Erasmus School of Health Policy & Management

CAPRI FOUNDATION | Dutch prostate cancer registry

HSD73

Establishing a Learning Healthcare System for Metastatic Prostate Cancer in the Dutch Healthcare System: Preconditions and Potential Benefits of Real-World Data Utilization

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Background

The metastatic prostate cancer (mPCa) landscape is rapidly evolving due to the introduction of new treatments. To ensure and optimize patient outcomes there could be a role for real world data (RWD) through learning health systems (LHS).

A LHS can improve healthcare by continually learning through a series of repeated learning cycles, in which:

1. Data is transformed into knowledge
2. Knowledge is applied in practice
3. Practice is again transformed into data, which starts the new cycle

Objectives

This study aims to explore the establishment of continuous learning from RWD in mPCa care. It seeks to create a model through exploration and analysis of:

The development of a learning health system
The necessary preconditions for a system designed to support and encourage learning based on RWD.

Dynamics of a learning system
The preconditions of learning (processes) within a LHS system to contribute to the enhancement of healthcare.

The research

This study was based on the experiences and outcomes from the Dutch Metastatic and Castration Resistant Prostate Cancer Registry (CAPRI). It encompassed the following components:

Literature study
The literature study focused on the established elements of a LHS, its practical applications, potential advantages, challenges, and existing learning models.

Interviews
A total of eleven interviews were conducted involving twelve stakeholders in the mPCa and LHS domain, consisting of physicians, insurers, pharmaceutical companies, and researchers of the Netherlands Comprehensive Cancer Organization.

Analysis and formation of a learning model
The interviews were analysed for the preconditions of a LHS, how there is learned and cases in which there was learned. The outcomes of the literature study and interviews were combined to construct a learning model.

Results

Parts of a LHS

Building blocks
The building blocks serve as the essential infrastructure of a LHS, consisting of:

- (Scientific) knowledge
- Social integration
- Technology
- Policy
- Legal frameworks
- Ethical guidelines[1]

With only building blocks, the LHS is a stiff and rigid system, due to:

- Rapid change and dynamics
- Diverse stakeholders (numbers, interests, and perspectives)
- (In)dependent interactions
- External factors

Lubricants
Lubricants can smoothen up learning. Types of lubricants are:

- Social influence
- Credibility
- Compatibility
- Resource match
- Actionability
- Relative advantage [2]

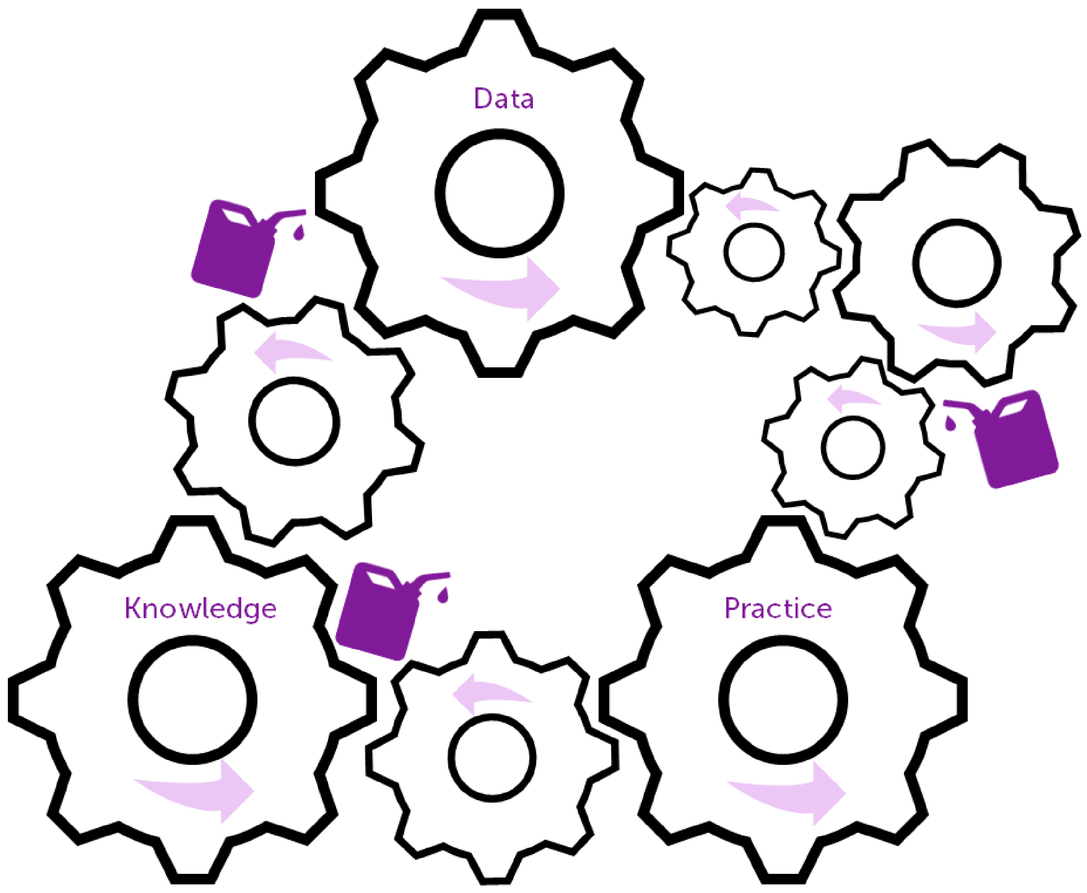

Figure 1: Visualisation of a LHS with the different learning steps in the learning cycle, the building blocks and lubricants

"Ingredients" of the lubricants for learning
From the outcomes of the interview and the identified cases, we identified different ingredients of the lubricants for learning. The ingredients of each lubricant are shown in Table 1. The effectiveness of the learning process is directly linked to the presence of these ingredients, with a greater number resulting in smoother learning. However, the presence of specific ingredients or combinations may be necessary for the learning process to run, and this requirement can vary from case to case.

Social influence	• Driven and committed organisations • Informal relationships
Credibility	• Trust in the individuals involved • Trust in the data source • Trust in data analysis
Compatibility	• Alignment with data needs • Alignment with physician expectations • Alignment with the norms and values of the healthcare system
Resource match	• Time • Data • Platforms • Financial resources • Hospital capacity • Agreements/ protocols
Actionability	• Stakeholder(s) influence • Clarity of the action to be taken
Relative advantage	• Personalized care • Optimal and efficient resource allocation • Quality improvement • Guideline formation • Supporting policy decisions at the policy level

Table 1: Overview of the lubricants and their ingredients, which can enhance and stimulate learning

Conclusion

Continuous improvement of healthcare in the field of mPCa could be achieved through the implementation of a LHS. To achieve this the LHS should contain:

- Building blocks; the essential infrastructure
- Lubricants with various ingredients; the enhancers and stimulators

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[1] Menear M, Blanchette M, Demers-Payette O, Roy D. A framework for value-creating learning health systems. Health Research Policy and Systems 2019;17(1):79.
[2] Brown, B., Gude, W.T., Blakeman, T. et al. Clinical Performance Feedback Intervention Theory (CP-FIT): a new theory for designing, implementing, and evaluating feedback in health care based on a systematic review and meta-synthesis of qualitative research. Implementation Sci 14, 40 (2019)