Leveraging Artificial Intelligence for Optimizing Transitional Care

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(Abstract session: AI, innovative technologies, and effective communication – June 6)

5 - 7 June 2024 - Bucharest, Romania
Politehnica University of Bucharest, Bucharest, Romania

#EHMA2024
About me

- **Amal Fakha (PhD), Assistant Professor**

- **Affiliation:** Department of Innovation Management & Strategy, Faculty of Economics and Business at University of Groningen

- **Expertise:** Healthcare / Implementation scientist

- **Research:** Implementation of innovations/change in healthcare organizations, contextual analysis, strategy development

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Background
Care Transitions

** Movements between multiple healthcare providers & care settings  
(e.g., hospital, emergency unit, homecare, nursing home, intermediate care facility, rehabilitation facility) due to change in care needs of patients **

Care Transitions

Vital, common, and frequent for patients with **chronic diseases & multimorbidity** (especially older persons)

Risky / Challenges
- Care fragmentation
- Poor communication
- Medication errors
- Rehospitalization

Transitional Care is defined as a set of actions designed to ensure the coordination and continuity of healthcare as patients transfer between different locations or different levels of care within the same location.
Transitional Care (TC) Services

**Hospital to Home**

- Improve or prevent care transitions
- Various pathways
- Bundle of care services

**In-hospital assessment & development of care plan**

**Transitional Care Nurse** (core feature)

- *primary care coordinator among providers across the entire episode of care*
- *active engagement, support, education (older person, family, informal careiver)*

**Regular home visits, ongoing telephone support (7 days/week over 2 mons post-discharge)**

**Continuity of medical care between hospital & primary care, accompanying older persons to follow-up visits**

Fakha et al. 2021, Naylor et al. 2019
Transitional Care Services

Significant role to ensure safe care transitions, care continuity & coordination

Fakha et al. 2021, Naylor et al. 2019
Artificial Intelligence (AI)

A growing trend towards integrating this innovative technology into healthcare

*high potential to mitigate challenges*

Can the use of AI enhance the delivery of transitional care?
Manuscript under review in the Journal of Medical Internet Research (submitted May 2024).

Study conducted with researchers Lea Brandenstein, MSc BA & Prof. dr. Albert Boonstra, University of Groningen.
Research Objective

To identify:

➢ Current AI tools for TC

➢ How they are used to enhance the process

➢ Performance outcomes
Methods

- Scoping Literature Review (Arksey and O'Malley framework)

- Data extraction, mapping, & analysis using:
  - established categories of AI usages
  - components of comprehensive & effective TC
  - frequency of reported outcomes
Findings
Key Results (1)

15 studies = different AI tools for TC

Most focused on care transition from hospital to home
Care Transitions

AI tools

✓ Triage system
✓ Prediction algorithm (transitions, discharge, length of hospital stay, treatment)
✓ Automatic clinical detection system
✓ Clinical decision support
✓ Automatic discharge summary generator
✓ AI platform for data exchange between settings
Key Results (1)

15 studies = different AI tools for TC

Most focused on care transition from hospital to home

4 common AI usages for TC

- Interoperability / system navigation
- Language translation
- Discharge / follow-up
- Triaging / predicting models of care
Key Results (2)

Components of comprehensive & effective TC promoted by AI tools

- Care continuity
- Complexity management
- Caregiver engagement
- Patient & caregiver wellbeing
Key Results (3)

Reported performance outcomes of AI use in TC

- Less rehospitalization
- Information exchange
- Earlier prediction/diagnosis
Conclusions
Conclusions

- Use of **AI in TC** has demonstrated **to be important** in enhancing care transitions for patients and ensuring seamless continuity of care.

- Future **research** is needed to explore the intersection of AI and TC, since the **implications of identical AI tools’ implementations can vary across different contexts**.

- Future focus should be on **“How AI can be used in healthcare”** rather than if it should be used or not.
Thank you

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