Introduction in implementation research

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Bridging the Gap

Best Evidence => Service

Evidence, guidelines, innovations, best practices, etc. are not applied in daily practice

What is Implementation Science?

The scientific study of methods to promote the integration of research findings and evidence-based interventions into healthcare policy and practice. It seeks to understand the behavior of healthcare professionals and support staff, healthcare organizations, healthcare consumers, and policymakers in context as key variables in the sustainable uptake, adoption, and implementation of evidence-based interventions.

(NIH Fogarty International Center, 2018)

“Trial-world”

- Efficacy
- “Can it work?”
- Null hypothesis
- Keep things clear

“Real-world”

- Effectiveness
- “Does it work and when?”
- Alternate hypothesis
- Live with complexity

“Daily practice world”

- Sustainability
- “How to keep it going?”
- Implementation strategies

Creating a value chain in healthcare

1/3 of research evidence gets ever implemented

System Sustainability
5. Keep the system working

Efficacy
1. Demonstrate that it works

Effectiveness
2. Show it works in clinical practice

Sustainability
3. Keep it working

Scalability
4. Spread it system-wide

~17 years

Key Term in implementation research

Evidence-Based Intervention

- Interventions with proven efficacy and effectiveness
Planning your implementation research project in 7 steps

1. Determine the quality or care gap
2. How strong is the evidence base?
3. Stakeholder priorities & engagement
4. Setting’s readiness for adoption
5. Conceptual Model / Theoretical Framework
6. Implementation Strategy
7. Measurement and Analysis

A practical example of an implementation research project in UZ Leuven

G-COACH
Geriatric co-management for cardiology patients in the hospital

Aim: Develop, implement and evaluate a geriatric co-management program for cardiology patients

Impact of geriatric consultation teams on clinical outcome in acute hospitals: a systematic review and meta-analysis

- No consistent impact on clinical outcomes
- Reasons for non-effect
  • Lack of adherence to the team’s recommendations
  • Lack of control over care
  • Interventions on patient level only
  • Not as proactive as intended
- Implications for general practice
  • How to increase adherence rates?
  • More proactive? → URGENT
  • Co-management instead of consultation? → G-COACH

Implementation research designs

Hybrid effectiveness-implementation designs as part of the clinical research continuum

Hybrid Type I
- Test clinical intervention, while gathering information on implementation

Hybrid Type II
- Test clinical intervention, while gathering information on implementation, and test implementation strategy

Hybrid Type III
- Test implementation strategy, while gathering information on clinical intervention

Adapted from Curran G. Effectiveness-implementation hybrid designs: combining elements of clinical effectiveness and implementation research to enhance public health impact. *Medical Care* 2012

BMJ Open

Quality indicators for in-hospital geriatric co-management programmes: a systematic literature review and international Delphi study

Structure indicators (n = 8)
- Validated screening tool or objective criteria to select patients for the GCP is available to all hospital staff.
- A multidisciplinary care pathway is available detailing the roles and responsibilities of all hospital staff participating in the GCP.
- Evidence-based protocols for the prevention and/or management of geriatric syndromes are available

Process indicators (n = 7)
- GCP starts preoperatively or within 24 hours of hospital admission.
- A member of the geriatric team meets daily with the nurses on the wards participating in the GCP.

Outcome indicators (n = 16)
- Mean length of stay in the hospital.
- Readmission rate within 30 days and three months of hospital discharge.
- Percentage of patients included in the GCP who develop/experienced delirium, urinary tract infection, wound infection, pneumonia, or sepsis during hospitalization.

G-COACH: a hybrid effectiveness-implementation design

G-COACH programme for older people

Implementation strategy

Strategy to ensure optimal delivery of intervention

Evidence-based program theory

Context analysis: Checklist to identify determinants of practice

<table>
<thead>
<tr>
<th>Determinants of practice</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td>1 Guideline/innovation factors</td>
<td>Source, quality of evidence, feasibility</td>
</tr>
<tr>
<td>2 Health professional factors</td>
<td>Knowledge, awareness, skills, intention, motivation, self-efficacy</td>
</tr>
<tr>
<td>3 Patient factors</td>
<td>Patient needs, preferences, beliefs, motivation</td>
</tr>
<tr>
<td>4 Professional interactions</td>
<td>Communication, team processes, referral</td>
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<tr>
<td>5 Incentives and resources</td>
<td>Materials, financing, information, education</td>
</tr>
<tr>
<td>6 Capacity for organisational change</td>
<td>Mandates, authority, leadership, rules, priorities</td>
</tr>
<tr>
<td>7 Social, political, legal</td>
<td>Healthcare budget, contracts, legislation, influential persons, corruption</td>
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Flottorp et al. *Implementation Science* 2013, 8(35)
Prospective cohort study: CAR, n = 88 ≥ 75y cardiology patients

High prevalence of geriatric syndromes
- 68% ADL impairment (Katz Index)
- 69% cognitive impairment (MiniCog)
- 63% frail (Fried criteria)
- 27% depressive symptoms (GDS)
- 22% malnourished; 58% at risk (MNA)

Suboptimal care process
- 3.5 days to rehabilitation = d 1.0 (very strong effect) delirium
- 3.5 days to discharge planning = +0.5 LoS per day of delay
- 29% indwelling catheter = +20% functional decline
- 8% restrained = +43% functional decline

Contextual analysis: quantitative
- Determine our stakeholders
  - Head nurses cardio, champion nurses cardio, GST, geriatricians, cardiologists, cardiology residents, nurse manager, nurse director, program managers, IT/KWS, social worker, physiotherapists, dietician,....
- Interviews, focus groups & observations
  - Residents coordinate care; yet rotate every two weeks
  - Information on patients' cognition and functional status is missing
  - Residents slow to initiate discharge planning and rehabilitation
  - Focus on cardiac problem, not geriatric needs
  - Routine care, yet not standardized; substantial variability in practice

Contextual analysis: qualitative

5. Conceptual Model / Theoretical Framework

Implementation frameworks

Theoretical co-management framework
Intervention development

Stakeholder development of consensus model

- **Aim:** Find consensus on
  - Feasibility of intervention
  - Acceptability of intervention

- **Methods:**
  - Focus groups and interviews with local stakeholders
  - Participatory observations
  - Observational pilot and feasibility study

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Practical co-management framework

- **CGA within 24 hr of admission on cardiology ward by geriatric nurse**
- **Co-management by geriatrician and cardiologist**
- **Co-management by geriatric nurse and cardiology team**
- **Follow-up and acute geriatric problems**

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6. Implementation Strategy

- **Implementation strategies**
  - **Cluster:**
    - Developing stakeholder interrelationships
      - Recruit, designate, and train for leadership
      - Inform local opinion leaders
      - Identify early adopters
      - Conduct local consensus discussions
      - Use advisory boards and workgroups
      - Use an implementation advisor
      - Visit other sites
      - Develop academic partnerships

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Implementing is a continuous effort

- **G-COACH implementation strategies**
  - **Orientation**
    - Use of G-COACH acronym in all communication
    - Stakeholder meetings in initiation phase to propose programme
  - **Insight**
    - Educational presentations focusing on describing the care processes and outcomes of the current standard of care
    - Publications of results on participating units detailing the programme components and outcomes
    - Adaptations to the electronic patient file
  - **Acceptance**
    - Geriatrician as expert in group dynamics and leadership coordinates the sessions between stakeholders
    - Programme support by head of department and head nurses
  - **Sustenance change**
    - Planned implementation with evaluation of feasibility allowing the programme to adjust if necessary
    - Working groups, audit feedback with key stakeholders from every discipline to discuss the adjustments that are needed in the programme
  - **Maintenance**
    - Tracking progress and feedback with key stakeholders to discuss necessary adaptations to the programme
    - External facilitator + internal facilitator + what can be organized at ward or hospital level
    - Dissemination of programme results to UZ Leuven staff and management
### Implementation outcomes

<table>
<thead>
<tr>
<th>Implementation outcomes</th>
<th>Working definition</th>
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<tr>
<td>Acceptability</td>
<td>The perception among stakeholders (e.g., patients, providers, managers, policy-makers) that an intervention is agreeable</td>
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<td>Adoption</td>
<td>The intention, initial decision, or action to try to bring a new intervention</td>
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<td>Feasibility</td>
<td>The extent to which an intervention can be carried out in a particular setting or organization</td>
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<td>- Reach</td>
<td>The number of eligible patients that were recruited in the intervention</td>
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<tr>
<td>- Fidelity</td>
<td>How well the intervention is implemented as defined by the protocol and considers both the implementation of specific intervention components, and the correct timing of the implementation</td>
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<tr>
<td>- Dose</td>
<td>How much of the intervention is implemented as defined by the protocol and considers both the duration and frequency of specific intervention components</td>
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<td>Implementation cost</td>
<td>The incremental cost of the delivery strategy (versus Total cost = implementation + intervention cost)</td>
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<td>Sustainability</td>
<td>The extent to which an intervention is maintained or institutionalized in a given setting</td>
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### G-COACH feasibility

- **AIM = To test the feasibility and acceptability**
- **Convenience sample:** June – December 2017
  - 2 cardiology units
  - 30 patients aged ≥75 years admitted for acute cardiac disease
  - 30 healthcare professionals

#### Process evaluation:
1. **Indicators**
   - 2. Structured observations
     - Reach
     - Fidelity
     - Dose
2. **Focus groups:** Understand experiences
   - Barriers & facilitators
   - Context
3. **Context:** Adjust model if needed

### G-COACH methodological framework

1. **Development**
   - Meta-analysis
   - Quality indicators
   - Risk prediction
2. **Feasibility piloting**
3. **Evaluation**

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Take home messages

1. Implementation research starts where effectiveness is achieved...
2. ... but principles should be integrated at the start of any intervention research!
3. Contact analysis and stakeholder involvement as key components for successful implementation
4. Measure the success of your implementation

Key papers on implementation research

- Hybrid designs: Curran G. Effectiveness-implementation hybrid designs: combining elements of clinical effectiveness and implementation research to enhance public health impact. Medical Care 2012
- Context analysis: Pirotta et al. A checklist for identifying determinants of practice: A systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice. Implementation Science 2013; 8:35

Questions for workshop

- Wat is de level of evidence van de geïmplementeerde interventie?
- Welke contextfactors werden in kaart gebracht alvorens de implementatie te starten en hoe hebben die de implementatietrategie mee bepaald/veranderd?
- Welke stakeholders werden geconsulteerd alvorens de implementatie te starten + welke werden betrokken bij de ontwikkeling van de implementatietrategieën?
- Welke soorten uitkomsten worden geëvalueerd in het project? Effectiviteitsuitkomsten? Implementatieuitkomsten of beide?
- Eventueel: Op welke manier werd in dit project gewerkt aan „duurzame“ implementatie