

Assessing Methods to Model Patient-Centric Care Pathways across Multiple Healthcare Systems

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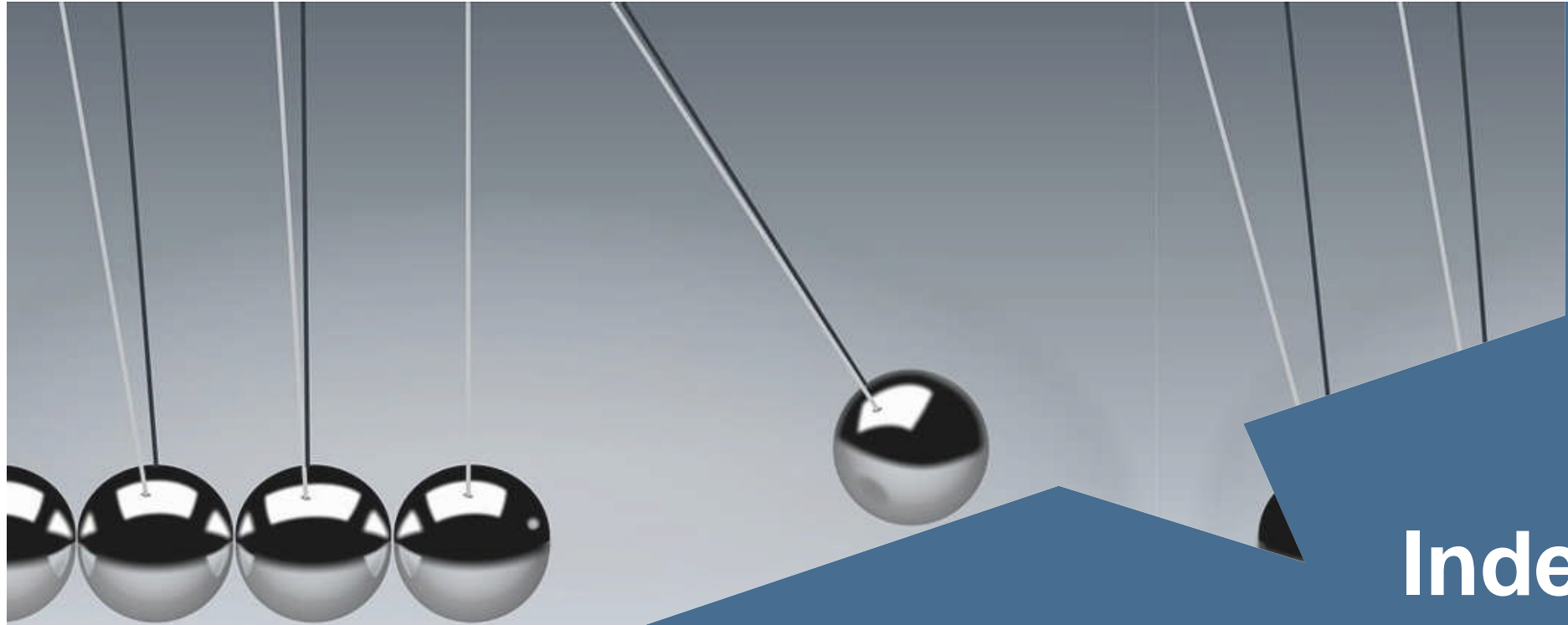
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Short bio

Sonja Cassidy is a specialist consultant at the Western Norway Regional Healthcare ICT. She holds a degree in Computer Science from the University of Bergen and a Master's in Leadership in Healthcare Organizations from the University of California, San Diego. For the last 18 years she has worked with process improvement in specialist care. Her emphasis has been on simplifying hospital workflows, translating the needs of healthcare professionals and organizations into technology requirements and presenting the possibilities of using technology to improve workflows to the hospitals and staff.

Currently, she has a scholarship to do her PhD as part of the research project Valkyrie at the Norwegian Center of eHealth Research, with a focus on developing EHR-supported, patient-centric, integrated care pathways across multiple healthcare organizations for young adults suffering from anxiety and depression.





Index

- Introduction
- Main findings
- Connecting the dots
- Conclusion and Future work

The aim

A Newton's cradle with five silver spheres hanging from thin wires. The background is a gradient of blue and grey.

1

Assess the challenges of modelling patient-centric pathways across multiple healthcare levels

2

Suggest guidelines to meet those challenges

Introduction

1

Clinical pathways

standardized steps to rapidly diagnose the patient's illness and initiate treatment

2

Care integration

aimed to facilitate and encourage the coordination between levels of care

3

Patient centered care

- *the patient as a recipient of care*
- *the patient as expert*

4

Patient-centric, integrated care

- Holistic approach
- Patient perspective as evidence
- Vertical integration

Adding to the complexity of modelling pathways

Multilevel healthcare service delivery

- macro level: system, policy, regulatory
- meso level: regional and local health services, clinical practice
- micro level: patient perspectives

Electronic healthcare records

- macro level: sharing information for better planning of services
- meso level: integrating professional teams and healthcare organizations.
- micro level: supporting the empowerment of patients and improving quality of care

The need for patient-centric, integrated pathways supported by EHRs

Norway, 12.03.20. Covid-19 lockdown

- Hospital disaster plans in place
- Lack of descriptions for end-to-end patient care
- Lack of plans for how EHRs and technology could support care pathways

Urgent actions to support integrated care pathways:

- Macro level: Policy and regulatory changes
- Meso level: Organizational changes. Collaboration
- Micro level: Self-care. Care provided in new locations
- Extended use of existing technology and EHR data



Main findings

Both macro, meso and micro level pathway models were represented in the research.

- The pathways were modelled across multiple healthcare levels (4)
- The modelling included some level of patient engagement (9). Engagement throughout the developing process (3)
- The research discussed the need for modifications to existing mapping tools to reflect multiple healthcare settings (3)
- The research discussed digital technology and EHR data as critical components for patient-centric pathways (5)
- The research used a data-driven approach to modelling, supported by EHR data (1)

The modelling process

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different objectives and perspectives on patient care caused tension and challenged the collaborative process of designing patient pathways

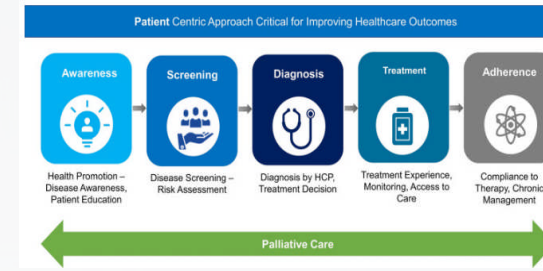
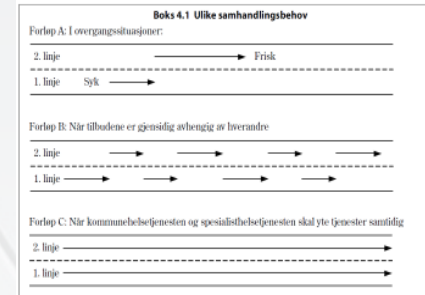
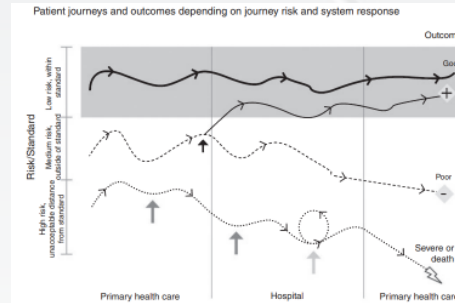
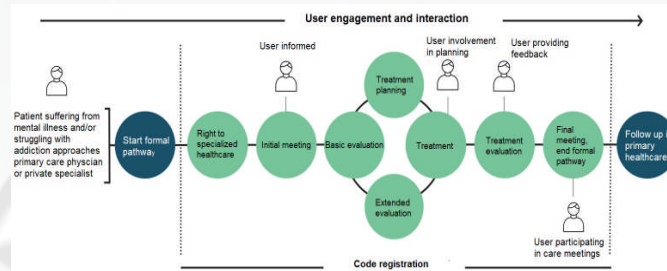
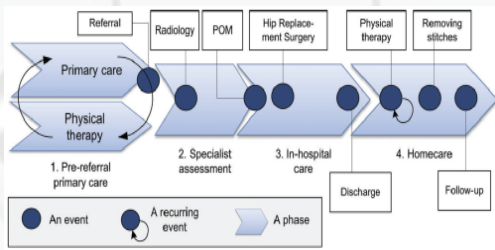


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pathway modelling helped bridge disciplinary boundaries and develop a common language around the multi-organizational pathway

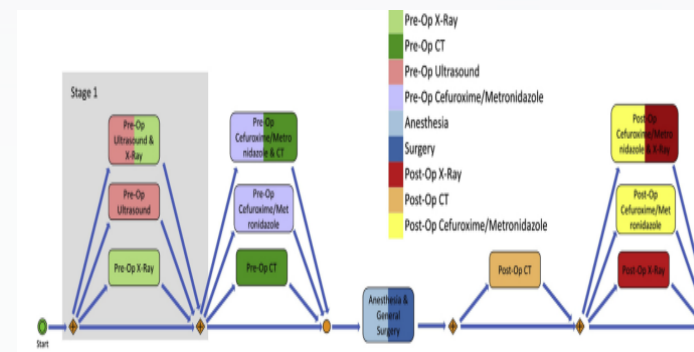
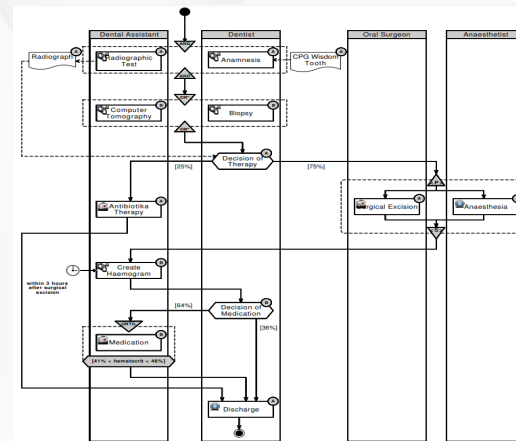
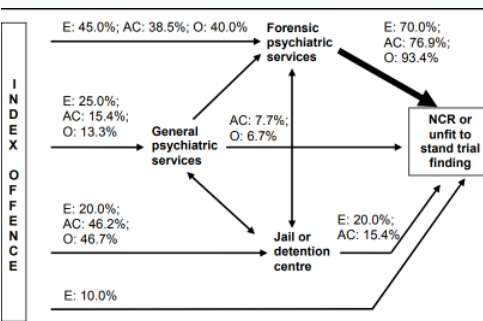
Main findings: pathway modelling methods

Macro and meso level modelling

- Business Process Modelling (BPM)
- Event Driven
- Lean
- Service design
- Process mining
- Unified Modelling Language (UML)
- Spreadsheets, drawings



Micro level modelling Customer journey mapping (CJM/PJM)



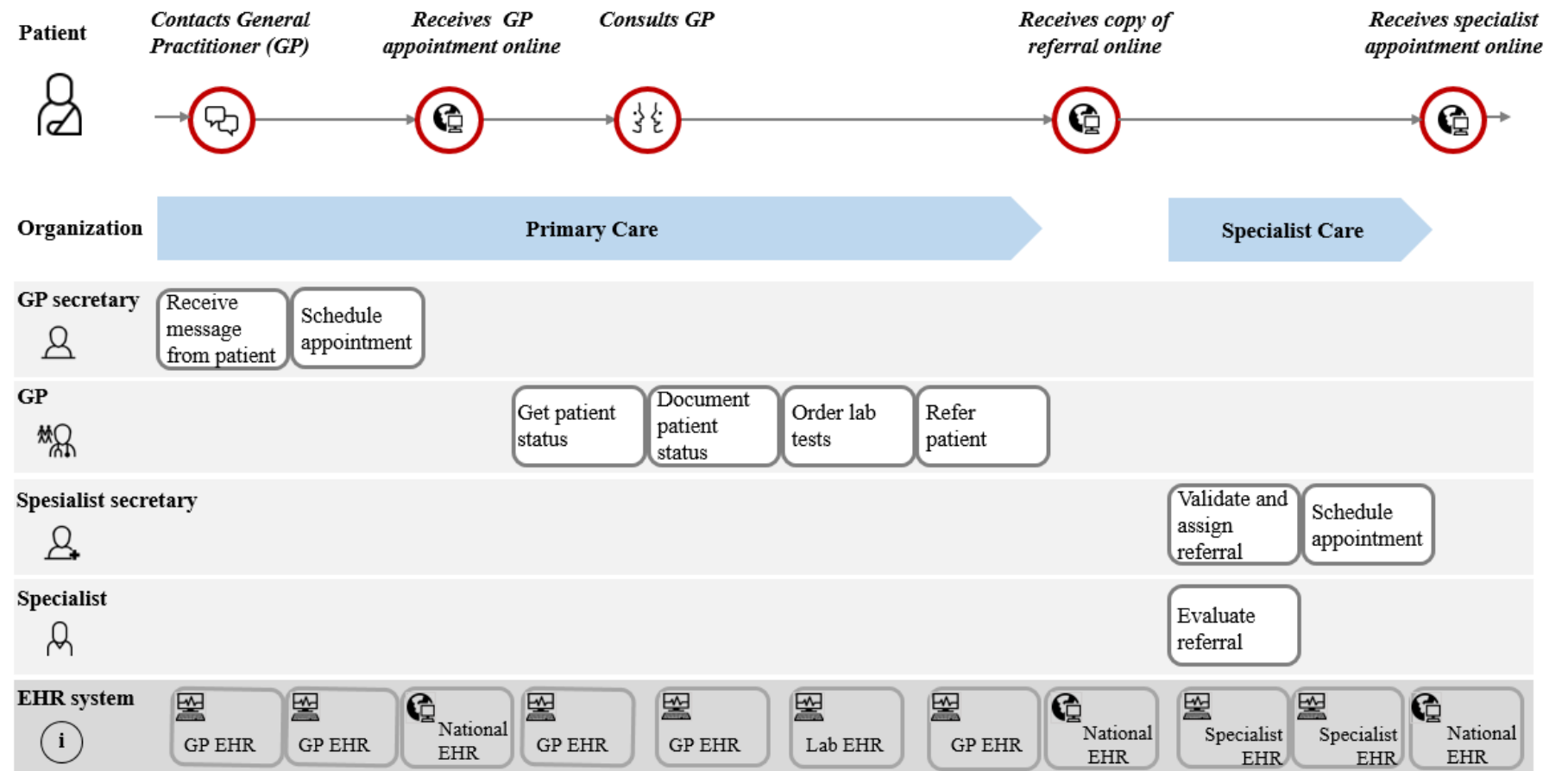
Connecting the dots

Recommended modelling approach:

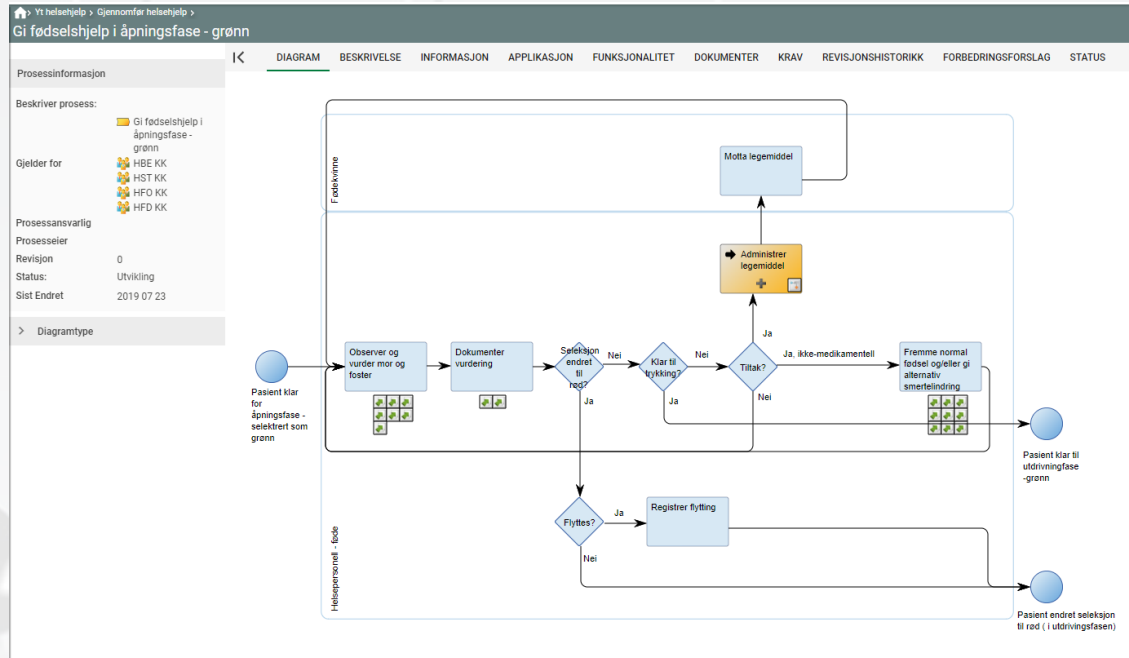
Micro level:
PJM Language

Macro and meso levels:
BPM Notation (BPMN)

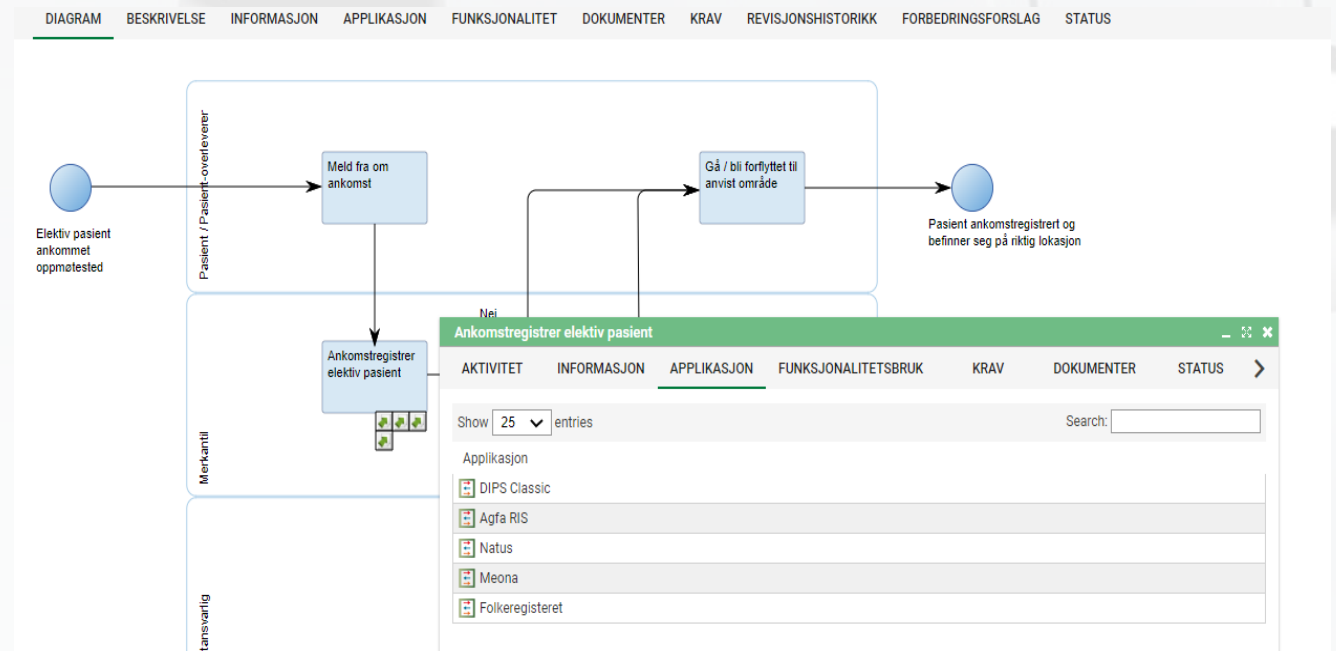
Digital modelling tools



Digital modelling tools



- standardized methods
- allow sharing and reusing of models
- can balance the trade-off between overview, comprehensiveness and detail
- are easily expandable
- allow pictures, videos and documents in the models
- can support pathway simulation and execution

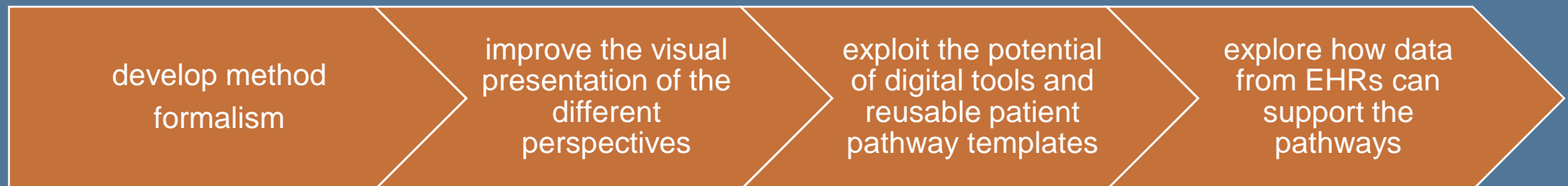


Conclusion and future work

Combining BPMN, CJML and digital modelling tools can:

1. help overcome the limitations of a specific modelling method
2. provide a different approach that meets the request from earlier research: *to design healthcare services that qualify patient-centeredness, care integration and the use of EHR data to support the pathways*

Further work is needed to





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Extra slide. Valkyrie project, Norwegian Center for e-Health Research

<https://ehealthresearch.no/en/projects/valkyrie-distributed-service-oriented-architecture-for-coordinated-healthcare-services>

