Conducting Practice-Based Research Among Chiropractors

PBRN meeting
Toronto, 5-6 December 2014
Presented by Charlotte Leboeuf-Yde

- Professor of Clinical Biomechanics, University of Southern Denmark
- Adjunct Professor, Murdoch University
- Visiting professor, Université de Paris
- Research Director, Insitut Franco-Européen de Chiropraxie, Paris, France
Why do it?

• Need more knowledge
• Lots of cheap data
• Participation and ownership
• Expertise among clinicians
• Future interest
How to do it – key principles

- Ownership
- Military organisation
- Discipline and communication
- Fun
Cookbook

Axén I., Leboeuf-Yde C.

- 12 studies based on this (Norway, Sweden, Finland, Netherlands, International)
- 24 published reports (that I can recall...)
Predictors for outcome for any type of LBP

- Iben Axén (Sweden) persistent and non-persistent LBP
- Arndt Grønstvedt (Norge) persistent LBP
- Stefan Malmqvist (Finland) LBP
Side-effects, "adverse events"

- Senstad (Norway) all spine
- Hennius (Sweden) all spine
- Rubinstein (Netherlands) neck
Non-musculoskeletal outcomes

0 Axén (Sweden)
0 WFC (International)
Trajectories of LBP

- Iben Axén (Sweden) LBP
Helped by

- Many, many data collecting chiropractors
- More than 10,000 patients
- In Norway, Sweden, Finland, Netherlands, and Internationally (S.Africa, USA, Canada, Australia, Hong Kong, Japan)
- All chiropractors were unpaid for their work
- Funding was needed mainly for Napoleon, meetings and postage
What can these studies tell us?

• Who are our patients?
• What do chiropractors do to them?
• What happens after treatment?
• Can we predict treatment outcome?
Some results
Who are our patients?

Sociodemographics
• Working age
• F=M

Psychological profile
• Anxiety 10%
• Depression 5%
Complaints

- LBP 65%
- Headache 25%
- Hip/buttock 15%
- Shoulder/arm 10%
- Mid back pain 10%
- Upper back pain 5%
- Other 1%
- ? 1%

(several possible answers)
LBP patients cannot do

<table>
<thead>
<tr>
<th>Activity</th>
<th>Persistent LBP</th>
<th>Non-persistent LBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get up from sitting</td>
<td>75%</td>
<td>85%</td>
</tr>
<tr>
<td>Shoes/socks</td>
<td>70%</td>
<td>80%</td>
</tr>
<tr>
<td>Turn in bed</td>
<td>60%</td>
<td>70%</td>
</tr>
<tr>
<td>Go for walks</td>
<td>45%</td>
<td>50%</td>
</tr>
<tr>
<td>Sleep</td>
<td>40%</td>
<td>35%</td>
</tr>
</tbody>
</table>
At consultation

Benign
- Short duration past yr
- Short duration base line
- Intermittent pain

Severe
- Long duration past yr
- Long duration base line
- Constant pain
What do chiropractors do to them?

SMT 97%
Other advice including exercise
STT

Equally common:
Only SMT
SMT+STT
What do chiropractors do to them?

<table>
<thead>
<tr>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occiput – C3</td>
<td>40</td>
</tr>
<tr>
<td>C4–T1/1(^{st}) rib</td>
<td>40</td>
</tr>
<tr>
<td>T2 – L1/ribs</td>
<td>50</td>
</tr>
<tr>
<td>L2 – S1/Sacrum/coccyx</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
</tr>
</tbody>
</table>
### No. of areas treated at one visit

<table>
<thead>
<tr>
<th>1 area</th>
<th>60%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 areas</td>
<td>30%</td>
</tr>
<tr>
<td>3 areas</td>
<td>10%</td>
</tr>
</tbody>
</table>
What happens after treatment? No. of days with LBP per week
Normal reactions

Common and clearly benign

- Mild or moderate local pain for <24hrs
- Mild fatigue
Not normal reactions
i.e. less common and less benign

- Strong pain
- Radiating pain
- Long-lasting pain
- Reactions later than first few times
Predictors of reactions

- First treatment reaction
- Longer duration problem
- Several adjustments
Non-musculoskeletal reactions

- 25%
- The more areas treated, the more likely to get a reaction

Of these:

- Respiratory
- Digestive
- Circulation/heart
- Eyes/vison
- Other
Reactions

Examples

• Easier to breathe
• Improved digestion
• Changed heart rhythm, decreased blood pressure, better circulation
• Clearer vision
• Less ringing in ears/better hearing

Funny list

• Eyes more open
• Increased libido
• Better prostatic function
• Not so sensitive to sun
• Softer face
• Look younger
• Back of thigh dryer
• Stronger nails
• Stronger hair
• Hiccups gone
Large international study

• Results confirmed
• However, fewer reactions when considering patients who had that type of a complaint to start with – i.e. those with that problem to start with did not necessarily improve.
• Normal fluctuations!
Predictors of non-musculoskeletal reactions

- Told it might work OR 1.5
- Upper C treatment OR 1.4
- Lower Th treatment OR 1.3
- Female patient OR 1.3

... but these factors explained only 3% of results
LBP improvement can be seen

**Persistent LBP**

- 4th visit when first improved
- 2 wks when first improved
However, with a different definition...

- At 4\textsuperscript{th} visit: only 15\% “cured”
- After 3 mths: 30\% “cured”
- After 1 yr: 30\% “cured”, but not the same ones.

- After 1 yr 80\% had had a new episode, although their DCs thought they were cured!
Using SMS-track trajectory

Text messages
Frequent data collection
Continuous data over shorter or longer periods
You can see what happens over time!
Here follow some examples of LBP trajectories over 6 months for individual patients
Quick recovery
The ideal patient
Up and down
A bit slow
Can we predict treatment outcome?

Not really, actually
Clinical course - regression towards the mean

- Those who are **bad** get better
- Those who are **good** get worse

- So if you treat patients in a lot of pain – good results
- Patients will only little pain – not so easy
- Patients without pain – might get worse
Look for early improvement as prediction for outcome later

- Reactions immediately upon treatment
- Results at 2\textsuperscript{nd} visit
- 4\textsuperscript{th} visit
- 3 months

- Also “normal” reaction is a predictor of good outcome
Other potential predictors

- 65 of them
  Demographic History
  Examination findings
  Attitudes
But only these could predict outcome

<table>
<thead>
<tr>
<th></th>
<th>4&lt;sup&gt;th&lt;/sup&gt; visit</th>
<th>3m</th>
<th>1yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social welfare</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Long lasting pain</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Long lasting disability</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Also neck pain</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>
Psychology?

- Depression/anxiety
- No/no
Conclusions

• Increased our knowledge on many practice-relevant topics
• Steering group members have published
• Help in academic career
• Our profession taken seriously
• Steering group members understand research process
• Steering group members have developed sense of “belonging”
• Data collecting chiropractors are happy to have helped
Reference list on request

clyde@health.sdu.dk
Thank you!