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Developing patient portals in a fragmented healthcare system

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ABSTRACT

Background: Use of patient portals may contribute to improved patient health and experiences and better organizational performance. In the Netherlands, patient portals have gained considerable attention in recent years, as evidenced by various policy initiatives and practical efforts directed at developing portals. Due to the fragmented setup of the Dutch healthcare system patient portals that give patients access to information and services from across their providers are developed in inter-organizational collaboration.
Objective: The objective of this paper is to identify and describe the types of collaborations, or networks, that have been established to develop patient portals in the Netherlands. Understanding the characteristics of these networks as well as the development of their respective portals enables us to assess the enabling and constraining effects of different network types on patient portal initiatives.
Methods: We used qualitative methods including interview and documents analysis. In a first step, we interviewed eighteen experts and reviewed relevant national policy and strategy documents. Based on this orientation, we selected three networks we deemed to be representative of inter-organizational efforts to develop Dutch patient portals in 2012. In a second step, we interviewed twelve representatives of these patient portal networks and collected documents related to the portals. We applied content analytic techniques to analyze data from the three cases.
Results: The three studied networks differed in their number and diversity of actors, the degree to which these actors were mutually dependent, the degree to which network governance was decentralized, and the dynamics of the network structures. We observed that the portals developed in networks displaying the highest degree of these characteristics experienced most difficulties associated with developing patient portals – such as achieving interoperability, successful implementation, regulatory complaisance, and financial sustainability. Yet, at the same time, the portals developed in these networks may hold the highest functionality to patients, since they can consolidate information and services from a broad array of health service providers.
Conclusions: The early empirical evidence provided here indicates that effective development of patient portals begs a tradeoff between envisioned functionality and ease of development.

1. Introduction

Patient portals are secure websites that give patients access to personal health information and often include functionalities such as secure emailing with providers, online appointment scheduling, and various self-management programs [1]. Patient portals have been found to produce desirable outcomes including better chronic disease management, patient satisfaction and empowerment, and better patient-provider interaction [2]. Their effects on service operations are less clear. Some evidence suggests that they may induce operational savings and may substitute for some in-person visits and telephone calls [3]. Most of these outcomes have been reported in integrated care delivery systems [4].

Due to these documented benefits, there is interest in many countries, including the Netherlands, to develop patient portals [5]. In 2014, the Dutch Council for Public Health issued a report outlining the promise of patient-centered health information exchange to mitigate inefficiencies in the Dutch healthcare system caused by information discontinuity [6]. The Minister of Health followed up by emphasizing patient-centered eHealth on the political agenda

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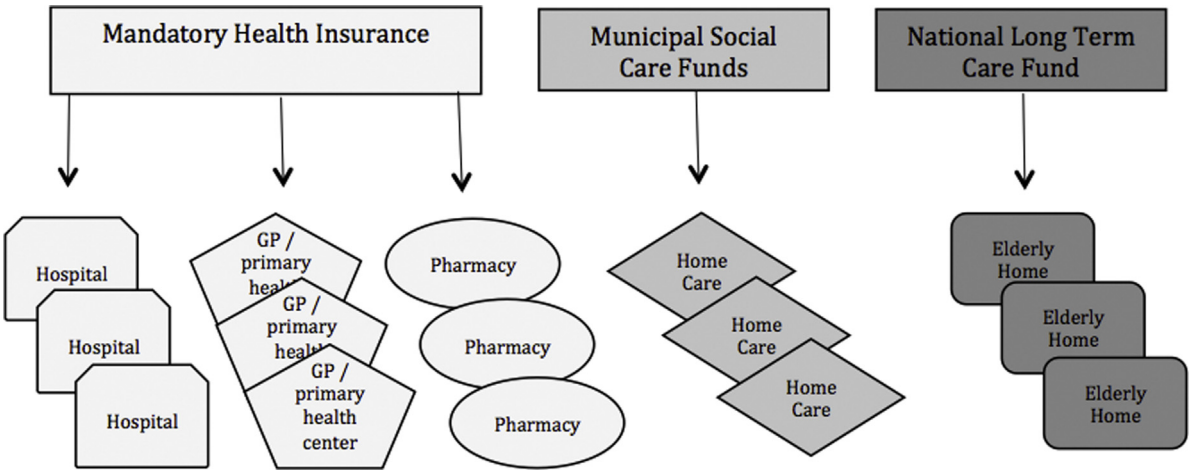

Fig. 1. Fragmentation and compartmentalization of healthcare in the Netherlands.

[7]. Notably, the minister announced three goals: in 2019, (1) 80% of patients with chronic conditions should have electronic access to their medical information; (2) 75% of patients with chronic conditions and elderly should be able to conduct health measurements from home; and (3) everyone who receives care at home should have access to screen-to-screen communication with a care provider, 24 h per day. Realizing these goals entails establishing patient portals or other eHealth technologies that give patients access to their personal information and tools to manage their care. This agenda is not new, but is following up on several other documents sketching the need for patient-centered eHealth [8–13]. With this paper, we provide insights into patient portal development that can assist the realization of eHealth-related policy objectives in the Netherlands and comparable contexts.

1.1. Patient portals in the fragmented Dutch healthcare system

As is the case in many Western countries, health service delivery in the Netherlands has developed in ways that have tended to fragment care and patient information [14]. Historically, health services have been sharply divided in primary and secondary care. There are also specialized institutions for mentally and physically disabled, for elderly, for home care, for rehabilitation, et cetera [15]. This fragmentation is enforced through compartmentalized reimbursement arrangements: while for instance most hospital services and primary care services are reimbursed on the basis of contracts among insurers, providers and patients under a regulated market setup with mandatory insurance, other services are reimbursed through national or municipal budgets, each with their own regulations and health service focus [16,17] Fig.1.

Due to this fragmented nature of the Dutch healthcare system, developing portals that offer the aspired functionality requires collaboration among independent organizations. When a patient visits multiple provider practices, each of these practices independently records patient information. If each of these providers sets up a portal, the patient could view the information held by each provider in the separate portals, and make use of other portal capabilities such as secure emailing and online appointment scheduling. However, under such a fragmented setup, in order to see all of his or her information and interact with all of his or her providers, the patient must access multiple portals, each with a distinct interface, password, and username [18]. Especially for patients with complex conditions who see multiple providers, this multiplicity of portals and access requirements may complicate their navigation of the system and limit their ability to manage their care [19]. In contrast, patient portals that consolidate input from multiple provider practices give the patient one platform to access their information and interact with all provider practices. This greater functionality that stems from greater connectivity is likely to benefit the effect the portal has on the service provided, as patient portal use (ideally) becomes embedded into the entire care delivery chain [18]. Hence, in fragmented contexts, inter-organizational collaboration around patient data can be used to overcome fragmentation. Such inter-organizational collaboration can be assisted by the existence of a National Health Information Exchange (the National Switch Point), which enables data exchange among health care organizations [20].

Such collaboration can be between primary care and specialist practices, hospitals, pharmacies, rehabilitation centers, and more. Also, the development of patient portals relies on involvement from information system vendors, insurers, government, and other interest organizations such as regional privacy committees. In this paper we refer to each of these organizations as actors and to the multi-actor collaborations that arise to develop shared patient portals as patient portal networks.

We consider whether this reliance on multi-actor collaboration inhibits the development of integrated patient portals. By patient portal development, we mean establishing relationships and creating capabilities important to the organization's success such as implementing required hardware and software, establishing portal content and capabilities, achieving physician commitment, patient engagement, institutional legitimacy, interoperability across providers, regulatory compliance, and financial sustainability [21]. Establishing such relationships and capabilities in a multi-actor collaboration is particularly challenging. This could explain why integrated patient portals are sparse in the Netherlands [5], at least relative to the country's remarkably high penetration of organizational health ICT [22]. This state of affairs calls for enhanced understanding of patient portal networks in relation to patient portal development. Various authors (see for instance De Bruijn en Ten Heuvelhof [23] and the references therein) suggest that multi-actor networks are characterized by variety, mutual dependencies, decentralized governance, and dynamic structure. For patient portal networks, variety may for instance regard the variety in actors, such as primary care practices, pharmacies, hospitals, physiotherapists, portal service providers, software vendors, et cetera. The actors involved depend on each other for information, resources and the performance of certain activities to bring about integrated functionality [24,25]. Portal development in the fragmented context may then turn out to be a dynamic process requiring negotiations among a variety of actors and other forms of decentralized governance. Moreover, as the network develops, new actors may join while others may leave,