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Introducing electronic messaging in Norwegian healthcare: Unintended consequences for interprofessional collaboration

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ABSTRACT

Objective: The introduction of health information technologies (HIT) can lead to unintended consequences. We studied a newly introduced electronic messaging (e-messaging) system for communication between homecare providers and general practitioners (GPs) in Norway. The objective of this paper is to identify and discuss unintended consequences of the introduction of e-messaging, particularly how it affected collaboration between the groups.

Methods: Qualitative data from interviews with homecare staff (23), GPs (11), medical secretaries (5) and project managers (4), lasting in average 45 min. Data was analysed using an interpretative approach.

Results: We highlight three unintended consequences, which broadly led to changes in work practices for homecare nurses and GPs. (1) Communicating via e-messaging led to less face-to-face contact between homecare nurses and GPs. Even though e-messaging meant the opportunity to communicate more efficiently both groups emphasised the need for sustaining interpersonal relations via face-to-face communication to collaborate efficiently. (2) E-messaging made it easy to be proactive and send information. Consequently, tasks and responsibilities were sometimes reconfigured in unexpected ways. (3) Nurses said that the fact that e-messages were automatically documented in the patient's electronic patient record (EPR) system gave more weight to their requests. Nurses experienced e-messages as a more powerful means of communication vis-à-vis GPs than other means of communication, thus making e-messaging a tool for empowering them in their collaboration with GPs.

Conclusion: Unintended consequences of HIT affect collaboration between healthcare workers. The consequences may be both desirable and undesirable. Previous research has mostly focused on the undesirable unintended consequences. We show that the introduction of e-messaging led to both desirable and undesirable unintended consequences for interprofessional collaboration. More insight into positive unintended consequences can be a resource in the reorganisation of work that often accompanies the implementation of HIT.

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1. Introduction

The increasing fragmentation and specialisation in healthcare challenges current collaboration models. The challenge is particularly profound with respect to caring for patient groups that need services across different health-service levels [1]. Recipients of homecare services, including many elderly and the chronically ill, are one such group. To provide high-quality, seamless care to these patients, there is a need for collaboration between various health care providers [2].

In Norway, as elsewhere, collaboration between healthcare actors is often hampered by organisational borders, financial structures, a lack of guidelines, disagreement on responsibility, poor communication patterns and little support for collaboration [2,3]. An example of the latter in Norway is incompatible IT systems that make it impossible to exchange information across organisational borders. The use of health information technologies (HIT) is frequently suggested as a means of strengthening communication and the exchange of information, which, in turn, will enhance collaboration between healthcare providers, the quality of care and the efficiency of services [4,5]. HIT is encouraged in Norwegian governmental strategies to strengthen communication and collaboration [6]. However, it is well known that the introduction of HIT is not straightforward and is often associated with failure and unintended consequences [7–9]. Unintended consequences are most often associated with unwanted changes and adverse events [7,10–12]. However, Ash et al. [13] observe that desirable unintended consequences also exist. In this paper, we argue along their line of reasoning that the introduction of HIT may elicit positive changes and that the unintended consequences of HIT should be understood in a more nuanced way.

The health information technology that we focus on is an electronic messaging (e-messaging) system, which was recently introduced in Norwegian healthcare. The e-message system is the result of a national project (Electronic Interaction – Municipality) [14] that aimed at improving information exchange and communication between homecare services, GPs and hospitals. This is in line with the intention stated in a Norwegian recent reform, the Coordination Reform, where the main objective is to improve collaboration and coordination across the sector [6]. The implementation of the e-message system followed the acknowledgement that homecare services, owned and managed by municipalities, had little access to any forms of HIT for communicating with their collaborating partners. Communication and information exchange was predominantly done orally, either via telephone or in face-to-face meetings, and via fax or postal letters. This meant that communication of important patient information could be slow and fragmented, and healthcare workers found it difficult to make contact with each other. As a result, insufficient understanding of patients' needs could arise, jeopardising the quality of care [1,15]. The e-message system was consequently introduced to “secure seamless patient trajectories across the health and care sector through electronic all-to-all communication” [14, p. 6].

In a previous paper [15] which drew from the same study as this current paper, we demonstrated how the introduction

of e-messaging has enhanced connections between homecare nurses and GPs and made information more easily accessible. It has enabled a better overview of the patient's medication, leading to re-evaluation of the medication information and, in turn, more accurate drug treatment and dosage. However, the users were not satisfied with all the functionality in the system. Furthermore, the users were connected stepwise to the system, meaning that both traditional communication practices (typically the telephone) and communication with e-messages existed side by side, making communication complicated [15]. In a previous study of the introduction of e-messaging we found that a number of organisational challenges needed to be addressed to make the e-messaging system work in an optimal way. For example, it was necessary to develop routines to ensure that messages were read and responded to, even if the healthcare worker who started the communication was not present [16].

In this paper, we discuss unintended consequences related to communication with e-messages between homecare nurses and GPs. The aim of the paper is to identify and discuss the unintended consequences of the introduction of e-messaging as a tool for communication between these two groups, particularly those that affect collaboration between them. Our motivation for emphasising this topic is as follows: When HIT are implemented, the objectives are most often targeted towards changing structures (e.g. building an infrastructure for communication), and success (or not) is measured against predefined objectives, if at all. Unintended consequences frequently occur and can have severe effects on the overall usefulness of the system [7,12,13,17,18]. We therefore argue for a more thorough investigation into the unintended consequences of HIT. Healthcare is a profound collaborative activity, and it is increasingly affected by HIT [19,20]. Thus, it is important to study how collaboration is affected by new ways of communication, such as e-messaging. In particular, it is important to include studies of the less noticed, unintended consequences of new HIT and learn from them.

Our discussion is based on the reported experiences of homecare staff and GPs.

2. Background

2.1. Analytical perspective

In this paper, we apply a sociotechnical approach, meaning that the ‘social’ and the ‘technical’ are seen as tightly interwoven [21–23]. From a sociotechnical perspective, the implementation of technology in healthcare can be considered as a complex, unpredictable process where human actors and technologies co-constitute each other, rather than as a linear, predictable process (ibid.). Applying such a perspective means that unintended consequences are to be expected: They will be an intrinsic part of any implementation process. To analytically determine the nature of these unintended consequences, it is necessary to know the intended consequences of the particular HIT.

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