PRE-WORKSHOP ACTIVITIES

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Adjunct Professor – CMCC Division of Graduate Education & Research

Practice Based Research Network (PBRN)
Planning Meeting
CMCC - Toronto, Ontario
December 5, 2014
TOPICS

1. Research utilization in chiropractic: Scoping Review

2. Canadian chiropractors’ current level of knowledge and attitudes toward evidence-based clinical practice: National e-survey (E-Base)

3. Pre-meeting environmental scan of attendees.
Research Utilization and Evidence-Based Practice in Chiropractic: A Scoping Study

André Bussières DC, PhD*
Aliki Thomas OT, PhD
Simon French BAAppSc (Chiro), MPH, PhD
Kent Stuber DC, MSc
Monika Kastner PhD
Jill Boruff BA, MLIS
John Corrigan BSc, DC
Scoping Review

Objective:

- To ascertain the amount and the nature of the evidence regarding research utilization, evidence-based practice, and knowledge translation in chiropractic practice

Rationale:

- Understanding the factors that support or limit uptake of evidence may promote the development and integration of strategies to close the evidence-practice gap.
Scoping Review

TASKS COMPLETED

- Iterative literature search
- Study selection
- Date extraction
- Synthesis of findings
- Reporting of preliminary results
- Submitted to WFC 2015 in Greece

CURRENT AND OUTSTANDING TASKS

- Final analysis
- Production/submission of scientific article - 3 months – Late 2014 / Early 2015
Distribution of Articles – Study Design

Survey: 32
Telephone/interviews: 8
Descriptive/Qualitative: 6
RCT: 1
Retro. longitudinal: 1
Prospect. longitudinal: 1
Literature review: 1
Audit before-after: 1
Mixed method: 1
Distribution of Articles – Year of Publication

Articles by year of publication
(1997- March 2014)
Distribution of Articles: Country of Origin

- Canada
- USA
- United Kingdom
- Australia
- Worldwide
- Norway
- New Zealand
- Switzerland
- Germany
- Spain
- North America
Distribution of Articles – Area of Practice

Research beliefs/skills: 14
General practice: 12
Low back pain: 10
Spinal imaging: 6
Neck pain: 5
Safety: 2
Nutrition: 2
Immunization: 1
Distribution of Articles – Research Category

- Knowledge Translation (KT): 34.00%
- Evidence-Based (EBP): 20.80%
- Research Utilization (RU): 30.20%
- EBP/KT: 3.80%
- KT/RU: 5.70%
- EBP/RU: 5.70%
Distribution of Articles – Secondary Themes within EBP

- Guideline Adherence & Practice Gaps
- EBP Attitudes & Beliefs
- Implementation
E-Base Survey

André Bussières DC, PhD*
Mike Schneider DC, PhD*
Matthew Leach BN, ND, PhD
Kent Stuber DC, MSc
E-Base Survey

Purpose:
- To investigate the use of, opinions, and skills toward evidence-based practice among Canadian DCs.

Methods:
- Previously employed survey generates 3 subscores towards EBP: Attitudes, Skills, and Use
- Online distribution by the CCA to all members
- Descriptive statistics of demographic variables
- Determine distribution of subscores and correlations between subscores, demographics, and other baseline variables
- Logistic Regressions to find predictors of high sub-scores
  - Each sub-score as dependent variable
  - Questions from E-BASE were independent variables
Results

- n=554 (out of 7200 CCA Members)
- Response Rate: 7.69%
## Results

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>Median (IQR)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td>42.1 (11.4)</td>
<td>41.0 (19.0)</td>
<td>24-80</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td><strong>Male</strong></td>
<td></td>
<td>363 (65.5)</td>
</tr>
<tr>
<td></td>
<td><strong>Female</strong></td>
<td></td>
<td>191 (34.5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Highest Education Level</strong></td>
<td><strong>High School</strong></td>
<td></td>
<td>102 (18.4)</td>
</tr>
<tr>
<td></td>
<td><strong>Associate Degree/Some college</strong></td>
<td></td>
<td>36 (6.5)</td>
</tr>
<tr>
<td></td>
<td><strong>Bachelor’s Degree</strong></td>
<td></td>
<td>352 (63.5)</td>
</tr>
<tr>
<td></td>
<td><strong>Master’s Degree/Some grad work</strong></td>
<td></td>
<td>53 (9.6)</td>
</tr>
<tr>
<td></td>
<td><strong>Doctorate</strong></td>
<td></td>
<td>11 (2.0)</td>
</tr>
</tbody>
</table>
# Geography

<table>
<thead>
<tr>
<th>Region of Practice</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alberta</td>
<td>68 (12.3)</td>
</tr>
<tr>
<td>British Columbia</td>
<td>70 (12.7)</td>
</tr>
<tr>
<td>Manitoba</td>
<td>29 (5.3)</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>10 (1.8)</td>
</tr>
<tr>
<td>Newfoundland</td>
<td>5 (0.9)</td>
</tr>
<tr>
<td>Nova Scotia/PEI</td>
<td>8 (1.3)</td>
</tr>
<tr>
<td><strong>Ontario</strong></td>
<td><strong>242 (43.7)</strong></td>
</tr>
<tr>
<td>Quebec</td>
<td>104 (18.8)</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>18 (3.2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td><strong>337 (60.8)</strong></td>
</tr>
<tr>
<td>Suburban</td>
<td>137 (24.7)</td>
</tr>
<tr>
<td>Rural</td>
<td>80 (14.4)</td>
</tr>
</tbody>
</table>
## Practice Habits

<table>
<thead>
<tr>
<th>Patients Seen Daily</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>130 (23.5)</td>
</tr>
<tr>
<td><strong>11-20</strong></td>
<td><strong>149 (26.9)</strong></td>
</tr>
<tr>
<td>21-30</td>
<td>131 (23.6)</td>
</tr>
<tr>
<td>31-40</td>
<td>68 (12.3)</td>
</tr>
<tr>
<td>41-50</td>
<td>36 (6.5)</td>
</tr>
<tr>
<td>51 or more</td>
<td>40 (7.2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Focus</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musculoskeletal Focus</td>
<td>367 (66.2)</td>
</tr>
<tr>
<td>Non-MSK Focus</td>
<td>187 (33.8%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Onsite Imaging</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>132 (23.8)</td>
</tr>
<tr>
<td>No</td>
<td>422 (76.2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Patients Radiographs</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25% or less</td>
<td>428 (77.3)</td>
</tr>
<tr>
<td>26%-50%</td>
<td>40 (7.2)</td>
</tr>
<tr>
<td>51-75%</td>
<td>39 (7.0)</td>
</tr>
<tr>
<td>Over 75%</td>
<td>47 (8.5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>X-rays useful for diagnostics of low back pain</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>132 (23.8)</td>
</tr>
<tr>
<td>Disagree</td>
<td>184 (33.2)</td>
</tr>
<tr>
<td>Neutral</td>
<td>126 (22.7)</td>
</tr>
<tr>
<td>Agree</td>
<td>76 (13.7)</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>36 (6.5)</td>
</tr>
</tbody>
</table>
## Correlations Between Demographics & Outcomes

<table>
<thead>
<tr>
<th>DEMOGRAPHICS</th>
<th>ATTITUDES</th>
<th>SKILLS</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-.013</td>
<td>.001</td>
<td>.024</td>
</tr>
<tr>
<td>Education</td>
<td>.191**</td>
<td>.296**</td>
<td>.146**</td>
</tr>
<tr>
<td>Number of Patients</td>
<td>-.297**</td>
<td>-.150**</td>
<td>-.058</td>
</tr>
<tr>
<td>Focus</td>
<td>.406**</td>
<td>.153**</td>
<td>.054</td>
</tr>
<tr>
<td>Geographic area</td>
<td>-.097*</td>
<td>-.112**</td>
<td>-.075</td>
</tr>
<tr>
<td>Onsite Imaging</td>
<td>-.235**</td>
<td>-.118**</td>
<td>-.068</td>
</tr>
<tr>
<td>% Radiograph</td>
<td>-.292**</td>
<td>-.091*</td>
<td>-.052</td>
</tr>
<tr>
<td>X-rays useful</td>
<td>-.377**</td>
<td>-.128**</td>
<td>-.107*</td>
</tr>
</tbody>
</table>
So What Does That All Mean??

1. As education level increases, attitudes, skills, and use scores increase.
2. Those with a musculoskeletal focus have higher attitudes, skills, and use scores.
3. As number of patients increase, attitudes, skills and use scores decrease.
4. Those in rural areas have lower scores in attitudes, skills, and use.
5. Chiropractors with onsite imaging have lower scores in attitudes, skills, and use.
6. As the percentage of patients receiving radiographs increases, the attitudes, skills, and use scores decrease.
7. Those who find X-rays useful have lower attitudes, skills, and use scores.
## Attitudes Toward EBP

<table>
<thead>
<tr>
<th>Demographics</th>
<th>The odds of reporting higher attitudes were:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Patients (seen daily)</td>
<td>59% lower for those who see 20 or more patients per day</td>
</tr>
<tr>
<td>Focus</td>
<td>61% lower for those with a non-musculoskeletal focus</td>
</tr>
<tr>
<td>X-rays</td>
<td>49% lower for those who reported X-rays to be useful</td>
</tr>
<tr>
<td>Barriers</td>
<td>Lack of Motivation</td>
</tr>
</tbody>
</table>
# Skills in EBP

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Education</th>
<th>The odds of reporting higher skills were: 61% lower for those with a bachelor’s degree, associate’s degree, or high school degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Location</td>
<td>42% lower for those who practiced in the city or rural areas</td>
</tr>
<tr>
<td>Imaging</td>
<td>Imaging</td>
<td>38% lower for those who had onsite imaging</td>
</tr>
<tr>
<td>Barriers</td>
<td>Insufficient Skills</td>
<td>86% lower for those who reported insufficient skills as a barrier</td>
</tr>
<tr>
<td></td>
<td>Lack of Motivation</td>
<td>49% lower for those who reported lack of motivation as a barrier</td>
</tr>
</tbody>
</table>
## Use of Evidence

<table>
<thead>
<tr>
<th>Demographics</th>
<th>The odds of reporting higher use were:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>43% lower for those greater than 41 years of age</td>
</tr>
<tr>
<td>Location</td>
<td>43% lower for those who practiced in the city or rural areas</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Barriers</th>
<th>The odds of reporting higher use were:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient Skills</td>
<td>44% lower for those who reported insufficient skills as a barrier</td>
</tr>
<tr>
<td>Lack of Motivation</td>
<td>44% lower for those who reported lack of motivation as a barrier</td>
</tr>
</tbody>
</table>
Practice Based Research Network (PBRN) Environmental Scan

- Creation of a Canadian chiropractic PBRN to link researchers with elected provincial/national leaders, practicing chiropractors, and patient representatives to facilitate dissemination and implementation of evidence-based clinical practice guidelines (CPGs).

- Overall goal: to improve patient care through appropriate use of CPGs in the treatment of musculoskeletal (MSK) conditions.

- Methods: 7 open-ended questions asked of attendees. Themes developed from responses

- 20 responses received
Benefits of Establishing a PBRN

MACRO

PROFESSION
• Credibility
• Enhanced outcomes
• Fostering a research culture

RESEARCH COMMUNITY
• Increased research capacity
• Different study designs – pragmatic, multi-method, lower cost, large samples, effects of interventions on organizational process and vice-versa
• “Real world questions & representation”

PATIENTS
• Improved healthcare delivery & outcomes for Canadians

CLINICIANS
• Enhanced competence
• Access to experts
• Create a culture of quality improvement & EBP
• Participation, “ownership” of research
• Implement EHR

RESEARCHERS
• Direct engagement with clinicians
• Facilitate & shorten KT process

Research priorities, funding
“Answers”

Data, research questions
“Bridging the Gap”

Information, expertise
How Can a PBRN Improve CPG and Best Practice Uptake?

PBRN LEVEL
- Establishes a pathway and network for clinical dissemination of research findings deemed important by scientists
- Ensure clinically & community relevant questions are being asked & answered through CPGs, etc
- Explore areas critical to health care reform by engaging stakeholders
- Reciprocal relationship between clinician & researcher with ease of access going both ways
- Provide clinicians with increased awareness of guidelines & how to interpret & apply them
- Direct contact will provide researchers with insight on improving the effectiveness & efficiency of communication strategies
- Investigate barriers & facilitators to implementation & design KT interventions; use multiple methods to improve care delivery

PRACTICAL / CLINICAL LEVEL
- Increased points of contact between researchers & clinicians
- Clinicians receive exposure to research through community-based research
- Involvement of more clinicians in EBP, try to reach a critical mass until it is considered a standard of care
- Create a group of opinion leaders or PBRN/knowledge champions who provide mentorship in guideline implementation / operationalization to others
- Develop user-friendly tools/resources
- Discussion forums for Guidelines
- Teaching about reflective practice in how to apply CPGs
- Mandatory CE related to guidelines for PBRN members
- Dissemination of information to rest of profession
Challenges/Potential Problems in Starting & Operating a PBRN

**PBRN – GLOBAL ISSUES**

- Establishing and maintaining the Network:
  Staff, researchers, structure, clinicians, FUNDING
- Consensus on protocols:
  Information flow & data collection (legislation), objectivity, adaptability
- Day-to-day operations:
  Communication, coordination, QC
- KT & generalizability to general clinician population
- Inter-professional collaboration

**PBRN – CLINICIAN ISSUES**

- Recruitment & retention
- Diversity of practices
- Impact on time
- Priority differences
- Resistance to change
- User-friendly tools/resources
- Relationships: “Research with a practice, not research in a practice”

**CLINICIANS**

- Time / accessibility
- Isolation
- Training
- Compliance
- Managing change
- Buy-in from all clinical team members
- “What’s in it for me?”

**CMCC**
Indicators of Success

**PROFESSION**
- Increased utilization / enhanced public image
- Cultural shift - research & use of evidence – more DCs using evidence more often and more quickly
- Clinician behaviour and enhanced competence
- Improved patient outcomes & management patterns
- Enhance inter-professional image / collaboration
- Influence public health policy, system outcomes (costs)

**RESEARCH**
- Ability to collect data
- Grants, sustained/permanent funding
- Publications / conferences
- Increase research capacity
- Research database

**NETWORK**
- Longevity (funding)
- Number & diversity of DCs participating, sustained over time
- Stakeholder engagement – policy, funding communication
- Feedback from profession & participants
Research Questions to Address Within the PBRN

**Treatment Based Research**
- Specificity of SMT
- Effectiveness of different techniques, frequency of use in different anatomical areas
- Dose-response, adverse event monitoring
- Maintenance care
- Interactions between SMT & other treatments

**Condition Based Research**
- Prevalence
- Results obtained from care, average response times, effects on different subgroups,
- Conditions mentioned included: chronic pain, chronic LBP in >50 population, disc / radiculopathy, headaches, spinal stenosis, fall risk in the elderly

**PBRN Research**
- Impact of PBRN-based care on practice? Financial sustainability?
- What PBRN models work best?
- Patient satisfaction with PBRN-based care
- Network in smaller centres
- Effect of clinician involvement in designing research questions on research involvement

**Knowledge Translation Research**
- Best KT interventions to get clinicians to apply guidelines, evidence, enable behavioral change, improve practice
- Effect of PBRN on implementation of evidence in practice?
- Effect of patient decisions aids on patient knowledge / other methods of patient education
- Methods of Inter-Professional Education (IPE)

**Diagnostic Research**
- Diagnosis process including differential diagnoses
- Utility of various tests such as imaging, sEMG, etc
Relevant Funding Opportunities

**INTERNAL**
- CCRF
- CCA
- Provincial Associations (OCA, etc)

**EXTERNAL**
- Canada - National
  - CIHR – Dissemination Grants, SPOR Networks
  - IN-CAM
  - Industry
- Canada - Provincial
  - Provincial governments – Regional Health Authorities; SK – Collaborative Innovation Development Grant
  - Workers’ compensation boards (WSIB, WorkSafeBC, etc)
- USA
  - NIH, NCCAM, AHRQ, PCORI
Any Questions?