EHMA 2024

Shaping and managing innovative health ecosystems

Leveraging Artificial Intelligence for Optimizing Transitional Care

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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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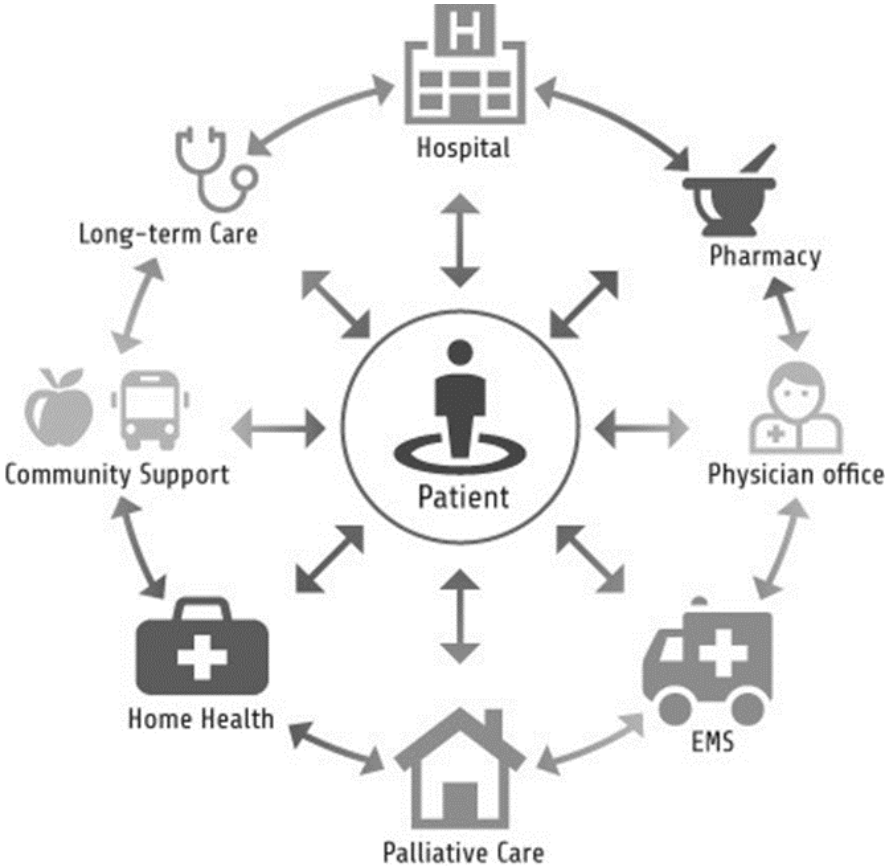
Background

Care Transitions

Movements between **multiple healthcare providers & care settings**

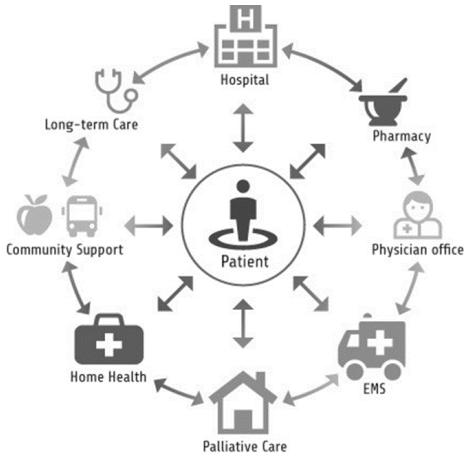
(e.g., hospital, emergency unit, homecare, nursing home, intermediate care facility, rehabilitation facility) due to change in care needs of patients



Coleman EA. 2003; Mansukhani et al. 2015; Greysen et al. 2014

Source: image retreived from https://www.linkedin.com/pulse/ensuring-safe-transitions-care-anne-llewellyn/

Care Transitions



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

Risky / Challenges

- Care fragmentation
- Poor communication
- Medication errors
- Rehospitalization

Coleman EA. 2003; Mansukhani et al. 2015; Greysen et al. 2014

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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.

Hirschmann et al. 2018, Coleman & Boult 2003

Transitional Care (TC) Services

Improve or prevent care transitions

Various pathways

Bundle of care services

Hospital to Home

In-hospital assessment & development of care plan

Transitional Care Nurse

(core feature)

* ***primary care coordinator*** *among providers across the entire episode of care*

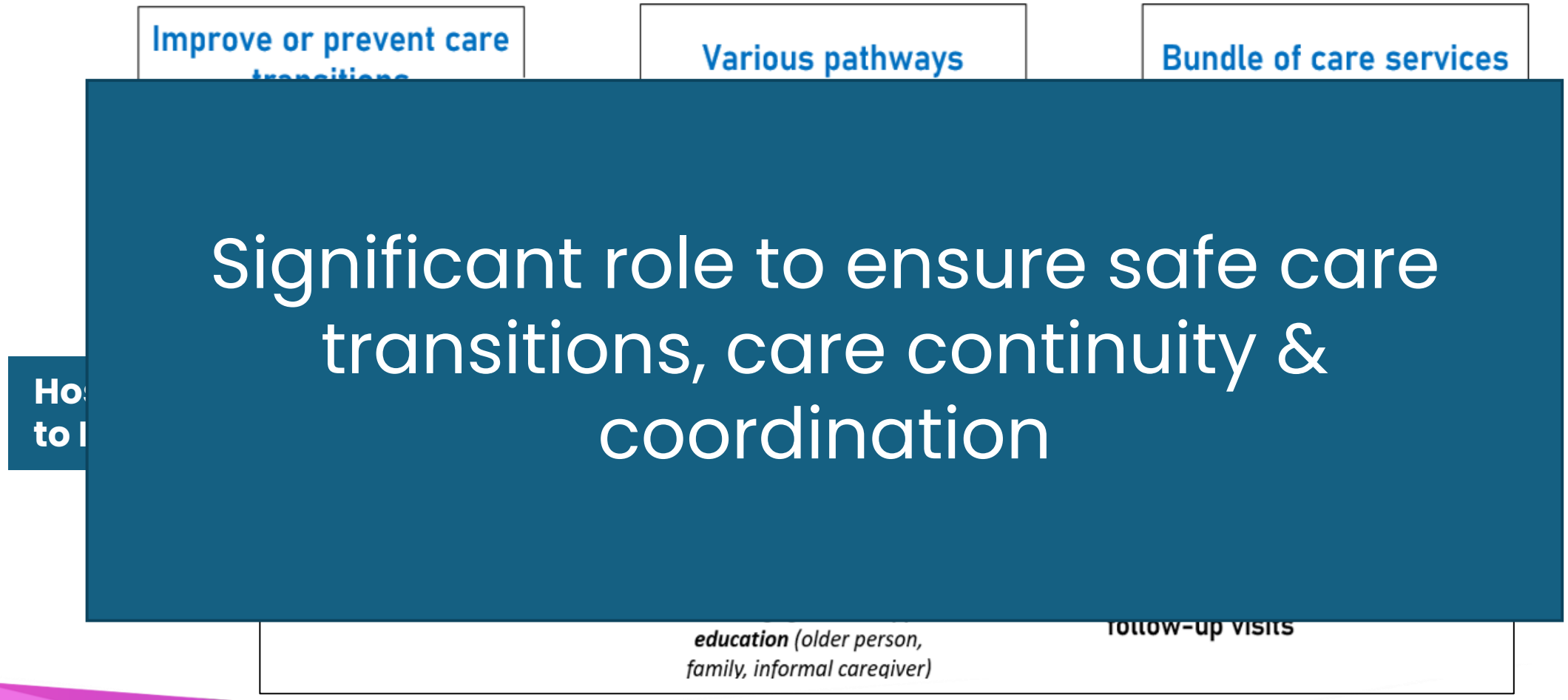
****active engagement, support, education*** *(older person, family, informal caregiver)*

✓ 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



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 ?

Sharma et al. 2022

Research Aim & Methods

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

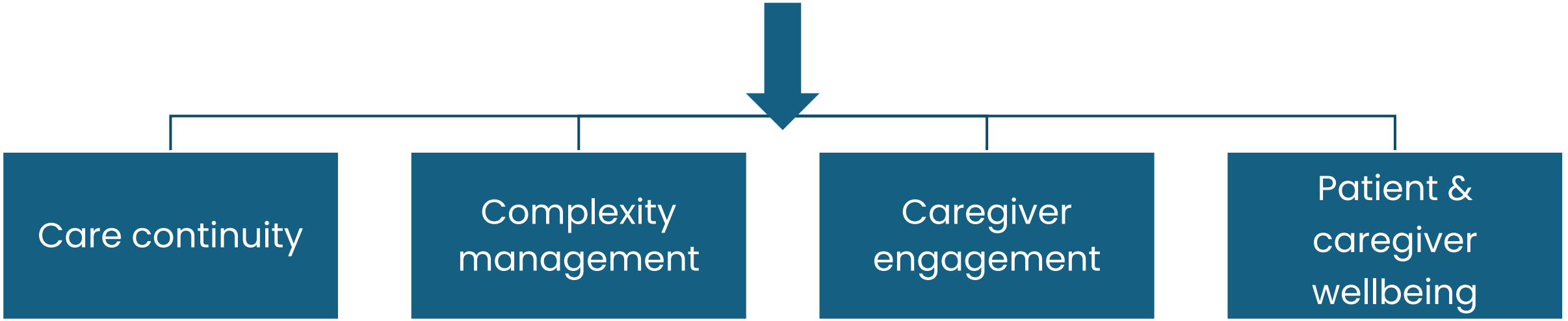
Most focused on care transition from **hospital to home**

4 common **AI usages** for TC

- Interoperability / system navigation
- Language translation
- Discharge / follow-up
- Triaging / predicting models of care

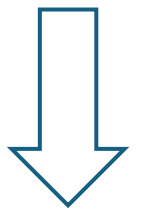
Key Results (2)

Components of comprehensive & effective **TC promoted by AI** tools



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.

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Thank you

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