JAARCONGRES
Fysiotherapie
2006
FysioExpo
10/11 november RAI Amsterdam

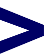
Challenges for the future

Rob de Bie

Professor of Physiotherapy Research
Director of CEBP

Department of Epidemiology
Maastricht University

CEBP Maastricht



Challenges for the future of physiotherapy (research)

- Status quo
- Can we believe the evidence?
- Can we implement the evidence?
- Solutions

Status quo

- Physiotherapy is marginally based on evidence
- Getting new evidence is problematic and expensive
- Good trials not always give good answers

>

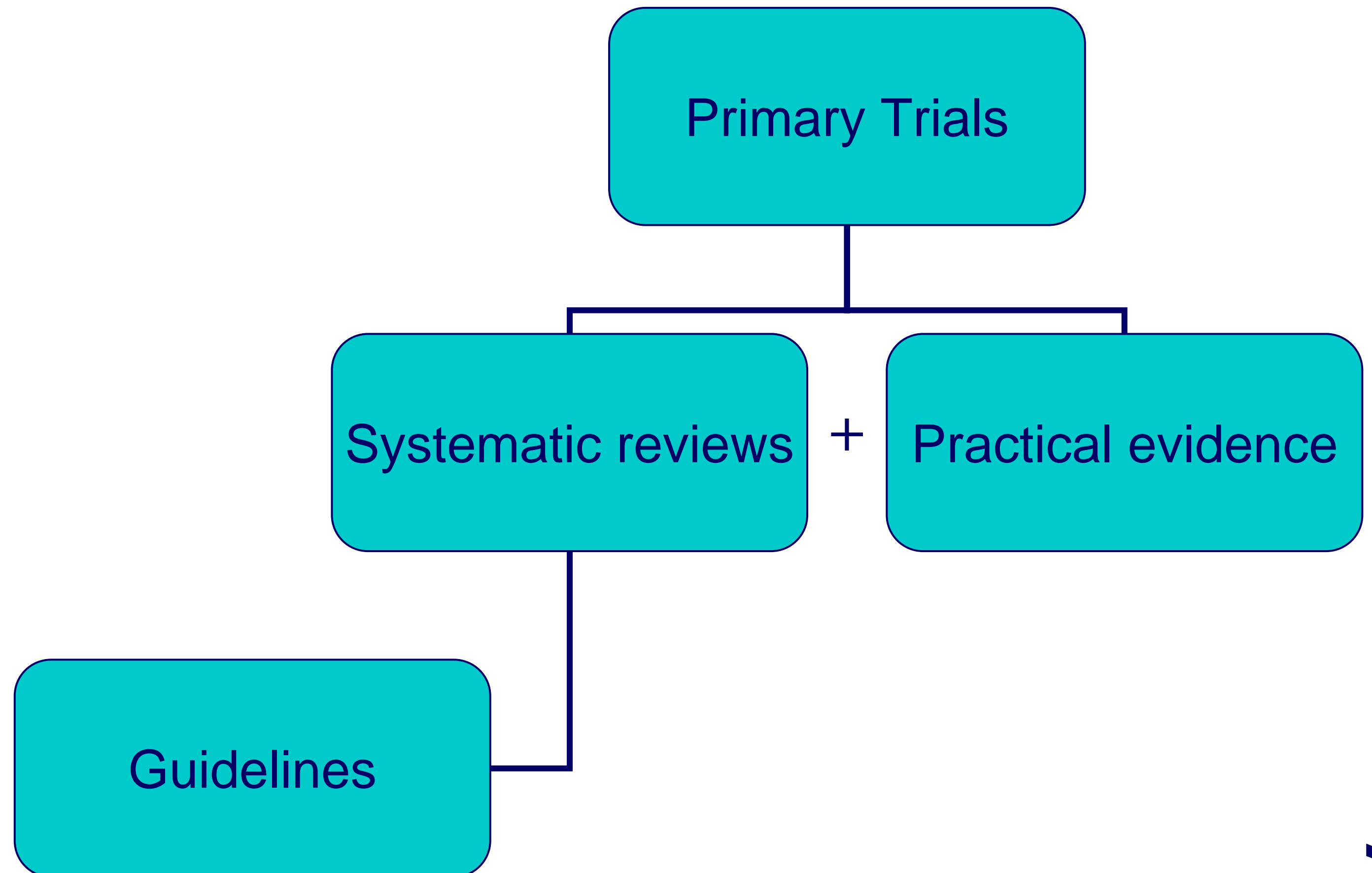
Physiotherapy is marginally based on evidence

>

Collecting the evidence in Physiotherapy

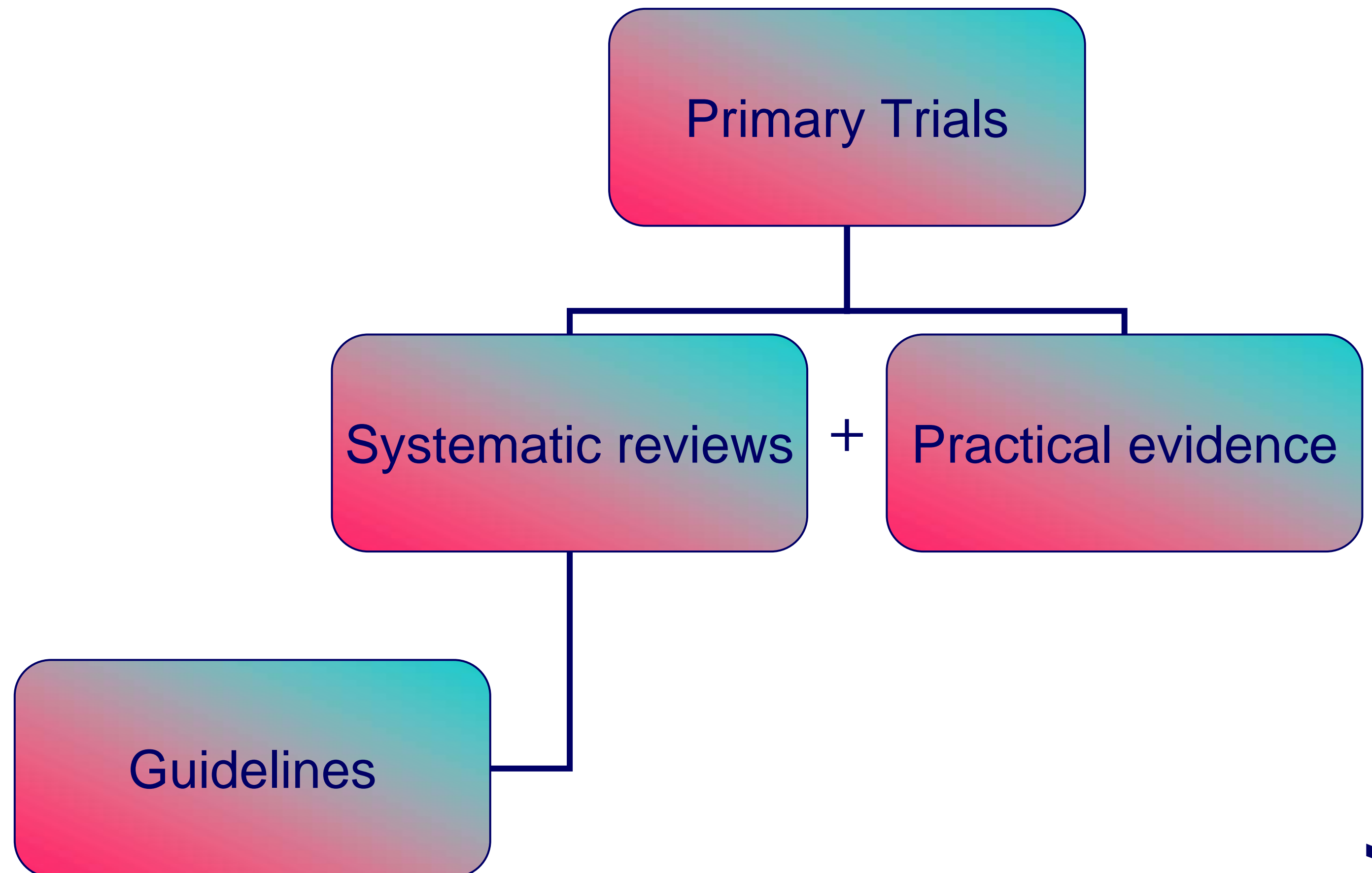
>

The ‘build up’ of evidence



>

The 'build up' of non-evidence



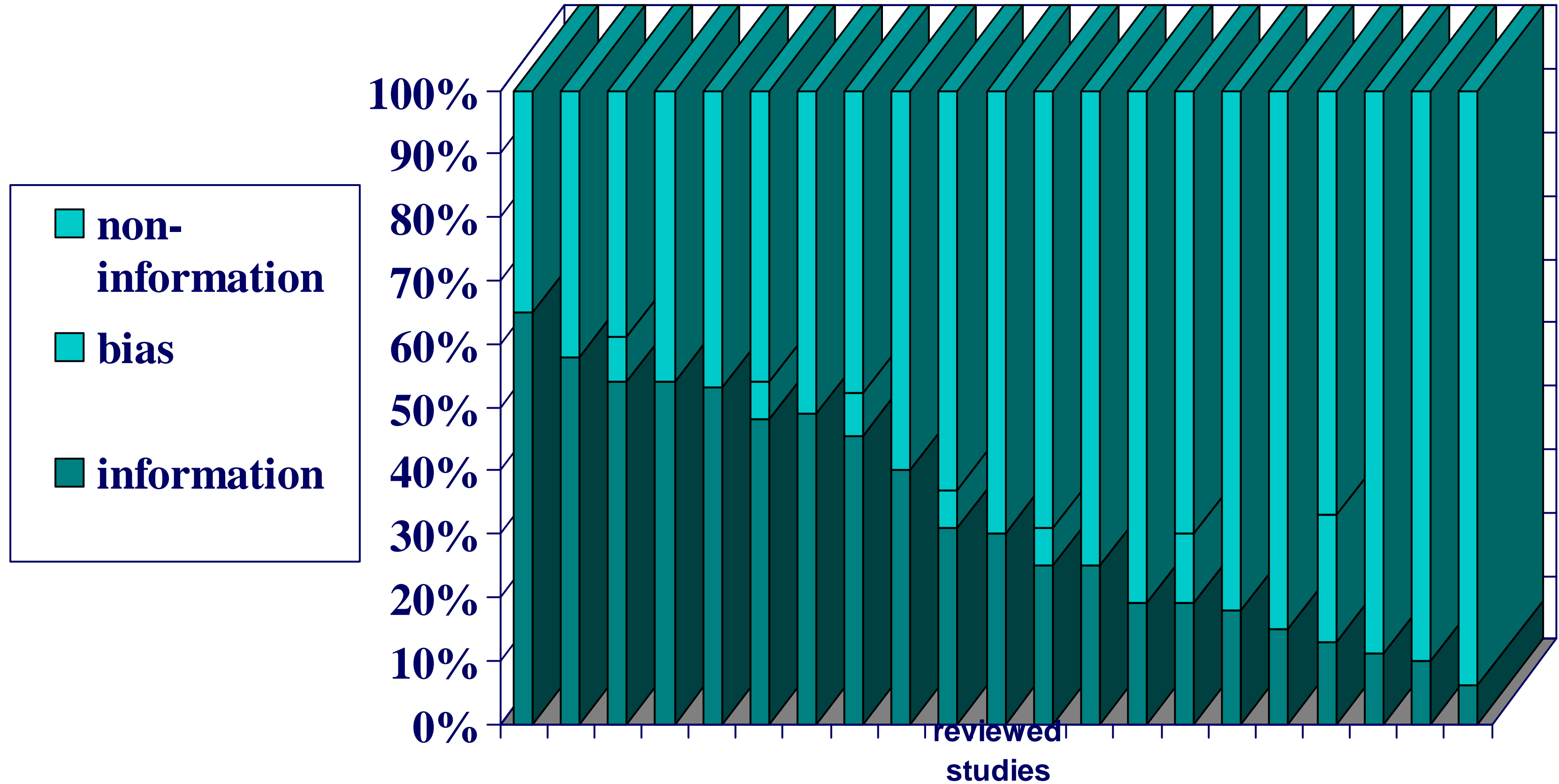
>

Problems in primary trials

- Validity: what you read is not always what has been done
- Primary trials do not reflect clinial practice
- Primary trials do not always use adquate outcomes
- Primary trials do not allow for relevant subgroup analyses

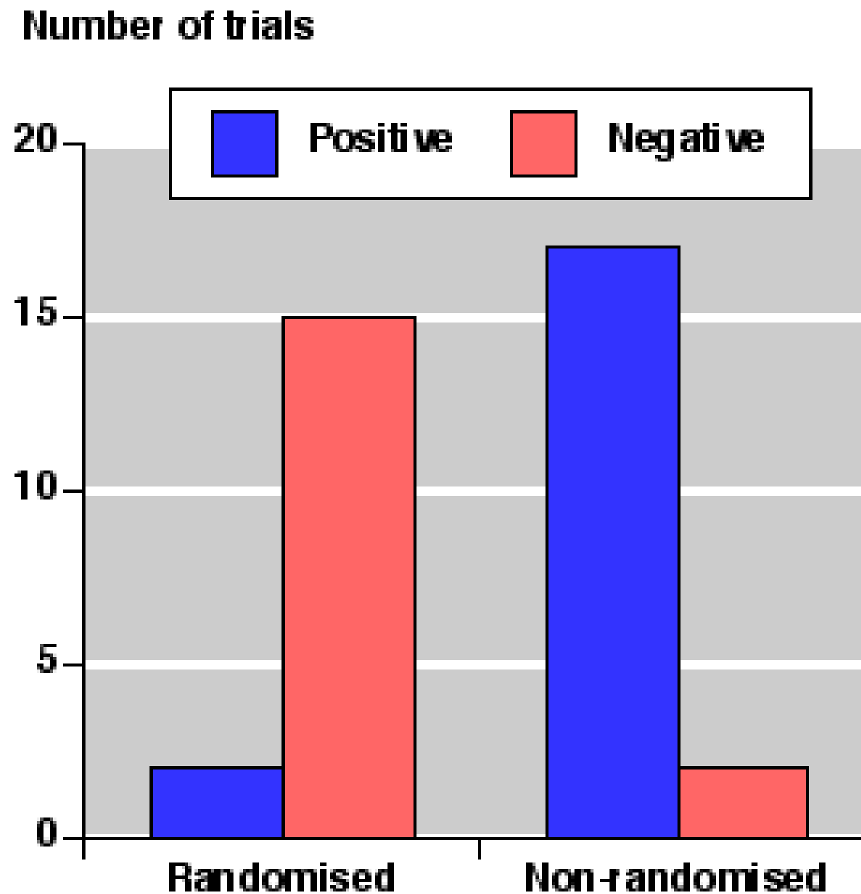
Informativeness:

what you read is not what has been done



>

Effect of randomisation on trial outcome



>

Problems in systematic reviews

- SR methodology is still under development
- Quality weighing systems are disputable
- Not all relevant areas are systematically reviewed
- Publication/language bias!

>

Systematic reviews: quality and estimate of efficacy

Yes - works No - doesn't work

Efficacy as stated in original review

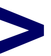
Jadad & McQuay J Clin Epidemiol 1996

>

Problems in guidelines

- Data are missing for parts of the guideline
- Consensus solving method might be non-sensus
- Quality of evidence (from trials and systematic reviews) might be problematic

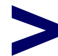
We need new and beter evidence!



Getting new evidence is problematic and expensive

- Physiotherapy is not heroic medicine
- People do not die from it
  - Lack of sexiness
- Research funds demand implementation research (proven and effective therapies)
- Trials and cohort ‘eat’ money
- Yield limited evidence per euro

More importantly,
trials might not be
the optimal research vehicle!



Some trials are just not done!

Risks of Downhill skiing studied in animal research

Risks of not wearing a parachute when jumping from an airplane

>

Good trials not always give good answers

Factor	% overestimation of treatment effect
• Not randomised	40
• Not double-blind	17
• Including duplicate information	20
• Using only small trials	30
• Trials of poor reporting quality	25

>

Pooled effect sizes of 108 studies from CBG (Suttorp et al, 2006)

CBG Quality item	ES ratio	95% CI
Randomization	0.81	0.54 - 1.23
Concealment	0.69	0.46 – 1.02
Baseline comparability	0.78	0.55 – 1.14
Blinding of patient	1.37	0.88 – 2.17
Blinding of provider	1.04	0.59 – 1.60
Blinding of assessor	0.98	0.60 – 1.74
Co-interventions avoided	0.85	0.64 – 1.37
Drop-outs	0.80	0.58 – 1.30
Timing	0.75	0.49 – 1.37
Intention-to-treat analysis	0.75	0.49 – 1.09

>

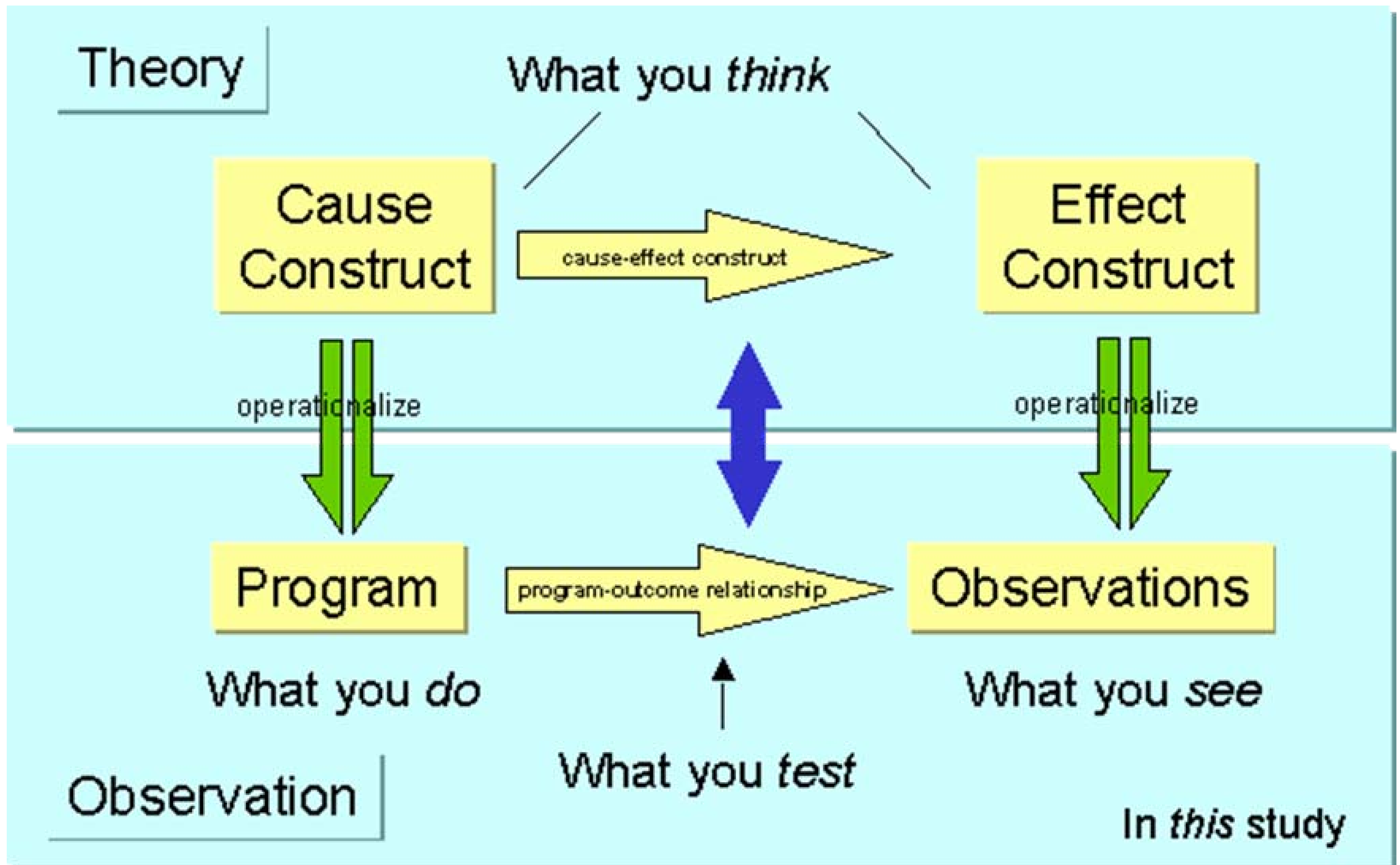
Summary (Suttorp et al, 2006)

Quality items	ES ratio	95% CI
Sum score >5	0.62	0.37 – 0.96
Sum score > 4	0.61	0.42 – 1.06

Conclusion: CBG items are associated with bias and a sum score threshold of four is significantly associated with bias.

The better the trial…

- The less likely there will be a result
- Or lies selection bias at the root of the problem
- Or are highly selected individuals less likely to respond (ceiling and floor effects?)


Theory
What you think
Cause Construct
cause-effect construct
Effect Construct
operationalize
operationalize
Program
program-outcome relationship
Observations
What you do
What you see
What you test
Observation
In this study

>

In the ideal world....

- There is enough and valid evidence
- Everyone is willing to apply it
- What we do yields huge patient satisfaction

- In the not so ideal world there are some problems, like...

>

The implementation gap

- Changing practice is hampered by
  - Lack of patient-oriented outcome measures
  - Use of outcome measures in general is low
    - Especially in chronic conditions
  - KT (knowledge transfer) is based on inadequate evidence
  - EBM strategies fail to a certain extent
    - Specially in complex decision making

>

Effect of KT strategies*

- Printed education materials - small
- Audit and feedback - small
- Conferences - small
- Outreach visits - medium
- Use of opinion leaders - medium
- Continued education - mod/large

* MacDermid et al. Implementation science 2006:1:14.

KT mediators

- Prior knowledge, education, age
- Readiness to change model
  - Precontemplation
  - Contemplation
  - Preparation
  - Action
  - Maintenance
- Conceptual use of knowledge
- When there is need or benefit

The stick and the carrot (professional solutions)

- Accreditation
- Preferred providership
- Financial incentives
- Network with mutual responsibility
- Accountability
- Client oriented approach
- Guidelines that make sense

>

Mathematical tapdancing (methodological solutions)

- EPD's
- Cohort nested clinical trials
- Development of relevant outcomes
- Continuous update and education

>

Thank you

Proof of cause and effect