What’s Wrong with Evidence-Based Chiropractic?

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Disclosure

• No competing interests
• No association with providers of commercial products and/or devices discussed in this presentation and/or with any commercial supporters of these activities.
• The views and opinions expressed in this presentation are solely those of the speaker.

Variations of the name.
– evidence based medicine
– evidence based practice
– evidence informed practice

Medicine?

• Medicine – health care
  – Medicine – a profession represented by the AMA in the USA
    • Medicine – a major specialty in the profession of medicine (as opposed to surgery)
      – Medicine – another word for pharmaceuticals and the primary treatment used by the specialty of medicine in the profession of medicine
  • Variations of the name.
    – evidence based medicine
    – evidence based practice
    – evidence informed practice
“The physician who maintains professional relations with cult practitioners would seem to exhibit a lack of faith in the correctness and efficacy of scientific medicine and to admit that there is merit in the methods of cult practitioners.”
Deaf Seventeen Years

I was deaf 17 years and I expected to always remain so...

Last January Dr. Palmer told me that my deafness came from an injury in my spine...but it is a fact that my back was injured at the time I went deaf. Dr. Palmer treated me on the spine; in two treatments I could hear quite well. That was eight months ago. My hearing remains good.

- Harvey Lillard, 320 W. Eleventh St., Davenport, Iowa

The Chiropractic, January 1897 Published by DD Palmer

Shortly after this relief from deafness, I had a case of heart trouble which was not improving. I examined the spine and found a displaced vertebra pressing against the nerves which innervate the heart. I adjusted the vertebra and gave immediate relief. Then I began to reason if two diseases, so dissimilar as deafness and heart trouble, came from impingement, a pressure on nerves, were not other disease due to a similar cause? Thus the science (knowledge) and art (adjusting) of Chiropractic were formed at that time. I then began a systematic investigation for the cause of all diseases and have been amply rewarded.

DD Palmer

How Scientific Was This?

<table>
<thead>
<tr>
<th>Concept</th>
<th>1897-1902</th>
<th>1903-06</th>
<th>1908-10</th>
<th>1914</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapeutics</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Method</td>
<td>manipulation</td>
<td>adjustment</td>
<td>adjustment</td>
<td>adjustment</td>
</tr>
<tr>
<td>Innate/Educated</td>
<td>absent</td>
<td>nerves; intelligence</td>
<td>intelligence</td>
<td>Intelligence</td>
</tr>
<tr>
<td>Circulatory obstruction</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Machine metaphor</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Nerve pinching</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Foraminal occlusion</td>
<td>?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Tone</td>
<td>(vital)</td>
<td>absent</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nerve vibration</td>
<td>?</td>
<td>?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Religious plank</td>
<td>absent</td>
<td>absent</td>
<td>optional?</td>
<td>obligatory?</td>
</tr>
</tbody>
</table>


- DD’s library was comparable to that one would have found at Johns Hopkins
- His theories regarding how the nervous system communicated with the body are ridiculous with today’s knowledge but were consistent with what was theorized in his day.
Limitations

Causal inference not possible

Causality cannot be inferred from an uncontrolled observation. An association does not imply a cause-effect relationship. The observation or event in question could be a mere coincidence. Cause-effect relationships require planned studies including control groups that to the extent possible control for chance, bias and confounders.

Merits

Generating hypotheses

From a single, or preferably several single case reports or a case series, new hypotheses could be formulated. These could then be tested with formal research methods that are designed to refute or confirm the hypotheses, i.e. comparative (observational and experimental) studies.

Science Education

- History
  - Facts
  - Apocryphal “facts”
- Processes
- Formulae

Ultimately learning in science is rote memorization of “items of fact” only

What Is Science?

An epistemology
- A major subdivision of philosophy
- How we acquire knowledge
- Thus, a way to acquire knowledge – a progressive movement towards the truth

Sciences

- Biology is the scientific study of life
- Chemistry is the scientific study of matter
- Physics is the scientific study of motion, energy and forces
- Theology is the scientific study of god and religious truth

Pillars Of Philosophy Of Science

• Determinism
  The notion that events in the world occur according to regular laws and causes, not as a result of the caprices of demons or witches
• Empiricism
  The notion that enquiry ought to be conducted through observation and verified through experience
• Skepticism
  The notion that any proposition or statement, even when made by a great authorities, is open to doubt and analysis

Scientific Method

1. Observe some aspect of the universe
2. Invent a theory that is consistent with what you have observed
3. Use the theory to make predictions
4. Test those predictions by experiments or further observations
5. Modify the theory in the light of your results
6. Go back to step 2

Items Of Judgment In Science

• Encountered only in graduate school (although, regular part of humanities & social sciences)
• Therefore, we become credulous
• Published (book or journal or web site) it must be true
• Professor says it’s so – it’s so
• Chiropractic professor says it’s so – don’t even think of arguing, it’s so

The Crack

• I was taught nitrogen
• However, Unsworth et al in 1971 found “greater than 80%” CO2
• Why wasn’t I taught that (TCC ‘83)?
• Medical paper
• No computerized searches
• Taught what the teacher was taught – dogma

The Discovery

• I found Unsworth in Ray Sandoz, DC’s 1976 paper that introduced paraphysiologic space
• Thus, not only was medical literature ignored so was chiropractic literature
• Unsworth A et al Ann Rheum Dis 1971;30(4):348-358
• Sandoz R. Ann Swiss Chiro Assn 1976;6:91-141

• http://jameslindlibrary.org
Evidence Based Practice

EBP Misconceptions

<table>
<thead>
<tr>
<th>Fallacy</th>
<th>Fact</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBP is useless when there is no good evidence</td>
<td>EBI means appropriately using the best available evidence to care for patients</td>
</tr>
<tr>
<td>EBP is algorithms that ignore clinical judgment/expertise</td>
<td>Clinical judgment must be used in deciding how to apply the evidence</td>
</tr>
<tr>
<td>EBP is just numbers and statistics</td>
<td>EBP is not numbers in a vacuum – the evidence must be individualized to each patient</td>
</tr>
</tbody>
</table>

Levels Of Evidence: Not All Hands Are Of Equal Value

6 Steps EIP

- Ask - ask a clinical question
- Think - think about what you think is the answer
- Acquire - search the literature to acquire the answer
- Appraise - critically appraise the quality of the literature
- Apply - apply the evidence in patient care
- Evaluate - evaluate your own performance

WHY THE EVIDENCE DOESN’T SHOW WHAT I KNOW TO BE TRUE


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Motion Palpation


- The video shows people in black and white clothing throwing a basketball
- Your object – count how many passes the people in white make
- Research has shown a gender difference in the ability to do this task

- Because we experience the world through our 5 senses we have an unreasonable belief in their validity

- SMT, VAD & CVA


DC or PCP Not Causal
Parallel Processes Both Initiated by the Dissection
Protopathic Bias
By individual clinical expertise we mean the proficiency and judgment that individual clinicians acquire through clinical experience and clinical practice. Increased expertise is reflected in many ways, but especially in more effective and efficient diagnosis and in the more thoughtful identification and compassionate use of individual patients’ predicaments, rights, and preferences in making clinical decisions about their care.

Good doctors use both individual clinical expertise and the best available external evidence, and neither alone is enough. Without clinical expertise, practice risks becoming tyrannized by evidence, for even excellent external evidence may be inapplicable to or inappropriate for an individual patient. Without current best evidence, practice risks becoming rapidly out of date, to the detriment of patients.

…it is this expertise that decides whether the external evidence applies to the individual patient at all and, if so, how it should be integrated into a clinical decision.

• Ignoring natural history
  — Sometimes we need more evidence

HOW SHOULD WE RECONCILE EVIDENCE AND CLINICAL EXPERIENCE?

Solon Langworthy, DC is first person credited to use the term subluxation in chiropractic
Validating the Subluxation Part 2

1. Identifying individuals with subluxation
2. PROMs assessments
3. Randomizing them into 3 groups
   1. Adjusted
   2. Sham-adjusting
   3. Random adjustments
4. PROMs assessments & determine that the subluxation is gone in group 1 and present in groups 2 & 3
5. Follow-up PROMs assessments

   • The Seminal Work

Replicated


Religion & Chiropractic

• Strahinjevich B, Simpson JK. The schism in chiropractic through the eyes of a 1st year chiropractic student. Chiropr Man Therap; 2018;26(1):2.

• Young KJ. Gimme that old time religion: the influence of the healthcare belief system of chiropractic's early leaders on the development of x-ray imaging in the profession. Chiropr Man Therap. 2014;22(1):16.


Regression towards the mean

Placebo

Pragmatism
– Cutting cake or molding dough
– Low potential for harm
– Potential for harm to
  • Patient
  • Society
  • Chiropractic

“The desire to be right and the desire to have been right are two desires, and the sooner we separate them the better off we are. The desire to be right is the thirst for truth. On all accounts, both practical and theoretical, there is nothing but good to be said for it. The desire to have been right, on the other hand, is the pride that goeth before a fall. It stands in the way of our seeing we were wrong, and thus blocks the progress of our knowledge.”


I am available by email: perle@bridgeport.edu