Hospital-Led Integrated Care for High Need-High Cost Patients: A review of reviews

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Background

• The current fragmented hospital and disease-centric care is unable to cope with the growing healthcare needs in the modern day health system

• The methods and outcomes of integrated care interventions used differ and the evidence of the outcomes are inconsistent

• Based on traditional systematic reviews, it could be unclear how effective integrated care interventions are without accounting for the context

• There is also a lack of understanding on why and how integrated care interventions work or do not work under certain circumstances
Realist Review

- Realist review: Its goal is to systematically examine how contextual factors influence outcomes, through mechanisms (Pawson, 2006)

- What works, how, for whom, in what circumstances and to what extent?

- To evaluate an outcome \( (O) \) between a cause and effect, we need to understand the underlying mechanism \( (M) \), and the context \( (C) \) of the relationship
Objective

• To conduct a **realist review** of the existing systematic reviews of literature which examined **hospital-led integrated care interventions** and evaluate the outcomes of these interventions based on the **underlying mechanisms and context**, and to explain the heterogeneity in findings.
Framework

- This review will focus on two out of six dimensions of integrated care (Valentijn et al., 2013)

  - **System integration** – Rules and policies aligned within a system
    - *Vertical integration* – strategies linking *different* levels of care (e.g., hospital, community settings, nursing homes etc.)
    - *Horizontal integration* – strategies linking *similar* levels of care (e.g., two hospitals together)

  - **Organisational integration** – The level of coordination of services across different organisations (*vertical* and *horizontal* integration are also considered)
Method: Search Strategy

• The search for articles was conducted in August 2016

• Databases used: PubMed, Cochrane Database of Systematic Reviews, Scopus


• Quality of systematic reviews was assessed by the Assessing Methodological Quality of Systematic Reviews (AMSTAR) (Shea et al., 2007)
Method: Selection Criteria

The review considered articles that are as follows:

• Reviews of primary literature with systematic searches
• Publication years: 2007 to 2016
• Language: English
• Reviews must evaluate the following outcome measures:
  – Acute care setting as the lead (i.e., integration from acute care to community hospitals or local GPs etc.)
  – Integrated care according to the definitions (i.e., system and/or organisation integration)
• The interventions should target adult populations (we did not restrict the type and number of conditions)
Preliminary Findings
Results

N=2606 identified from PubMed, Medline, Scopus and Cochrane Databases

Papers before 2007: 280
Duplicate: 1

N= 2326 titles reviewed

Does not involve hospital/ not hospital-led = 1
Does not involve hospital/not hospital-led and no vertical/horizontal/organisation/systematic integration = 2
No vertical/horizontal/organisation/systematic integration = 1443
No vertical/horizontal/organisation/systematic integration and intervention outcomes not evaluated = 18
Intervention outcomes not evaluated = 14
Intervention outcomes not evaluated and not systematic review = 2
Not systematic review = 72
Others = 9

N= 1744 titles excluded

Does not involve hospital/ not hospital-led = 1
Does not involve hospital/not hospital-led and no vertical/horizontal/organisation/systematic integration = 2
No vertical/horizontal/organisation/systematic integration = 1443
No vertical/horizontal/organisation/systematic integration and intervention outcomes not evaluated = 18
Intervention outcomes not evaluated = 14
Intervention outcomes not evaluated and not systematic review = 2
Not systematic review = 72
Others = 9

N= 582 abstracts reviewed

N= 450 abstracts excluded

Does not involve hospital/ not hospital-led = 9
Does not involve hospital/not hospital-led and no vertical/horizontal/organisation/systematic integration = 2
No vertical/horizontal/organisation/systematic integration = 177
No vertical/horizontal/organisation/systematic integration and intervention outcomes not evaluated = 1
Intervention outcomes not evaluated = 5
Intervention outcomes not evaluated and not systematic review = 3
Not systematic review = 57
Others = 42

N= 132 full text articles reviewed

N= 90 full text articles excluded

Intervention outcomes not evaluated = 5
No vertical/horizontal or organisation/systematic evaluation = 34
Does not involve hospital/ not hospital-led = 4
Not a review of primary literature with systematic searches = 36
Others = 1 Blanks = 10

N= 41 articles included
## Results

- 7 different intervention strategies from 41 articles
- Evaluation methods: 5 mixed methods, 12 qualitative and 24 quantitative reviews

<table>
<thead>
<tr>
<th>Intervention Strategy</th>
<th>No. of reviews</th>
<th>Components</th>
<th>Population (conditions)</th>
<th>Countries</th>
<th>No. of studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transitional Care</td>
<td>15</td>
<td>Discharge assessment and care planning, communication between providers, preparation of the person and carer for the care transition, reconciliation of medications at transition, community-based follow-up, and patient education about self-management</td>
<td>Individuals with stroke, heart failure, acquired brain injury, geriatric conditions, multiple chronic conditions</td>
<td>Norway, Sweden, Canada, Denmark, United Kingdom, Netherlands, Italy, Mexico, Australia, New Zealand, Brazil, Norway, Poland, Finland, USA, Brazil, Germany, Iran</td>
<td>454</td>
</tr>
<tr>
<td>Case management</td>
<td>2</td>
<td>Needs assessment, development of care plans, coordination of services by a designated case manager, home visits, telephone follow-up, monitoring and assessment of services</td>
<td>Individuals with somatic and health problems, at risk of readmissions, frailty, over the age of 65 years old</td>
<td>USA, Canada, Finland, Italy</td>
<td>19</td>
</tr>
<tr>
<td>Comprehensive care programme</td>
<td>10</td>
<td>Self management support, delivery system design, decision support, development of clinical information system, organized health system e.g., home visits, group sessions at community centres, education, guided care, follow-up and action plan etc.</td>
<td>Individuals with multiple chronic conditions, acute conditions, COPD, asthma, surgical conditions and using long term care services</td>
<td>Canada, UK, USA, Netherlands, Ireland, Switzerland, Norway, Japan, Hong Kong, Spain, Denmark, Greece, Australia, Italy, Thailand, Taiwan, Croatia, Belgium, Israel, Sweden, New Zealand, Germany</td>
<td>1446</td>
</tr>
<tr>
<td>Discharge Planning</td>
<td>8</td>
<td>Individualized discharge planning, discharge preparation, anticipating service needs, after discharge care</td>
<td>Individuals with stroke, heart failure, mental health</td>
<td>Australia, UK, USA, Canada, Hong Kong, Singapore, France, Taiwan, Denmark, Netherlands, Israel, Japan, Spain, China, Lebanon</td>
<td>146</td>
</tr>
<tr>
<td>Early Supported Discharge</td>
<td>2</td>
<td>Multidisciplinary, needs assessment, home visit, discharge planning at hospital, education of care</td>
<td>Individuals with stroke</td>
<td>UK, Norway, Sweden, Australia, Thailand, Canada</td>
<td>19</td>
</tr>
<tr>
<td>Home-based care</td>
<td>2</td>
<td>Hospital at home and home-based care, home visiting, integrated care/stroke units/geriatric assessment units, medical day-hospital care, community-based care/services, nurse-led inpatient units, discharge planning, therapy-based rehabilitation services, written and verbal information, general practitioner, short stay/early discharge, multidisciplinary, communication/telephone, specialist outreach clinics</td>
<td>Individuals with stroke, hernia or varicose veins, ischaemic heart disease, COPD, hip fracture, neurological conditions (especially stroke), cardio-respiratory illnesses, knee replacement</td>
<td>Canada, USA, Australia, New Zealand, UK, Netherlands, Scotland, Norway, Israel, Sweden, Thailand</td>
<td>74</td>
</tr>
<tr>
<td>Shared care between acute and primary care</td>
<td>2</td>
<td>Transfer of services from hospital to primary care, relocation of hospital services to primary care, joint working between primary and acute care</td>
<td>Individuals with asthma, COPD, cancer, congestive cardiac failure (CCF), depression, diabetes mellitus, hypertension, opiate misuse, chronic mental illness, a variety of chronic conditions requiring long-term oral anticoagulation therapy</td>
<td>UK, USA, New Zealand, Australia, Denmark, Ireland, Sweden</td>
<td>144</td>
</tr>
</tbody>
</table>
Quality of Study according to the Assessing the Methodological Quality of Systematic Reviews (AMSTAR)
41 reviews

- Score 1 if “Yes”, 0 if “No” or “Can’t Answer/Not Applicable”
- High = 8 or above, Moderate = 4 to 7, Low = 0 to 3

The AMSTAR tool
1. Was an “a priori” design provided?
2. Was there duplicate study selection and data extraction?
3. Was a comprehensive literature search performed?
   - At least two electronic sources, include years and databases used (e.g. CENTRAL, EMBASE, and MEDLINE).
4. Was the status of publication (i.e., grey literature) used as an inclusion criterion?
5. Was a list of studies (included and excluded) provided?
6. Were the characteristics of the included studies provided?
7. Was the scientific quality of the included studies assessed and documented?
8. Was the scientific quality of the included studies used appropriately in formulating conclusions?
9. Were the methods used to combine the findings of studies appropriate?
10. Was the likelihood of publication bias assessed?
11. Was the conflict of interest included?
Quality of Study according to the Assessing the Methodological Quality of Systematic Reviews (AMSTAR)

41 reviews

High Quality

- Comprehensive Care Programme: 4 (27%)
- Transitional Care: 3 (20%)
- Discharge Planning: 6 (40%)
- Home-based Care: 1 (6%)
- Shared Care Between Acute and Primary Care: 1 (7%)

Moderate Quality

- Transitional Care: 7 (37%)
- Discharge Planning: 1 (5%)
- Case Management: 2 (11%)
- Early Supported Discharge: 1 (5%)
- Home-based Care: 1 (5%)
- Comprehensive Care Programme: 6 (32%)
# Context, Mechanism, Outcomes

<table>
<thead>
<tr>
<th>Type of intervention strategy</th>
<th>Number of Reviews</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>All Context, Mechanism, Outcomes</td>
</tr>
<tr>
<td>Discharge planning</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Transitional Care</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>Comprehensive Care Programme</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Case management</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Early Supported Discharge</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Home-based care</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Shared care between acute and primary care</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>41</strong></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>
Transitional Care

- Multicomponent transitional care interventions targeting multiple risk factors may be more effective than single-component interventions in reducing readmissions
  - These interventions reduced rehospitalisation, readmission rates and healthcare costs (O)

- E.g., specialist nurse-led assessment, discharge planning, patient–carer education; coordination of post-discharge services; and home visits (at 24 h and 7–10 days) with telephonic follow-up (M)

- Significant improvements observed in transitional care delivered by nurses

- Interventions are often targeted at patients at high risk of unplanned admissions e.g., elderly, multiple chronic conditions, poor family/social support, history of depression, cognitive impairment, impaired functionality, advanced-stage illness (C)

- Fewer single-component interventions showed effective results

- GP and primary nurse care models did NOT improve re-hospitalisation
Discharge Planning

• Effective outcomes can be achieved with the collaboration between multiple healthcare providers

• Interventions delivered by nurses and supported by various providers (e.g., allied health professionals and social workers) targeted both the patients’ medical and psychosocial needs (M)
  
  o Studies looked at a variety of outcomes, ranging from patient satisfaction to length of stay.
  o E.g., Early discharge planning led by nurses while being supported by a multidisciplinary team (M) effectively reduced hospital readmission rates, duration of hospital inpatient stay, and all-cause mortality (O).

• However, there is limited evidence on the beneficial effects of discharge planning for programmes that include geriatric patients (C).
Comprehensive Care Programme

• Comprehensive care programmes are more effective in targeting single conditions
  • **Reductions in hospital readmissions** for COPD and heart failure conditions
  • **Improvements in disease-specific QoL on all domains of the Chronic Respiratory Questionnaire (O)** in COPD patients compared to usual care

• These programmes often delivered by a multidisciplinary team, and includes elements of self-management, empowerment, and education (M)

• The diversity in the effects of comprehensive care programs may also be related to other factors
  • E.g., whether the programs were correctly implemented, whether the program components were well integrated, and whether they were fully adopted by the patients and the caregivers involved (C)
Discussion

• "Hospital-led integrated care" is a term used for multiple, different intervention strategies in various countries (e.g., USA, Canada, UK, Australia)
  • Overlaps in the intervention components

• Methodological quality of most reviews is high or moderate

• Data about CO, MO or CMO is available for majority of studies

• Most of the reviews analysed health utilisation, and less on patient outcomes e.g., mortality, patient satisfaction

• Some outcomes are not consistent
  • E.g., Reductions in length of stay observed in some studies, but no significant effect in other studies

• Primary care not as involved in integration strategies
References


Thank you.