Modified Rand Method to Derive Quality Indicators
with a Case Study in Cardiac Rehabilitation

Cardiac Rehabilitation Decision Support System

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guideline implementation systems

Patient care

Guidelines
the CARDSS project

- guideline implementation in cardiac aftercare
- CDS system based on Dutch cardiac rehabilitation guidelines
- was used in ± 40 clinics in the Netherlands
conclusions from CARDSS RCT

• system was shown to improve professional adherence to the guidelines (Goud et al., BMJ 2009;338:b1440)
  – “checklist” effect
  – no need to memorize guidelines
  – better shared decision making

• … but there were no changes at the organisational level
  – lack of personnel or facilities
  – poor collaboration with other departments
CARDSS-II

Audit & Feedback loop

Knowledge revision loop

quality indicators
the RAND method  (Brook et al., 1986)

Criticisms

- lack of patient involvement
- clinical practice guidelines are not consulted
- unclear definition of appropriate care
- weak reliability of the rating and consensus procedures
our modifications (1)

1. Literature search
2. Preliminary QIs
3. Rating procedure (expert panel)
4. Consensus meeting (expert panel)
5. Final set of QIs
Both professionals and patients

- Expert panel
- Literature search
- Preliminary QIs
- Rating procedure (expert panel)
- Consensus meeting (expert panel)
- Final set of QIs
our modifications (2)

- Expert panel
- Literature search
- Review of guidelines

Preliminary QIs

Rating procedure (expert panel)

Consensus meeting (expert panel)

Final set of QIs

Preferred structures and procedures
our modifications (3)

- Expert panel
- Literature search
- Review of guidelines

Preliminary QIs

Rating procedure (expert panel)

Consensus meeting (expert panel)

Final set of QIs

5-point Likert scale ratings for:
1) relationship with patient outcomes
2) possibilities for improvement
3) ease of recording
our modifications (4)

- Expert panel
- Literature search
- Review of guidelines

Preliminary QIs
- Rating procedure (expert panel)
- Consensus meeting (expert panel)

Final set of QIs

Nominal Group Technique (Dunham, 1998)
application in cardiac rehabilitation

Expert panel

- 38 professionals (40 invited)
- 15 patients (30 invited)
- 92 quality characteristics
application in cardiac rehabilitation

Expert panel

Literature search

- 314 relevant articles
- 15 quality indicators
- 24 outcomes measures
application in cardiac rehabilitation

- Expert panel
- Literature search
- Review of guidelines

- Dutch Guidelines for Cardiac Rehabilitation
- 34 procedural requirements
- 3 structural requirements
application in cardiac rehabilitation

- Expert panel
- Literature search
- Review of guidelines

Preliminary QIs

- 81 potential QIs for cardiac rehabilitation
application in cardiac rehabilitation

- Expert panel
- Literature search
- Review of guidelines

Preliminary QIs

Rating procedure (professionals)

• 60 rated QIs for cardiac rehabilitation

We were unable to include patients in this part of the procedure
application in cardiac rehabilitation

- Expert panel
- Literature search
- Review of guidelines

Preliminary QIs

Rating procedure (professionals)

Consensus meeting (professionals)

Final set of QIs

- 18 QIs for cardiac rehabilitation
some examples

Structure
• The rehab teams uses a shared, multidisciplinary (and preferrably electronic) patient record

Processes
• Fraction of patients for which an individual care plan is established at the onset of rehabilitation

Outcomes
• Each patient’s improvement in exercise capacity, measured before and after rehab by bicycle ergometry
discussion

- the 4 different QI sources were (partially) **complementary** to each other
  - each source provided candidate QIs that were not provided by the others

- professionals **rarely** mentioned outcomes of care

- it was **easy to reach consensus** during the meeting
  - probably due to the well-structured rating procedure

- it was **not easy** to involve patients

- we did not involve other stakeholders (e.g. insurance companies)
current & future work

- CARDSS Online
  - web-based quality feedback application
  - achievable benchmark methodology (Kiefe et al., 2001)
  - quality improvement plan

- evaluation study
  - cluster RCT
  - factorial design (decision support / feedback)
  - ± 20 cardiac rehab clinics
conclusion

• **different sources of information** should be consulted when defining indicators of care quality

• there should be clarity (and agreement) about the **definition of quality** to achieve consensus

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