Evaluating an integrated care programme for frail elderly using Multi-Criteria Decision Analysis

The design of a case study in SELFIE

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ICIC, Utrecht, May 23th-25th, 2018
Elderly are stimulated to live independently at home for as long as possible, with the support of primary care, home care providers, and informal caregivers.

Rising need for integrated care programmes for frail elderly.

Reimbursement decisions remain difficult → decision-makers require evidence on the effectiveness.

Methodological challenges in measuring (cost-)effectiveness.
Methodological challenges

- Complex interventions
- No randomization possible
- Multiple outcomes important
- Target group: frail elderly
- Difficult to find a similar control group

- No randomization
- Hard to identify elderly that are just as frail
Aim

- To provide an innovative study design to evaluate an integrated care programme for frail elderly

- Case study: Care Chain Frail Elderly in Southeast Brabant

*The CCFE aims to support frail elderly by delivering individualised, integrated care, so that elderly can live at home independently.*
Multi-criteria decision analysis (MCDA)

- Method to aid decision-making that makes the impact that multiple criteria have on a decision, and their relative importance, explicit.

- Suited for complex interventions where multiple, sometimes conflicting, criteria play a role, such as integrated care

- **Goal**: to improve transparency, credibility, acceptability, and accountability of the decision-making process.
Methods (2)

7 steps in MCDA:

1) Understanding the programme and decision context
2) Identify and structure outcomes
3) Determine the *performance* on outcomes
4) Determine the *weights* of the outcomes
5) Create an overall value score
6) Perform sensitivity analyses
7) Interpret results
Step 1: Understanding the programme and decision context (1 – theory)

• Understand the intervention – in theory and in practice
  • Method: Thick description

• Results:
  • Extensive description of the intervention and the macro level context;
  • Results inform the study design;
  • Stakeholders identified relevant to decision making;
  • Decisions are related to reimbursement, continuation, and/or wider implementation.
Step 1: Understanding the programme and decision context (2 – case study)

  - Macro level description
  - Document analyses and interviews with stakeholders

- Example theory vs. practice:
  - Patient present at multidisciplinary team meeting

- Example understanding decisions regarding sustainability:
  - Discussions continuation + wider implementation financing: bundled payment
Care Chain Frail Elderly – care process

1) Decision context
2) Identify outcomes
3) Performance on outcomes
4) Weights of the outcomes
5) Overall value score
6) Sensitivity analyses
7) Interpret results

Main focus areas:
- Community network
- Transfer care
- Advanced care planning
- Polypharmacy

Case finding
By ‘primary care core group’ (GP, nurse practitioner elderly care, district nurse) that meet every 4-6 weeks

Holistic assessment
Nurse practitioner elderly care visits frail elderly at home to make an inventory of problems, existing care and personal goals which results in a draft individualised care plan

Multidisciplinary team meeting
With GP, nurse practitioner elderly care, elderly care physician, other relevant professionals, patient, informal caregiver to discuss individualised care plan

Care coordination
By nurse practitioner elderly care, organises multidisciplinary team meetings, maintains individualised care plan

Case management
By either nurse practitioner elderly care, district nurse, or case worker dementia; provides tailored and integrated care, monitors, provides support
Step 2: Identify and structure outcomes

<table>
<thead>
<tr>
<th>Triple aim</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core set</td>
</tr>
</tbody>
</table>
| Health & well-being | Physical functioning  
                       | Psychological well-being  
                       | Social relations & participation  
                       | Enjoyment of life  
                       | Resilience |
| Experience      | Person-centeredness  
                       | Continuity of care |
| Costs           | Total health- and social care costs |

1) Decision context  
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7) Interpret results
Step 3: Determine the performance on the outcomes (1)

- Quasi-experimental studies with intervention + control group
- Outcomes measured with SELFIE questionnaire
Step 3: Determine the performance on the outcomes (2)
<table>
<thead>
<tr>
<th></th>
<th>Intervention (n=228)</th>
<th>Control (n=143)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Female</strong></td>
<td></td>
<td></td>
<td>.859</td>
</tr>
<tr>
<td>N (%)</td>
<td>143 (62.7%)</td>
<td>91 (63.6%)</td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td>.098</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>84 (6.3)</td>
<td>85 (5.7)</td>
<td></td>
</tr>
<tr>
<td>Min-Max</td>
<td>67-98</td>
<td>71-100</td>
<td></td>
</tr>
<tr>
<td><strong>Method of administering</strong></td>
<td></td>
<td></td>
<td>.577</td>
</tr>
<tr>
<td>Telephone</td>
<td>14 (6.1%)</td>
<td>11 (7.7%)</td>
<td></td>
</tr>
<tr>
<td>Home visit</td>
<td>212 (93.0%)</td>
<td>132 (92.3%)</td>
<td></td>
</tr>
<tr>
<td>On paper</td>
<td>2 (0.9%)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td>.729</td>
</tr>
<tr>
<td>Single (never married)</td>
<td>9 (3.9%)</td>
<td>6 (4.2%)</td>
<td></td>
</tr>
<tr>
<td>Married / Long-term rel.</td>
<td>100 (43.9%)</td>
<td>63 (44.1%)</td>
<td></td>
</tr>
<tr>
<td>Widow / widower</td>
<td>103 (45.2%)</td>
<td>68 (47.6%)</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>16 (7.0%)</td>
<td>6 (4.2%)</td>
<td></td>
</tr>
<tr>
<td><strong>Living situation</strong></td>
<td></td>
<td></td>
<td>.655</td>
</tr>
<tr>
<td>Independent, alone</td>
<td>116 (51.1%)</td>
<td>79 (55.2%)</td>
<td></td>
</tr>
<tr>
<td>With others (partner, children)</td>
<td>102 (44.9%)</td>
<td>61 (42.7%)</td>
<td></td>
</tr>
<tr>
<td>(Residential) Care home</td>
<td>8 (3.5%)</td>
<td>3 (2.1%)</td>
<td></td>
</tr>
<tr>
<td>Nursing home</td>
<td>1 (0.4%)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td>.778</td>
</tr>
<tr>
<td>Low</td>
<td>159 (69.7%)</td>
<td>104 (72.7%)</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>47 (20.6%)</td>
<td>19 (13.3%)</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>22 (9.6%)</td>
<td>20 (14%)</td>
<td></td>
</tr>
<tr>
<td><strong>Smoking</strong></td>
<td></td>
<td></td>
<td>.184</td>
</tr>
<tr>
<td>Current smoker</td>
<td>33 (14.5%)</td>
<td>12 (8.4%)</td>
<td></td>
</tr>
<tr>
<td>Ex-smoker</td>
<td>112 (49.1%)</td>
<td>71 (49.7%)</td>
<td></td>
</tr>
<tr>
<td>Never smoker</td>
<td>83 (36.4%)</td>
<td>60 (42.0%)</td>
<td></td>
</tr>
</tbody>
</table>
Step 3: Baseline results

- **Sex**: Distribution of participants by gender.
- **Marital status**: Distribution of participants by marital status.
- **Education**: Distribution of participants by education level.
- **Living situation**: Distribution of participants by living situation.
Step 4: Determine the weights of the outcomes

- Discrete Choice Experiments and Swing Weighting
- Sets of weights for the core set:
  - Each of the 8 SELFIE countries
  - Each 5P stakeholder group (patients, partners, professionals, payers, policy makers)
- Weight-sets can be compared between stakeholder types and countries/regions
- Weights will be included in an online MCDA-tool → can be used in future evaluations!
Step 5: Calculate on overall value score

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**Integrated care**
- Performance scores
- Integrated care programme

**Usual care**
- Performance scores
- Usual care

**Weights from 5Ps in 8 countries:**
- Patients
- Partners
- Professionals
- Payers
- Policy makers

**Weights:**
- DCE
- SW
Step 5: Calculate on overall value score

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5) Overall value score
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Step 6+7: Sensitivity analyses and interpreting results

Future steps

• Sensitivity analyses to address uncertainty

• Interpretation of results in national stakeholder workshops:
  • Differences between perspectives
  • Impact of relative importance of outcomes

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Conclusion

• MCDA is a feasible method to evaluate integrated care programmes for frail elderly;

• MCDA contributes to evidence-informed deliberate decision-making. It improves transparency, consistency and accountability of decisions.

• *Paper MCDA methodology underway*
Thanks for your attention!

Questions?

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This project (SELFIE) has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 634288. The content of this presentation reflects only the SELFIE groups’ views and the European Commission is not liable for any use that may be made of the information contained herein.