Evaluation in ‘real-world settings’?

The role of complexity

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One-third of adult population in the EU have a long-standing illness/health problem (2014)

Source: Eurostat. (2016)
People with chronic diseases more likely to utilise health care, particularly those with multimorbidity

Thavorn et al. *Effect of socio-demographic factors on the association between multimorbidity and healthcare costs: a population-based, retrospective cohort study.*


https://bmjopen.bmj.com/content/7/10/e017264.long

Figure 1. Distribution of total number of population and total health system costs in Ontario from 1 April 2009 to 31 March 2010

Figure 2. Unadjusted mean total healthcare cost per capita for Ontario adults, by service type, number of conditions and age group from 1 April 2009 to 31 March 2010.

The nature of chronic conditions requires a different approach to service delivery

<table>
<thead>
<tr>
<th></th>
<th>Acute disease</th>
<th>Chronic Illness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Onset</strong></td>
<td>Abrupt</td>
<td>Generally gradual and often subtle</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>Limited</td>
<td>Lengthy and indefinite</td>
</tr>
<tr>
<td><strong>Cause</strong></td>
<td>Usually single</td>
<td>Usually multiple and changes over time</td>
</tr>
<tr>
<td><strong>Diagnosis and prognosis</strong></td>
<td>Usually accurate</td>
<td>Usually uncertain</td>
</tr>
<tr>
<td><strong>Technological intervention</strong></td>
<td>Usually effective</td>
<td>Often indecisive, adverse effects common</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td>Cure possible</td>
<td>No cure</td>
</tr>
<tr>
<td><strong>Uncertainty</strong></td>
<td>Minimal</td>
<td>Pervasive</td>
</tr>
<tr>
<td><strong>Knowledge</strong></td>
<td>Professionals knowledgeable, patients inexperienced</td>
<td>Professionals and patients have complementary knowledge and experiences</td>
</tr>
</tbody>
</table>

Source: adapted from Holman & Lorig (2000)
Health care largely built around acute, episodic model of care

- Health care not well-equipped to meet the requirements of people with multiple or complex care needs
  - complex response over extended period of time
  - co-ordinated inputs from a wide range of professionals
  - access to essential medicines and monitoring systems
  - active engagement of patients

- Fragmentation of services acting as barrier to coordination of services along the continuum of care
  - Patients receive care for a disease from many different physicians or providers
  - They are frequently called upon to monitor, coordinate, or carry out their own treatment plan

Complexity of different services that patients are required to navigate

Source: House of Commons Health Committee (2014)
Care coordination or integration can improve selected outcomes

- Rising number of people with complex care needs requires the development of delivery systems that bring together a range of professionals and skills from both the cure (healthcare) and care (long-term and social care) sectors
- Failure to better integrate or coordinate services may result in suboptimal outcomes
- Evidence that is available points to a positive impact of coordinated care on the quality of patient care and improved health or patient satisfaction outcomes

But

- Uncertainty remains about the relative effectiveness of different system-level approaches on care coordination and outcomes, with particular scarcity of robust evidence on the economic impacts of integrated care approaches

Review of reviews of integrated care (Martínez-González et al. 2014)

https://academic.oup.com/intqhc/article/26/5/561/1792661

Table 4. Results of 27 systematic reviews of integrated care for different conditions and outcomes
Evidence of economic impacts of integrated care remains uncertain

- Review of 19 systematic reviews/meta-analyses
- Substantial variation in conceptualisation and measurement; quality of evidence typically low (small number of studies; before-after designs)
  - Early supported discharge or discharge planning: Evidence of significant reduction of readmission rates for older people with heart failure and adults with mental health problems but not stroke patients
  - ‘Hospital at home’: non-significant increase in admissions but also significant reduction in mortality at six months (Shepperd et al. 2008)
  - Intervention may increase cost
  - Impact of health system setting: cost differences for discharge planning for heart failure were smaller in non-US based trials than in US-based trials (Philips et al. 2004)

Source: Nolte & Pitchforth (2014)

Does integrated care ‘work’?

- Absence of evidence does not mean absence of effect: Evaluation findings have to be placed in the broader context of implementation
  - Approach might not be suitable to achieve intended effects
  - Weak links between intervention and desired outcomes
  - Underlying theory and ‘causal pathways’
  - Evidence informing intervention development
  - Approach under-developed and/or not appropriately or fully implemented
  - Effects may differ by target population and setting
  - Length of evaluation period might not have been sufficient to demonstrate (economic) impact
  - Lack of understanding of the key processes underlying approach (what is happening ‘on the ground’)
  - Etc.

Source: Nolte & Pitchforth (2014)
‘Integrated care’: widely but variously used in different contexts

- **Principal aim**: to link the cure and care sector to enhance outcomes for those with complex needs
- Different types of integration can occur at different levels within the system
  - **Target**: Functional, organisational, professional, clinical
  - **Hierarchical level / breadth**: Horizontal, vertical
  - **Degree**: Continuum of integration (linkage – coordination – integration)
  - **Process**: Normative, systemic

Source: Nolte & McKee (2008)


Figure 3. Conceptual framework for integrated care based on the integrative functions of primary care

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‘Integrated care’: widely but variously used in different contexts

- Integrated care approaches tend to sit at the policy intersection between public health, health care and social care, and the wider regulatory framework within which these are embedded
- Integrated care seeks to attain multiple, and at times contradictory objectives
  - improve care quality and health outcomes for people with complex needs;
  - strengthen primary care and community services, and optimising their interface with specialist care;
  - make more efficient use of resources, and reduce spending on health care;
  - empower people with chronic conditions

- **Process of integration typically requires simultaneous action at different levels, involving different functions, and it develops in different phases**

Source: Nolte et al. (2015)
Integrated care: complexity as a key defining feature

- Wide range of health service and public health interventions conceptualised as 'complex intervention'
  - health promotion interventions, e.g. health education
  - public health legislation, e.g. smoking ban
  - organisational interventions, e.g. integrated care

- Complex intervention
  - multiple components acting independently and inter-dependently ('active ingredient' not easy to identify)
  - non-linear relationships between 'intervention' and effects
  - context-dependent, requiring flexibility and local adaptation to 'work'

Source: Greenhalgh & Papoutsi (2018); Petticrew et al. (2019)

Integrated care: complexity as a key defining feature

- Complex systems perspective: 'events within systems'
  - complexity is a feature of the system and not just a characteristic of the intervention
  - system is dynamic, with fuzzy boundaries, unpredictable and context-dependent
  - focus is on the system context within which intervention is being introduced, that is, how the intervention interacts with and impacts on the system at different levels

- Understanding of context is of key importance as the intervention interact with the system, adapts to it and might change the system itself
- Research questions will be different: from 'what works' to 'what happened'
- Need for research designs that capture this dynamic, e.g. in-depth, mixed-method case studies using ethnography to understand relationships and interactions at the different levels of the system

Source: Greenhalgh & Papoutsi (2018); Petticrew et al. (2019)
Integrated care: complexity as a key defining feature

Source: Greenhalgh & Papoutsi (2018)


Table 1 . Traditional versus new paradigm approaches to researching health services and systems

What does this mean for evaluation?

- "no evaluation will ever be able to address the almost infinite number of uncertainties posed by the introduction of change into a complex system"
- System lens to drive the focus of evaluation
  - Use of theory to define measures and timeframes for evaluation

Source: Moore et al. (2019)
Integrated care: complexity as a key defining feature

Source: Petticrew et al. (2013)


Figure 1. The Responsibility Deal Logic Model

What does this mean for evaluation?

- "no evaluation will ever be able to address the almost infinite number of uncertainties posed by the introduction of change into a complex system"
- System lens to drive the focus of evaluation
  - Use of theory to define measures and timeframes for evaluation
  - Consider starting point: is it likely that measurable change will occur?
  - Conceptualise what ‘effectiveness’ might look like; consider range of outcomes
  - Consider possible differential impacts at different levels of the system and link micro/meso/macro level interactions and dynamics
  - Multiple follow-up measures to capture dynamics and non-linearity of outcomes over time
  - Assess implementation process alongside evaluation of impact: understand what ‘intervention’ and activities ‘do’ (and how this will affect outcomes)

Source: Moore et al. (2019)