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Patient accessible electronic health records: Connecting policy and provider action in the Netherlands

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Abstract
Objectives: The study provides a conceptual model for analyzing the connections and gaps between national policy and care provider processes aimed at patient accessible electronic health records. We illustrate the model using empirical data from the Netherlands as an explorative case study.
Methods: The conceptual model integrates governance and organizational theory of routines. Empirical material was gathered in 2015 in the Netherlands comprising documents and interviews with policymakers and healthcare providers (N=14). The integrated conceptual model guided the data analysis.
Results: The findings reveal a common aim of patient participation and improving patents' self- management at both policy and care provider level, while both sides lack comprehensive strategies to translate this shared goal into regulatory frameworks, guidelines, technological solutions and daily performances. Furthermore, initiatives on the levels of policymaking and service providers are poorly connected, thereby constraining the vision of improved patient participation and innovation more generally.
Conclusions: The research highlights the need for developing standards at various levels for the implementation of patient accessible electronic health records in order to improve equal access and interoperable technological solutions. The conceptual model illustrates the benefits of linking governance and organization theories to bring existing gaps between policy and healthcare provider perspectives into view, which may block more efficient implementation of e-Health policies.

Introduction

In many countries, technological advancements and patient movements are driving efforts to implement patient accessible electronic health records (PAEHRs) [1]. We define

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PAEHRs as e-services providing patients with the possibility to continuously "view, and sometimes edit or comment, on their electronic health record" via the Internet [2:2]. PAEHRs can be provided through several systems, including Personal Health Records controlled or maintained by patients, and patient portals typically maintained by healthcare or technology providers. A large body of research highlights the potential of PAEHRs to promote patient empowerment, time saving, patient safety and quality of care, often in combination with other administrative and communication services [2-8]. Available results are modest and findings far from being conclusive, however. Recent reviews conclude that the alleged potential of PAEHRs to empower patients and improve clinical outcomes is difficult to realize, especially because patient usage levels are typically lower than expected [9-13]. Making PAEHRs or any patient oriented e-health service useful for patients, providers and healthcare systems must be coordinated systematically and this involves the implementation of technology, secure handling of data as well as changes in patient-provider relationships [14-17]. The literature has highlighted the need for efforts both at the level of government and at the level of healthcare organizations in order to ensure a consistent implementation and use of PAEHR services [5-10]. Yet little attention has been paid so far to the concurrent processes through which PAEHRs are being developed, used and governed at the level of healthcare providers (provider level) and the level of national policy (policy level) respectively. Frameworks for analysing the connections between national policy and local efforts are largely absent in the literature.

Against this background, the present study introduces a conceptual model for analysing how policy and care provider processes aimed at PAEHRs are connected. We develop a model that links theories of governance and organizational routines and illustrate this model using empirical case study material from the Netherlands. Developments in this country can add new knowledge, because the PAEHR literature is biased towards the United States (US) [2,10]. Further, the Netherlands has established innovative solutions for PAEHRs, which are based on strong inclusion of healthcare provider organizations as driving forces [8]. The study proceeds with a presentation of the conceptual model, followed by an outline of the methods used and the empirical case study results. Finally, some conclusions are drawn on existing gaps in the implementation of PAEHRs and how they might be reduced.

Connecting governance and organizational routine theory: the conceptual model

Assuming that top-down and bottom-up dynamics would interact in the establishment and governance of PAEHRs, we focused on the two major actors in the field, the policymakers and the healthcare providers, and explored how they are connected. Governance [17,18] served our analysis as an umbrella concept, while organization theories provided the conceptual tools for in-depth explorations of the connections. Governance shifts the regulatory power from the 'government' towards more plural tiers of governing [19] and strengthens operational dimensions on the levels of the organization and professional groups [20]. Viewed through this lens, innovation, such as the implementation of PAEHRs, is at first and foremost, an outcome of the connections between different driving forces and strategic actors and can therefore not be studied as an isolated action of either policymakers or the healthcare professionals and providers.

We elaborate on a conceptualization of organizational processes and routines (at one level) [21,22] and expand this approach towards multi-levels to explore connections between PAEHR processes at the levels of policymaking and care providers. As shown in Figure 1 below, the framework recognizes *ostensive aspects* (the process as officially articulated) on the levels of both policymakers and healthcare providers. *Artefacts* refer to the processes as inscribed into material objects, such as rules, checklists and technologies. In our case study, policy-level artefacts refer to material manifestations of policy-level ambitions to achieve PAEHRs, such as legislation, standards and national technological platforms. Provider-level artefacts refer to manifestations such as internal guidelines, checklists and specific technology implemented to provide PAEHRs. Finally, *performative aspects* refer to the process as performed in daily practice, for instance, how policymakers and healthcare providers enact the articulated ambitions in their situated use of the available guidelines and technologies in daily practice. In our research we set the focus on the performative aspects at the care provider level.

Methods

The empirical setting: the healthcare system in the Netherlands

The Netherlands has approximately 17 million inhabitants. The Dutch population is ageing, with the highest burden of disease resulting from chronic diseases such as coronary heart disease and diabetes mellitus [23]. The Dutch healthcare system is characterized by marketization and entrepreneurialism in the hospital sector [24]. All inhabitants who pay Dutch income tax are mandated to purchase statutory health insurance from private insurers. Health

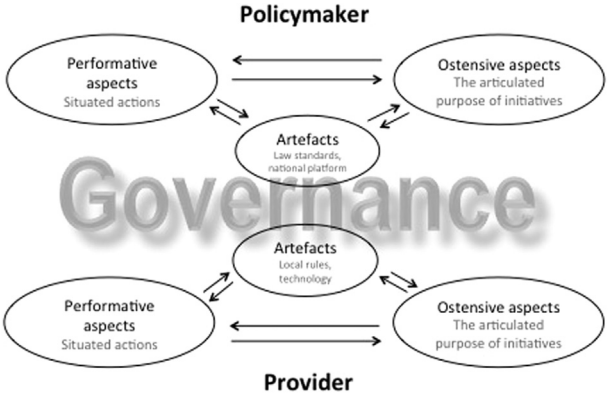

Figure 1 A conceptual model of the connections between provider and policymaker processes aimed at establishing PAEHRs.

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