Electronic Referrals in the Health Sector in Norway, Challenges on the Road from Standard to High Volume Use

Vigdis Heimly

Department of Computer and Information Science, Design and Use of Information System Group
Norwegian University of Science and Technology, Trondheim, Norway
vigdis.heimly@idi.ntnu.no
Advisors**:** Professor Eric Monteiro, PhD, Professor Pieter Toussaint, PhD, Jim Yang, PhD

DOCTORAL DISSERTATION EXTENDED ABSTRACT

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1. INTRODUCTION

1.1. Problem Definition

The main idea behind the PhD work is to try to find out what the main socio-technical obstacles and enablers for high volume use of collaboration systems in the health sector are. The work will also focus how the results can be used in design, implementation and deployment of collaborative systems in health care, with electronic referrals used as a case.

1.2. Research Motivation

The findings can hopefully be useful to help speed up the Norwegian roll-out process of electronic referrals. Because many other countries struggle with the same issues, the results can probably also be of international interest.

1.3. Background

The patient flow in Norwegian healthcare depends highly on the referrals. It is therefore important that the referrals can be written, transferred and handled effectively. The general practitioner or GP is a medical practitioner who provides primary care. The GP treats acute and chronic illnesses and provides preventive care. Despite that General Practitioners (GPs) and hospitals are connected to the Norwegian Health net, standards have been available since 1994 and the communicating actors all have electronic health record (EHR) systems, the volume of electronic referrals is still less than 30% of the 1.9 million referrals that are sent annually. Electronic referrals are now sent by means of web-services or as electronic messages based on the national XML eHealth standards.

1.4. Literature Review

A search for scientific papers related to electronic referrals, revealed that there had been few evaluations and reviews of these projects. Most related reviews covered telemedicine services more in general as Mair [1], Loane [2] and Roaine [3].

When electronic referrals first were introduced, many were hopeful that there would be large economic savings and many benefits for the users. Hasman [4] concluded that use of standard messages for exchanging information between hospitals, GPs and pharmacies could give relatively large savings. Harno et al [5] examined the clinical effectiveness and costs of the referral process in the Peijas region in Finland. They also concluded that an electronic referral system between secondary and primary care improved clinical effectiveness, lowered direct costs, increased productivity and was cost-effective. A study with focus on quantifiable cost benefits in Denmark [6] also concludes that widespread adoption of electronic referral would be of significant benefit to the national economy.

Examples of referral related projects are found in Finland [7, 12, 13], Denmark [8, 9], UK [10], Netherlands [11].

The ongoing referral projects differ a lot. There is not likely to be one best solution that proves to be beneficial for all countries. Legislation, organization of the healthcare system and cultural differences are factors that may influence the choice. Electronic referrals seem to have a large potential for economic savings as a whole, but it takes longer time than expected to realize this potential. Denmark seems to be successful with a short roll-out period for the referral hotel, but for most of the systems examined, the deployment process has taken much longer than first expected

1.5. Methods

Mixed methods will be used for information collection
- Surveys.
- Collection of information about ongoing referral projects, national strategies for ICT and health care and documentation about health reforms and political processes.
- Participation in meetings and seminars with focus on shared care and ICT-solutions.
- Semi structured interviews with users at the hospitals and GP-practices [14], [15].

Because the collected data will be both qualitative and quantitative, mixed methods will be used for analysis. To support coding and subsequent analysis of qualitative data, meeting notes and interviews, a tool that supported coding during the qualitative data analysis (NVivo) is planned used. Analysis of quantitative data will be done using spreadsheet software

Some references that I have related my work to so far are Berg (sociotechnical approaches to health care) [16], Bury (decision support in used in a referral context) [17],Carlile (boundary objects) [18, 19], Daft (organization theory and design) [20], Coiera (health care and organizational challengs) [21], Ellingsen (electronic booking in a sociotechnical context) [22,23], Levina and Vaast (boundary spanners) [24] and Orlikowski (collaborative ICT systems in distributed organizations) [25].

2. CURRENT STATUS

A survey was finished in the autumn of 2008 and targeted the hospitals. Hospitals in Norway are organized under 4 Regional Health Authorities (RHAs). Each RHA is responsible for a group or Health Authorities (HAs) that includes one or more hospitals. A questionnaire was sent to all the 28 HAs in September 2008. 23 (82%) of the forms were returned, among them the forms from all the largest hospitals. The main rationale behind the survey was to find out what the status and plan was at a hospital level, but also to find out what they saw as their main challenges.

The hospitals seem mainly to address their own needs. According to the recommendation from the government, the RHAs have a responsibility to ensure that essential medical documentation is communicated electronically between primary and secondary care. This "responsibility" has been handled differently by the RHAs. Many of the hospitals have technically made it possible for the GPs to communicate, but this does not necessarily mean that communication is possible. Misunderstanding is interpretations of how standards and software should be used on both sides, clutter this processes. The fact that the technical solution is tested and implemented according to standards at one end does not also necessarily imply that the chain from hospital to GP will work.

2.1. Contact with the Hospitals and GPs

A series of semi-structured interviews and meetings with the two larger hospitals is scheduled and partly finished. To a large extent the input from the interviews corresponds with the impression from the surveys. The interviews have specifically been used to supply the survey information that seemed to be of specials interest, or areas where information was lacking.

The researcher has also been an observer at meetings between the Norwegian Centre for ICT in Health and Social Care (KITH) and the hospitals. The aim of these meetings has been to follow up the implementation of electronic health messages at a regional level in relation to the hospitals obligations in relation to a national project that is initiated by the government.

2.2. Publication Status

- V. Heimly, Standardization, innovation and deployment of electronic referral software in Norway, 2008, [26]

- V. Heimly, K.E. Berntsen, Consent-based access to core EHR information, 2009, [27]

- V. Heimly, Electronic Referrals in Health Care, A Review, 2009, [28]

2.3. Research Stay

Research stay in Boston June/July 2009, Visited Paul Carlile (Boston University), Stephanie Woerner (MIT), Blackford Middleton (Partners) og Innovation Norway.

3. PLANS TO COMPLETE THE WORK

The next phase of my work will include a process where I gather more information from the GPs. It will be interesting to compare how well, and if, their answers fit with the ones from the hospital side. A series of semi structured interviews with GPs is scheduled during the winter and spring of 2010. This includes GPs at 6 clinical practices with a total of 30 GPs connected to a hospital in southern Norway. This project uses web-sevices and provides decision support for referrals with diagnosis related to urology and gastro. So far input from the GPs have been through contact with practice consultants and resource persons that participate in a national project where requirements for the user interface of the GPs EHR-systems are defined. In parallel with the process with the GPs, I will also continue with attending meetings, interviews and actions research at the hospital side. The first survey will also be followed by a second survey with focus on to what extent the expectations from the first survey is fulfilled, and what lessons can be learnt from the process.

Table 1. Work Plan

	01-06.08	07-12.08	01-06.09	07-12.09	01-06.10	07-12.10	01-06.11	07-12.11
Review	▓	▓						
Survey 1		▓						
Survey 2						▓		
Hospitals (interviews, meetings, observations)		▓	▓	▓	▓			
GPs (interviews, meetings, observations)			▓	▓	▓			
Completion of PhD work							▓	▓

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