

# Reconciling evidence and experience in the context of evidence-based practice

Stephanie Alexopoulos, DC<sup>1,2</sup>  
Carol Cancelliere, DC, PhD<sup>3,4</sup>  
Pierre Côté, DC, PhD<sup>3,4</sup>  
Silvano Mior, DC, PhD<sup>1,4</sup>

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*Reconciling evidence and experience in the context of evidence-based practice*

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In this commentary, we discuss what is meant by evidence-based practice, how we can reconcile our clinical experience with research evidence, and how we can integrate patient preference and circumstance in our clinical decisions. We do so by answering a series of questions commonly asked by clinicians and present examples, in an effort to clarify key principles of evidence-based practice.

### **Briefly, how can one describe evidence-based medicine (EBM), or more broadly, practice (EBP)?**

EBP is all about doing what is best for the patient.

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*Rapprochement des données probantes et de l'expérience en contexte de pratique fondée sur des données probantes*

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MOTS CLÉS : médecine fondée sur des données probantes, pratique fondée sur des données probantes, témoignages d'experts, résultats de recherche, chiropratique

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The concept of EBM dates before the mid 19<sup>th</sup> century in Paris<sup>1</sup>, and is not unique to any one health care profession<sup>2</sup>. It was Sackett *et al.*'s commentary in 1996 that formalized its definition as, "*The conscientious, explicit, and judicious use of current best evidence in making decisions about the care of the individual patient.*"<sup>1</sup> They explained that best evidence is based on clinically relevant research from basic sciences, but particularly from patient-centered, empirical clinical research that validates diagnostic tests and identifies safe and effective treatments. They recognized the role of clinicians' experience, which is acquired over time with increasing clinical practice, and en-

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<sup>1</sup> Canadian Memorial Chiropractic College

<sup>2</sup> Institute for Health Policy, Management and Evaluation, University of Toronto

<sup>3</sup> Faculty of Health Sciences, Ontario Tech University

<sup>4</sup> Institute for Disability and Rehabilitation Research, Ontario Tech University and CMCC

Corresponding author: Stephanie Alexopoulos, Canadian Memorial Chiropractic College, 6100 Leslie St., Toronto, Ontario. M2H 3J1.  
e-mail: salexopoulos@cmcc.ca

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hanced with the awareness of individual patient's context and preferences.

### **How are the varying conditions and personal circumstances unique to patients considered in EBM?**

Sackett *et al.*<sup>1</sup> noted that the concept of EBM is dynamic and should change with advancing new knowledge. In 2002, Haynes *et al.*<sup>3</sup> introduced a fourth component that captures the uniqueness of the patient's clinical state and circumstances, and advanced the original model to one that is more prescriptive. The revised model recognizes that depending on the purpose of the patient seeking care, clinical decisions vary.<sup>4</sup> For example, someone seeking a diagnosis is managed differently than one seeking care; or someone seeking to return to work is managed differently than one seeking to complete a marathon. So, the clinician needs to integrate each of the components to optimize patient care.

### **In clinical practice, we have found that some patients have a particular preference for a treatment that research evidence may suggest is ineffective, or want a diagnostic test, for example an x-ray or MRI, when it's unlikely to be of benefit and may be more harmful. How do we manage such preferences?**

This is a very good and challenging question. As clinicians, regardless of what field of health care we practice, ethical obligations must be upheld, including, first and foremost, to do no harm. What is often forgotten is that harm is not always physical harm to a patient. For example, neglecting to disclose information or doing what a patient wants despite evidence to the contrary can lead to unforeseen harm. Managing patient expectations is crucial as it can impact their recovery, outcomes, and overall well-being.<sup>5,6</sup> Thus, engaging the patient, as described in the ShaDES framework below, may assist in an honest and open conversation of their preferences.

### **The model captures clinical experience and patient perspectives but how is "best available research evidence" interpreted?**

First, our patients and the public have a right to know "what works." We learn about what works through data collected *systematically* and *transparently* – evidence (research and clinical). Let's differentiate between these two types of evidence:

a. *Research evidence*: Evidence acquired through basic science is *theoretical* (e.g., physiological, biological). Evidence we acquire through experimentation [e.g., randomized controlled trials (RCTs)] is *empirical*; studies conducted under ideal conditions assess efficacy, while effectiveness studies are conducted under real life conditions. Efficacy does not imply effectiveness, and this distinction is often forgotten.<sup>7</sup> Theoretical evidence must be supplemented by empirical evidence. In other words, a treatment may have a particular response in the lab, but this response needs to be confirmed in larger clinical trials that test whether the intervention improves patients' clinical outcomes.

For example, the effects of spinal manipulative therapy (SMT) have been reported in laboratory studies to affect the viscerosomatic responses in both animals and humans.<sup>8-10</sup> Case studies have reported possible positive effects on heart rate and blood pressure after SMT, supporting a potential influence on the autonomic nervous system.<sup>11</sup> For a condition like hypertension, a high-quality randomized effectiveness pilot trial found that SMT does not have an effect on modulating blood pressure, thus questioning SMT's potential influence on the autonomic nervous system.<sup>12,13</sup>

b. *Clinical evidence* (from clinicians and patients): Clinical evidence is not a substitute for research evidence. Clinical evidence can be used to 1) help select among evidence-based treatment options for patients, and 2) generate hypotheses when research evidence is unavailable. It should be collected using systematic, transparent, and unbiased methods. For example, a clinician might say: "I treated 30 patients with spinal manipulation alone for persistent cervicogenic headache and all of them reported clinically important improvement on the visual analogue scale." That is evidence that can be used to generate hypotheses about the possible effect of SMT; however, it cannot be used to infer that SMT benefits patients. Reaching a trustworthy and reliable conclusion can be difficult without scientific evidence. It is not the same as saying, "in my experience, spinal manipulation alone is effective for persistent cervicogenic headache." That is opinion.

While clinical evidence may suggest that a patient is improving with one's care, these observations do not allow one to make inferences about the cause of the improvement. Improvement could be attributed in part, to natural history and other contextual factors associated with the

clinical encounter (e.g., reassurance, education, being listened to, or positive expectations of improvement related to the treatment). For example, spinal manipulation is an effective intervention in managing patients presenting with neck pain.<sup>14</sup> However, there is limited research directing practitioners how they should perform SMT, the dosage and duration of care. This is when the clinician's clinical experience and judgement is used to modulate the force, speed, direction, patient position, practitioner's body and hand position. Although the practitioner's clinical experience and judgment qualities are fundamental principles of EBP, it should be in context with the other elements.

**So, we have research evidence and clinical evidence. Is one more informative than the other?**

Research evidence is not the same as clinical evidence. There is a hierarchy of research evidence which is often depicted as a pyramid. Some types of evidence are considered better than others and are thus placed at the top of the pyramid. This top tier of evidence includes rigorous meta-analysis and systematic reviews, followed closely with high quality randomized controlled trials. These types of studies are placed at the top because their methods limit the risk(s) of bias, allowing us to be more confident in their conclusions.<sup>15</sup> As we move down the pyramid, the level of confidence in the results decreases because there is more room for error or biases. These errors and biases limit the inferences that can be made about the effectiveness of a treatment. Finally, clinical evidence should not supersede research evidence. Research evidence and clinical evidence are complementary to one another. As illustrated in the above example, available research evidence should guide the clinician on appropriate patient management and lend openness to interpretation, so that practitioners can modify how they uniquely manage patients without disregarding evidence.

**As a clinician, my instinct is still to rely on my clinical experience. How does clinician experience differ from research or clinical evidence?**

Clinician experience is important. However, clinician experience alone may lead to invalid clinical decisions because it relies on memory, which is not perfect and tends to selectively remember facts.<sup>15,16</sup> Second, experience does not control for contextual or other factors that

can impact patients' outcomes. Without a control group, we are apt to see these improvements as successes, and incorrectly infer benefit from the intervention, in which ineffectual, or even potentially harmful practices propagate. Third, many of the conditions treated by chiropractors are self-resolving, giving the false impression that we helped a patient when in fact we may have not. Even conditions that are not self-resolving tend to wax and wane. Patients tend to seek care when they feel their worst, so by simple regression to the mean, they are likely to improve after we see them. Fourth, we may have different experiences and opinions. How do we judge whose experience or opinion matters? And even consensus of opinions does not automatically make them correct. Instead, we should use experience to fine-tune evidence-based answers, not to dismiss evidence altogether.

**Since clinicians provide a service, how can they deny a patient what they want (deny them care if they are seeking it)?**

This is where things usually become grey for most clinicians. One approach to answering this question is to discuss informed consent, shared decision making, and code of ethics. Informed consent respects patient autonomy and is an essential prerequisite in clinical practice.<sup>17</sup> We know informed consent is required from all patients after they have been provided with all necessary and relevant information. But the clinician is responsible to disclose such information to the patient in a way they understand and accept the risks and benefits of the proposed care. A shared decision-making process should be established between the clinician and patient with the best interest of the patient in mind.<sup>18</sup> The onus is on the clinician to engage patients in the decision-making process, balancing equally all components of EBP (i.e., research evidence, patient preference, clinical experience, and context). Finally, we have an ethical responsibility as clinicians to appropriately inform, provide, or refer out for best evidence treatments to patients and first, to do no harm. Providing care or diagnostic procedures shown to be ineffective or have greater risk than benefit is inappropriate and unethical. So, it is important to explain the benefits and limitations of the available evidence and avoid misleading patients.

Providing evidence-based patient-centered care can improve patient outcomes<sup>19</sup> and potentially decrease healthcare costs<sup>20</sup>. For example, compared to usual care,

evidence-based care (informed by practice guidelines) is cost-effective for the management of acute LBP.<sup>21</sup> As a clinician, evidence-based practice makes sense; but to implement it into daily practice is not always easy. Some feel it is too prescriptive, thus not allowing them to use their clinical experience. But by focusing on “*putting the patient needs first*”, the attention can be directed at educating patients, motivating them to shift their behaviors, and changing their expectations. Clinicians should continuously challenge their clinical observations by staying current on emerging best evidence to deliver evidence-based patient-centered care to their patients.

### **So, how can clinicians engage the patient in this decision-making process?**

Engaging patients in the decision-making process can be challenging. In general, it involves two approaches, clinician-driven (paternalistic), in which the clinician directs the decision with little input from the patient, or a shared approach, wherein the clinician and patient come to a mutual decision of what next to do. In the latter approach, applying a practical framework like ‘Shared Decision Evidence Summary (ShaDES) may facilitate clinical decisions.<sup>22</sup> Being guided by the ShaDES framework provides a step-by-step process that can assist the clinician in their decisions without neglecting important patient specific contextual factors.<sup>22</sup> The ShaDES framework is grounded in critically appraising a clinical scenario and developing and answering a clinical question using the best available evidence. This includes 4 steps. The clinician: 1) builds the clinical and psychological scenario that informs the plan of management and considers patient preferences; 2) uses this information to inform their literature search to retrieve and then critically appraise the related evidence; 3) synthesizes the evidence to assist in decision making; and 4) enters into shared decision making wherein the patient expresses their preference of the options provided.<sup>22</sup> The ShaDES framework encourages clinicians to consider the clinical and psychosocial issues that can impact a patient-clinician interaction, which in turn may improve a clinician’s ability to utilize all available information to guide their management.

If the patient is still uncertain about the various treatment options, they can feel overwhelmed. In this case the clinician could consider helping or nudging the patient to a particular decision based on their understanding

of the patient’s context (i.e., preferences and situation). However, in the event of limited available evidence, there can also be uncertainty from the clinician’s perspective of whether they can help the patient. In this case, it may be best to consult with a colleague or refer the patient for a second opinion.

### **How to stay up to date with emerging evidence as a practicing chiropractor.**

It is challenging for practicing chiropractors to stay up to date with constantly emerging literature and to differentiate good from poor quality studies. This is why busy clinicians should focus their attention on reviewing high-quality systematic reviews and clinical practice guidelines. One option is to regularly review the work of the Canadian Chiropractic Guideline Initiative (CCGI)<sup>23</sup> which provides an up to date and open access to numerous evidence-based tools (such as articles, clinician summaries, patient handouts, videos, and forms) to assist clinicians with the diagnosis and management of patients.<sup>23</sup> We recommend Cochrane as an additional resource as it is an international network, not-for-profit organization that provides high-quality information about health decisions to be made.<sup>24</sup> They gather and summarize the best evidence from research within their Cochrane library, to help clinicians make an informed decision.<sup>24</sup> Other resources include Choosing Wisely Canada, which is a campaign to help clinicians and patients engage in conversations about unnecessary tests, treatments and procedures.<sup>25</sup> For clinicians, the British Medical Journal has created a ‘best practices’ tool providing clinical decision support for health professionals.<sup>26</sup> Another resource targeted to patients, but can be used by clinicians, are patient decision aids created by the Ottawa Hospital Research Institute (OHRI) that provide information about treatment options and outcomes to guide patients in the shared decision making process.<sup>27</sup>

In closing, the purpose of our commentary is to help guide clinicians on evidence-based practice and how that applies to their patient management. By understanding differences in terms such as evidence-based medicine, research evidence versus clinical evidence, and clinical experience, we hope we have clarified how clinicians can use these aspects in their day-to-day practice. Finally, the suggestions we have made about various resources should

be sought out by clinicians to keep them up to date with the evidence.

## References

1. Sackett DL, Rosenberg WM, Gray JA, Haynes RB, Richardson WS. Evidence based medicine: what it is and what it isn't. *BMJ*. 1996; 312: 71-72.
2. Cheng HY. Evidence-Based Medicine (EBM): What long-term care providers need to know. *Clin Geriatric Med*. 2011; 27: 193-198.
3. Haynes B, Devereaux PJ, Guyatt GH. Clinical expertise in the era of evidence-based medicine and patient choice. *BMJ*. 2002; 7(2): 11-14.
4. Haynes D, Devereaux. Physicians' and patients' choices in evidence based practise. Editorial – evidence does not make decisions, people do. *BMJ*. 2002; 324:1350.
5. MacPherson H, Newbronner E, Chamberlain R, Hopton A. Patients' experiences and expectations of chiropractic care: a national cross-sectional survey. *Chiropr Man Ther*. 2015; 23(3).
6. Latte-Naor S. Managing patient expectations: integrative, not alterative. *Cancer J*. 2019; 25(5): 307-310.
7. Singal AG, Higgins PD, Waljee AK. A primer on effectiveness and efficacy trials. *Clin Transl Gastroenterol*. 2014;5(1): e45.
8. Sato M. Response of Pacinian corpuscles to sinusoidal vibration. *J Physiol*. 1961;159(3): 391-409.
9. Budgell B. Reflex effects of subluxation: the autonomic nervous system. *J Manipulative Physiol Ther*. 2000; 23(2):104-106.
10. Srbely J. Chiropractic science: a contemporary neurophysiologic paradigm. *J Can Chiropr Assoc*. 2010; 54(3): 144-146.
11. Driscoll MD, Hall MJ. Effects of spinal manipulative therapy on autonomic activity and the cardiovascular system: a case study using the electrocardiogram and arteria tonometry. *J Manipulative Physiol Ther*. 2000; 23(8): 545-550.
12. Goertz CH, Grimm RH, Svendsen K, Grandits G. Treatment of hypertension with alternative therapies (THAT) study: a randomized clinical trial. *J Hypertens*. 2002;20(10): 2063-2068.
13. Côté, P., Hartvigsen, J., Axén, I. *et al*. The global summit on the efficacy and effectiveness of spinal manipulative therapy for the prevention and treatment of non-musculoskeletal disorders: a systematic review of the literature. *Chiropr Man Ther*. 2021;29:8.
14. Bussi eres AE, Stewart G, Al-Zoubi F, Decina P, Descarreaux M, Hayden J, Hendrickson B, Hincapie C, Page I, Passmore S, Srbely J, Stupar M, Weisberg J, Orneal J. The treatment of neck pain-associated disorders and whiplash-associated disorders: a clinical practice guideline. *J Manipulative Physiol Ther*. 2016; 39(8): 523-564.
15. Burns PB, Rohrich RJ, Chung KV. The levels of evidence and their role in evidence-based medicine. *Plast Reconstr Surg*. 2011; 128(1): 305-310.
16. Middleton D, Brown SD. The social psychology of experience: Studies in remembering and forgetting. (2005). Thousand Oaks, CA: Sage.
17. Ernst E, Cohen M. Informed consent in complementary and alternative medicine. *Arch Intern Med*. 2001; 1616: 2288-2292.
18. Andersen SB, Andersen M, Carreon LY, Coulter A, Steffensen KD. Shared decision making when patients consider surgery for lumbar herniated disc: development and test of a patient decision aid. *BMC Medical Informatics and Decision Making*. 2019; 19(1):190.
19. Bishop PB, Quon JA, Fisher CG, Dvorak MF. The chiropractic hospital-based interventions research outcomes (CHIRO) study: a randomized controlled trial on the effectiveness of clinical practice guidelines in the medical and chiropractic management of patients with acute mechanical low back pain. *Spine J*. 2010;10(12): 1055-1064.
20. Whedon JM, Bezdjian S, Dennis P, Fischer VA, Russell R. Cost comparison of two approaches to chiropractic care for patients with acute and sub-acute low back pain care episodes: a cohort study. *Chiropr Man Ther*. 2020; 28(1): 68.
21. McGuirk B, King W, Govind J, Lowry J, Bogduk N. Safety, efficacy, and cost effectiveness of evidence-based guidelines for the management of acute low back pain in primary care. *Spine* 2001; 26(23): 2615–2622.
22. Salmi LR, C  t   P, Cedraschi C. Covering patient's perspective in case-based critical review articles to improve shared decision making in complex cases. *Health Expectations*. 2020; 00:1-8
23. Canadian Chiropractic Guideline Initiative. <https://www.ccgi-research.com/>. Accessed June 2, 2021.
24. Cochrane Library. <https://www.cochranelibrary.com/>. Accessed June 2, 2021.
25. Choosing Wisely Canada. <https://choosingwiselycanada.org/>. Accessed June 2, 2021.
26. BMJ Best Practice. <https://bestpractice.bmj.com/info/>. Accessed June 2, 2021.
27. Ottawa Hospital Research Institute. Patient Decision Aids. <https://decisionaid.ohri.ca/>. Accessed June 2, 2021.