failures in the Implementation of Evidence-Based Guidelines for Clinical Practice. *Medical Care*: August 2001 - Volume 39 - Issue 8 - pp II-46-II-54
33. G P Browman, M N Levine, E A Mohide, R S Hayward, K I Pritchard, A Gafni and A Laupacis. The practice guidelines development cycle: a conceptual tool for practice guidelines development and implementation. *JCO* February 1995 vol. 13 no. 2 502-512.