Example of a Systematic Review and its application to practice

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Trusted evidence.
Informed decisions.
Better health.
Disclosure

ISICO (Italian Scientific Spine Institute): stock

European Journal of Physical and Rehabilitation Medicine: congress expenses
Evidence Based Clinical Practice

The integration of

• best research evidence
• with clinical expertise
• and patient values

The Know-Do Gap

High quality evidence is not consistently applied in practice\(^1\)

Examples in clinical practice:
- Statins decrease mortality and morbidity in post-stroke, but they are under-prescribed\(^2\)
- Antibiotics are overprescribed in children with upper respiratory tract symptoms\(^3\)

Examples in health system policies:
- Evidence is not frequently used by WHO\(^5\)
- Out of 8 policymaking processes in Canada\(^4\)
  - Only 1 was fully based on research
  - Other 3 were partially based on research

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Why there is the Know-Do Gap?

Evidence not focused on the end-users:\(^1\)
- Epidemiologically and methodologically focused
- Missing details on interventions and settings

Lack of knowledge management skills and infrastructure\(^2\)
- Individual health care professionals
  - Volume of, and access to research evidence
  - Time to read
  - Skills to appraise, understand and apply research evidence
- Health care teams (standards of care)
- Health care system and organization (finance and equipments)
- Patients (adherence and compliance)

Knowledge Translation

A dynamic and interactive process that includes the synthesis, dissemination, exchange, and ethically sound application of knowledge to improve health, provide more effective health services and products, and strengthen the health care system.

Canadian Institute of Health Research¹

Dissemination and implementation, implementation science, research use, knowledge transfer and uptake/exchange²

Knowledge to action framework
Knowledge creation

Knowledge inquiry
• Primary research studies

Knowledge synthesis
• Secondary research studies (systematic reviews)

Knowledge Tools/products
• Guidelines
• Algorithms
• Messages for end-users

The Action Cycle (application)

Identify problem; identify, review, select knowledge
Adapt knowledge to local context
Access barriers – facilitation to knowledge use
Select, tailor, implement interventions
Monitor knowledge use
Evaluate outcomes
Sustain knowledge use
Human behaviours to be considered

Repetitive behaviours

• They allow to free the brain for higher level thinking (diagnosis, prognosis)
• Nevertheless, they gradually drive to reduced quality
• Only regular checks allow to identify this loss of quality

Resistance to change

• Individuals
• Organizations
• Systems
Implementation of evidence

Micro-level: individuals
- Surrender to evidence
- Use facilitators (clinical charts)

Meso-level (organizations)
- EBM Continuous Quality Improvement groups
  - Human and financial resources
  - Specific thematic projects on a regular basis

Macro-level (Health Systems)
- National guidelines and flow-charts
- Data collection
- Rewarding system
Adolescent Idiopathic Scoliosis (AIS)

A spinal deformity progressing during growth
Tradition: step by step theory (PRM)

Orthopedic tradition
EB «Wait & see» approach (surgeons)
Cochrane Review

First Cochrane Review

Braces for idiopathic scoliosis in adolescents (Review)


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First Cochrane Review results

Date of search: July 2008

Included studies: 2 - Total population: 329

Results:
- Low quality evidence from 1 QRCT that a brace curbed curve progression at the end of growth (success rate 74%), better than observation (success rate 34%) and electrical stimulation (success rate 33%)
- Low quality evidence from 1 RCT that a rigid brace is more successful than an elastic one with no differences in QoL

Treatments’ progression (SOSORT)

«Wait & see» approach (SRS)
US RCT financed by NIH with 5 million $

Effects of Bracing in Adolescents with Idiopathic Scoliosis

Stuart L. Weinstein, M.D., Lori A. Dolan, Ph.D., James G. Wright, M.D., M.P.H., and Matthew B. Dobbs, M.D.
New Evidence Based approach (SRS)
Braces for Idiopathic Scoliosis in Adolescents

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Last Cochrane Review results

Date of search: February 2015

Included studies: 7 - Total population: 662

Results relevant to everyday clinical practice:

- All included papers consistently showed that bracing prevented curve progression – but this was not accepted to be published as a result by Cochrane (!!!)

- There is a progression of effectiveness according to the curve importance:
  - Elastic brace for low degree curves (15°-30°) – low quality evidence
  - Rigid plastic brace for medium degree curves (20°-40°) – low quality evidence
  - Very rigid plastic brace for high degree curves (45° or more) to reduce rate of surgery – very low quality evidence
  - Rigid brace is more effective than elastic brace for medium degree curves (20°-40°) – very low quality evidence

Treatments’ progression (SOSORT)

Risk of problems in adulthood due to AIS

Treatment according to Cochrane Review
Take home messages

Adapting to evidence is a real work that requires:

• Acceptance of the evidence
• Reorganization of one’s own work (individual or collective)
• Identification and overcoming of barriers
• Need of resources to make the change possible
• Sustainability in time
• And, most of all, willingness to change!
Thank you!

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