Digital Professionalism in Health and Care: Developing the Workforce, Building the Future
P. Scott et al. (Eds.)

doi:10.3233/SHTI220898

The Establishment of Communities of Practice for Electronic Medicines Management

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Abstract. Digital medicines management is a high priority in Norwegian e-health strategies. A key challenge is the existence of multiple electronic information sources and systems, which require multi-professional cooperation. Lack of communication, understanding and collaboration between pharmacies, hospitals and community caregivers is also a challenge. Communities of practices (CoPs) have been used to establish arenas for discussing issues challenging the workflow to reach a common agreement on successful work practices for electronic medicines management. The purpose of this paper is to explore: How can we establish communities of practice (CoPs) to gather new knowledge on the facilitators and challenges for electronic medicines management practices in Norway? The results show engagement in establishing the CoPs and a willingness for joint enterprise. The establishment of the CoPs was performed simply based on established forms of collaboration. For CoPs to be effective, established alliances need to be expanded and renewed to form new group dynamics and thus a basis for new knowledge about electronic medicines management.

Keywords. electronic medicines management, e-health strategies, communities of practice, Norway

1. Introduction

Digital medicines management is a high priority in Norwegian e-health strategies [1], and Norwegian health authorities are investing in several initiatives under National eHealth Action Plan 2012–2014/2017–2022 including the Patient Medications List, the One Citizen–One Health Record and the Health Platform (St.meld.nr. 9 2012–2013). These new systems augment existing tools for medicines management, including electronic prescriptions (St.meld.nr.18 2004–2005), eMultidose (St.meld.nr.28 2014–2015) and the Summary Care Record (St.meld.nr.47 2008–2009). Digitalization promises to improve medicines management by saving time (e.g. by transferring information electronically rather than on paper and storing data in an accessible form and location), supporting safety and quality improvement (e.g. by allowing task automation and standardisation) and supporting greater integration and cooperation between home, primary and hospital care (e.g. by sharing information).

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However, the full potential of digitization in healthcare has not been fulfilled. International research has illustrated significant challenges with implementing digital technologies [2], and promising technological innovations in healthcare are not being adopted [3, 4]. A key challenge for medicines management is the existence of multiple electronic information systems, none of which provides a complete overview of a patient's medicines history [5-7]. Healthcare providers, including pharmacists, at different institutions and across different levels of care may register medicines in different IT systems. To reduce medicine errors and improve quality of care, professionals need to communicate and collaborate in new ways and with people and organizations that they usually do not work with. Lack of communication, understanding and collaboration between pharmacies, hospitals and community caregivers is a challenge for medicines management [8] and might lead to medicine errors. In Norway, it is estimated that medicine errors lead to 1,000+ deaths per year, 5%–10% of all hospital admissions in medicine departments and 12% of all inpatient hospital injuries [9, 10]. Increased collaboration between healthcare providers might lead to a better understanding of challenges with medicines management, thus reducing errors caused by lack of collaboration, knowledge and understanding of each other's work practices.

In recent decades, many healthcare organizations have developed initiatives around learning and knowledge-sharing under the banner of communities of practice (CoPs) [11]. Here, we use the CoP concept [12] as a method for creating new ways of sharing knowledge and understanding professionals' medicines management practices to establish new collective work practices for electronic medicines management.

We take the Norwegian e-health strategies as a point of departure, where electronics tools require collaboration between healthcare professionals to deliver high-quality medicines management, and ask: *How can we establish a CoP to gather new knowledge on the facilitators and challenges for eMM practices in Norway?* Here, we report on the first phase of the establishment of the CoPs with the case of electronic medicines management.

2. Methods

In 2021, the Norwegian Research Council granted funds to the four-year project 'Electronic Medicines Management (eMM)[2]—A comparative case study promoting coherent health and welfare services', in which one goal is to establish arenas to improve established medicines management practices and boost innovation and research implementation. The idea of a CoP is both as a tool for understanding work practices in healthcare settings and as a tool for promoting knowledge transfer and sharing about digital tools for medicines management. This method has previously been used in healthcare in Australia, Canada, Denmark, the UK and the US [13], to our knowledge it has not been used in an eMM context previously.

In the eMM project, we use CoPs [14, 15] as a method to address the need for multi-professional knowledge sharing and the improvement of work practices. A CoP [12] focuses on interaction between individuals and the participation of people who are engaged in creating and sharing knowledge [14, 15]. A CoP is defined by three

[2] We use the acronym eMM to refer to the wide range of activities surrounding medicines management that have been digitized (e.g. the set of processes and digital technologies used to innovate, monitor, audit, govern and control medicines management).

dimensions: joint enterprise (what it is about); mutual engagement (interactions leading to shared meaning); and a shared repertoire (of resources such as techniques, tools, experiences or processes and practices) [14]. CoPs represent social learning spaces for the development and utilization of organizational knowledge [14]. They should consist of 8 to 12 people, including a core group.

We use CoPs as a managerial tool to bring groups of people together across boundaries/levels of care to share knowledge and ensure close collaboration between multi-professionals and researchers. Hence, we aim to establish a common understanding for new work practices. The shared domain of interest and joint enterprise is successive electronic medicines management. We aim to gather "groups of people who share a passion for something that they know how to do, and who interact regularly in order to learn how to do it better" [16 p. 2]. By participating in a CoP, professionals share knowledge from their own work practice and together define what constitutes competence in the electronic medicines management context.

3. Results

We deliberately selected two research sites, University Hospital of North Norway, Narvik and Stavanger University Hospital, that each had a new hospital under construction and particularly engaged in high-quality medicines management. We designed one CoP at each site and the work with CoPs into three phases: (1) establishing, (2) carrying out and (3) maintaining the CoPs after the project ends. Here, we present the preliminary results from the first phase, establishing.

3.1. Establishing the CoPs

The establishment of the CoPs started in 2020, and the name, the eMM innovation arena, was chosen to illustrate the eMM project's aim to improve established medicines management practices and boost innovation and research implementation at the two sites. The aim of including the local CoPs in a national eMM innovation arena was to create a forum for scaling the results to a wider context.

First, we contacted the leadership at the two hospitals to anchor the project and to get help identifying potential participants for the eMM innovation arenas. Several meetings were held during 2020 to identify key participants from different disciplines and departments relevant for the CoPs and to gain insight into the issues and challenges the hospitals had with electronic medicines management.

In addition to hospital staff, we wanted to recruit community healthcare professionals for the two CoPs. The aim was to recruit professionals representing general practitioners' offices, municipal and private health and welfare services and pharmacies (hospital and private) to look at inter-professional and inter-institutional collaboration. In addition to health professionals, we recruited patient representatives, IT vendors and the Directorate of eHealth. These participants are not members of the local eMM arenas but will contribute to the overall discussions and innovation process.

The recruitment process builds on existing collaboration networks. We aimed to design the CoPs totally without occupational boundaries between different groups of professionals or across the levels of care. We established an interdisciplinary core group with representatives from each site who are particularly engaged in medicines management. We built on their engagement in established forums of multi-professional

collaboration and invited new members. Building on existing meeting points and established social settings made it easier to recruit the professionals to allocate their time and resources.

3.2. Joint enterprise in the CoPs

To develop a CoP, all participants commit to a set of problems they want to investigate and commit to interact and work together on an ongoing basis [14]. The CoP depends on a collectively developed understanding of what it is about. The aim is for everyone to understand the enterprise enough to contribute to it. Although the core group had identified issues, we had to narrow these down to issues that were timely for all the participants based on their daily work. This entailed identifying gaps in the participants' work and knowledge. The research team has several years of experience in the e-health field, and the challenges related to the medicines management workforce are anchored in previous research. These issues/problems have been predesigned to be prepared and launched in the CoPs before the participants are brought together to discuss them. We are prepared for some issues to be rejected and others to be elaborated upon. This will take place as part of the discussions held in the CoPs.

The problems for discussion include mapping digital tools for medicines management, what kinds of challenges the different professionals encounter with these systems and what kinds of problems exist when electronically exchanging information about patients' medicines across levels of care. By promoting questions about dilemmas in practice, we are open to the healthcare professionals discussing these dilemmas and being part of the problem formulation and the solutions. Hopefully, the CoPs can influence on both the development of systems and the understanding of the workflow.

4. Discussion

The establishment of a CoP is comprehensive work. The ability to establish interpersonal relationships is crucially important at the initial stages of a CoP's existence [17]. In practice, hierarchical levels and occupational specialisms influence recruitment. Instead of concentrating our efforts on recruiting those whom we thought were essential, which would require coordination across levels of care and professional boundaries, our starting point became established forms of collaboration. This might influence the understanding of work practices for electronic medicines management. We are aware that CoPs based on established forms of collaboration risk reproducing already existing forms of practice without identifying new dilemmas and developing practices for new generations.

By including a wide range of stakeholders involved in eMM activity, i.e., IT vendors and the Directorate of eHealth we hope the results will have power and practical impact for the development of eMM tools and practices locally and nationally.

5. Conclusions

To fulfil the goals of e-health strategies, multi-professional collaboration between healthcare professionals and levels of care is needed. The establishment of CoPs can be

used as an arena to gather new knowledge on the facilitators and challenges of, as in this case, eMM practices. There is a high willingness to engage in these communities and to contribute to joint enterprise, i.e., to create change. Nevertheless, existing arenas for collaboration affect the establishment of CoPs. In CoPs in practice, there is a need to expand and renew the established environment to form new group dynamics and thus a basis for new knowledge. The experiences from this phase of the project have a practical impact for other whose purpose is to use CoPs within health care.

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