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**The role of implementation science  
in healthcare improvement efforts:  
Investigating three complex interventions**

Implementeringsvetenskapens roll i hälso- och  
sjukvårdens utvecklings- och förbättringsarbeten:  
en studie av tre komplexa interventioner

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The role of implementation science in healthcare improvement efforts: Investigating three complex interventions

**Abstract**

For decades, scholars have found significant gaps between the knowledge available and the knowledge applied in healthcare. Many potential benefits of adequate knowledge based interventions are therefore never achieved. A considerable body of knowledge has evolved on how to promote a better uptake of evidence-based knowledge into routine use. Even so, the actual impact and usefulness of implementation research findings among healthcare practitioners have not been extensively studied.

Accordingly, the overall aim of this thesis is to contribute to the understanding of how the implementation of complex interventions into healthcare can be improved. This is done by investigating whether some of these efforts do correspond with available scientific knowledge on implementation.

The thesis is based on three cases contributing to four studies. The cases studied are: the National Perinatal Patient Safety program (NPPS), the Dynamic and Viable Organisation initiative (DVO), and the International Child Development Program (ICDP). All studies focuses on the early stages of implementation.

A mixed methods approach was adopted, involving both qualitative and quantitative methods. Data collection consisted of interviews, questionnaires, observations, and process diaries. Qualitative content analysis (conventional and directed), descriptive and non-parametric statistics were used. The focus was on implementation strategies used by healthcare actors in relation to factors influencing implementation processes and outcomes. More specifically, healthcare actors perspectives on such factors and whether they were addressed by the strategies used, was investigated. An evaluation of implementation outcomes by process evaluation was also part of the thesis.

The healthcare actors in focus were the adopters, i.e. practitioners expected to change their work practices, and implementation facilitators. The latter refer to actors with a more or less explicit responsibility to implement new practices or interventions aimed at improving the quality and effectiveness of the provided health services.

Variation was found regarding how the implementation strategies used in the three cases corresponded with available scientific knowledge on implementation. In Case NPPS, the implementation facilitators planned, designed, and ensured that the core interventions of the implementation strategy were executed in a rational manner. Several important implementation factors were addressed by the strategy. The process evaluation of effects on readiness for change by the development of a team mental model among adopters showed positive results.

In Case DVO a strategy was used that evolved over time, partly based on raised questions and feedback from staff and managers involved. The strategy can be described as an intuitive 'socially accomplished activity'. This strategy involved addressing 'Implementation Process-related factors' in order to affect motivation and increase the tension for change among adopters.

In Case ICDP, the results reflected a shortage of strategies during the early stage of implementation. The main intervention was the stepwise ICDP-education. A more comprehensive implementation strategy covering implementation factors highlighted as important among adopters was not developed. The process evaluation revealed vague directives on what was expected regarding the use and adaptation of ICDP to current practice versus preservation of fidelity to the original ICDP. This situation resulted in a rather large variation in how the changes in work practices were perceived among the health centres involved. No health centre practiced ICDP in its original form.

A new knowledge-practice gap is discussed based on the findings in this thesis: a gap between the scientific knowledge on implementation and the actual implementation strategies used in practice during improvement efforts initiated by healthcare actors. The findings show that correspondence between scientific knowledge on implementation and what is actually done in order to accomplish change in practice might be more random (or implicit) than systematic. The question of how to transfer scientific knowledge on implementation into user-friendly resources for practitioners is discussed. A tentative model is suggested, which contributes to existing determinant frameworks by focusing on relations among factors. The model may be used in healthcare practice, to guide the design of an implementation strategy (or as a pathway for tailored implementation interventions) and aid the assignment of responsibilities in relation to factors that are known to affect implementation processes and outcomes.

The question of how to transfer models and frameworks into user-friendly resources needs further attention. It is suggested that action oriented research aiming at further developing and establishing the concept of 'practical implementation science' should be conducted. This could be a way of bridging the knowledge-practice gap in healthcare.

**Key words:** Healthcare improvement, Knowledge-practice gap, Implementation science, Complex interventions, Implementation strategy, Change facilitation, Case studies

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