International Journal of Integrated Care – ISSN 1568-4156
Volume 10, 21 April 2010
URL:http://www.ijic.org
URN:NBN:NL:UI:10-1-100857
Publisher: Igitur, Utrecht Publishing & Archiving Services

Research and theory

Electronic exchange of discharge summaries between hospital and municipal care from health personnel's perspectives

***Line Melby**, PhD, Post-doctoral Research Fellow, Norwegian University of Science and Technology, Norwegian Centre for Electronic Patient Record Research, MTFS, NO-7489 Trondheim, Norway*

***Ragnhild Hellesø**, RN, PhD, Post-doctoral Research Fellow, Department of Nursing and Health Sciences, Institute of Health and Society, University of Oslo, P.O. Box 1153 Blindern, NO-0318 Oslo, Norway*

Correspondence to: Line Melby, PhD, Post-doctoral Research Fellow, Norwegian University of Science and Technology, Norwegian Centre for Electronic Patient Record Research, MTFS, NO-7489 Trondheim, Norway, Phone: +47-40224525, Fax: +47-73551530, E-mail: line.melby@ntnu.no

Abstract

Introduction: Information and communication technologies (ICT) are seen as potentially powerful tools that may promote integration of care across organisational boundaries. Here, we present findings from a study of a Norwegian project where an electronic interdisciplinary discharge summary was implemented to improve communication and information exchange between the municipal care service and the associated hospital.

Objective: To investigate the implications of introduction and use of the electronic discharge summary for health staff, and relate it to the potential for promoting integration of care across the hospital-municipality boundary.

Methods: We conducted semi-structured interviews with 49 health care providers. The material was analysed using a three-step process to identify the main themes and categories.

Findings: The study showed that the electronic discharge summary contributed to changes in health staff's work processes as well as increased legibility of summaries, and enabled municipal care staff to be better prepared for receiving patients, even though the information content mostly remained unaltered and was not always accurate.

Conclusion: Introduction of electronic discharge summaries did not result in a significant increase in integration of care. However, the project was a catalyst for the collaborating participants to address their interaction from new perspectives.

Keywords

integrated care, ICT, municipal health care, hospital, discharge summary, electronic message system

Introduction

Western health care services face a number of challenges, including an ageing population and a rise in chronic diseases, which in turn cause a burden on the sector and rising health care expenditures. Integrated care is seen as a way to respond to the situation by reducing inefficiencies while assuring quality of care [1]. The concept of 'integrated care' is used to describe diverse and divergent integrated health care programmes [1], and it is difficult to define what integrated care actually is [1–3]. According to Kodner and Spreeuwenberg [2], "integration is a coherent set of methods and models on the funding, administra-

tive, organisational, service delivery and clinical levels designed to create connectivity, alignment and collaboration within and between the cure and care sectors. The goal of these methods and models is to enhance quality of care and quality of life, consumer satisfaction and system efficiency for patients with complex, long-term problems cutting across multiple services, providers and settings" [2, p. 3].

In Norway, the concept of integrated care has also gained a foothold, although it is usually referred to using other terms (e.g. seamless care and coordinated care). However, plans for strengthening integration of care are being designed and proposed. In the latest White Paper on health care in Norway [4], challenge number 1 is stated to be to take care of patients' needs for coordinated services, due to the fragmented organisation of services today [ibid.]. The White Paper describes a new health sector reform: The Coordination Reform [4]. It is argued that reforms—and greater integration of services—are required from the perspectives of patients, professionalism, and economics. ICT is seen as an important tool to improve coordination and integration of services in Norwegian health care, and plays a central part in the reform. The significance of ICT is also emphasised in other plans and strategies for Norwegian health care [5, 6].

Previous initiatives for information exchange in Norway across sectors have mainly concerned communication and information exchange between hospitals and GPs. At present, 91% of Norwegian hospitals are able to send the discharge summary to the GP electronically [7]. The home care services, however, have been a neglected area. When patients are entitled to home care services after a hospital stay, there is a pressing need for comprehensive and timely patient information. Up to now, this information has been exchanged using postal or fax services, or through patients themselves or their next of kin [8], and not electronically. However, as the need for improved communication and information exchange between hospital and municipal care has become even more pertinent—and the issue has gained attention on a political level—we now see initiatives to implement systems that enable electronic communication between hospitals and municipal care.

Kodner and Spreeuwenberg [2] group integrated care strategies on a continuum from macro to micro, comprising five different structural dimensions: funding, administrative, organisational, service delivery, and clinical. The most relevant dimension in relation to the project we studied is the clinical dimension. Clinical factors affecting integration of care may be the development of a shared understanding of patient needs across professional groups, a common professional language and common criteria, and the use of agreed-upon and standardised practices [2].

In this paper, we present a study in which we explored the implications of introducing ICT as a tool for improving integrated care between hospital and municipal care services. We do this by discussing a project that introduced electronic interdisciplinary discharge summaries (from now: electronic summaries) sent from a hospital to nursing homes and home care. The aim of an electronic summary is to inform municipal care providers, including GPs, about what has happened to the patient during hospitalisation and to provide information about further plans as well as the need for follow-up.

Related work

The introduction of ICT and increased standardisation of clinical information is widely proposed as a solution to the inadequate communication within healthcare. An underlying assumption is that by standardising and electronically distributing relevant work documents, health staff will be able to share relevant information more easily and to communicate faster [9–13].

One category of studies addresses the challenge of information deficits in health care and explicitly relates it to ICTs potential for strengthening integration of care. However, the technological solutions that are explored are remote from those that we will discuss. Examples of such studies are Dinesen et al. [14], Granlien and Simonsen [15], Hägglund et al. [16] and Trisolini et al. [17]. It is pointed out that the lack of common infrastructure is a challenge. New technological solutions that will bridge institutional, organisational and professional boundaries are thus needed [12]. The need for point-of-care technologies is emphasised [16]. In addition, it is argued that it is necessary to take into account different needs and cultures in different parts of health care. A system suited to one organisation does not necessarily suit another [15]. Another finding is that the introduction of ICT in health care may lead to changed work practices, both by improving the integration of health care professionals in treatment and care, and by enabling better insight into patient trajectories across time and space [17]. An implicit common conclusion is that technology alone does not enhance the integration of care, but it may be an important facilitator.

Another category of studies relevant to us deals with communication and information transfer between hospitals and primary care in general and different aspects of discharge summaries in particular [13, 18–22]. However, these studies are less explicit about the potential of the technology for integrating care. These studies have a common starting point: there are deficits in information transfer between hospitals and GPs,

or between hospitals and outpatient physicians. This information deficit can cause serious problems, such as adverse effects and rehospitalisation. Moore et al. [21] found that the prevalence of errors related to discontinuity of care from the inpatient to the outpatient setting was high and could be associated with a high risk of re-hospitalisation. They suggest that poor dissemination of discharge information to outpatient care providers creates an environment in which discontinuity errors become relatively common. Similarly, O'Leary et al. [19] showed that outpatient physicians were dissatisfied with the timeliness and quality of discharge summaries sent from the hospital.

Schabetsberger et al. [20] investigated the introduction of a secure regional health network in Austria, where electronic discharge summaries from hospitals to GPs were introduced. They discuss technical and organisational challenges in the implementation, and conclude that organisational issues outweighed technical problems in the first phase of the implementation. They state that it is "not sufficient to replace paper-based transmission of medical documents by electronic communication technologies" [20, p. 214], and that many organisational changes are necessary in order to release the potential of ICT. However, users expressed a high level of satisfaction with the electronically received information. In a more comprehensive evaluation of the same project [22], this finding is supported. There was fairly high overall satisfaction with electronic communication. Faster transmission of information and automatic assigning of information to the EPR were also highlighted as positive effects.

Kripalani et al. [13] conducted a review study of research on communication and information transfer at hospital discharge to the GP as recipient. Their study showed that after discharge from hospital, patients were often treated by or were in contact with their GP before the GP had received detailed discharge information. This meant that patients or their families were often the first source of information about the hospitalisation. For patients directly transferred to home care services this contact takes place even faster. In addition, this is a vulnerable group with scarce resources, making the problem of insufficient information combined with patients and family as information transmitters even more relevant. The conclusion of the review was that information transfer and communication between hospital and primary care represent a great challenge, and interventions, such as computer-generated summaries may facilitate more timely transfer of pertinent patient information to ease follow-up care [13].

Finally, we want to mention a study by Callen et al. [18], where the objective was to study the content of discharge summaries and to compare electronic and handwritten discharge summaries. They found that omissions and errors were more commonly present in the electronic than in the handwritten summaries, and that the errors and omissions continued when discharge summaries were sent electronically.

In summary, previous research has primarily addressed the information gap between hospital physicians and GPs, and none of the studies mentioned include or discuss information transmission from hospitals to municipal care. We have not identified studies describing the use of ICT for exchange of information from the hospital to municipal care services that include GPs who collaborate with this sector. Our research question is therefore: *what are the implications of the introduction and use of an interdisciplinary electronic discharge summary from the perspective of physicians and nurses in municipal health care?*

Methods and materials

Setting

The current study was conducted in a municipal health care system in a large city in western Norway and university hospital affiliated with the municipality. They were chosen because the introduction of e-messages for exchanging patient information between the university hospital and the municipal care service had been initiated as part of the Norwegian health authorities' IT strategy in 2004 [23]. The e-message project was piloted in this setting. The university hospital has nine clinical departments and 5000 employees. The municipality is organised in eight different units and has about 2600 employees.

The e-message project

Technical and organisational work was a prerequisite for exchanging e-messages between the hospital and the care service unit in the municipality. We will not describe all the tasks in detail here; in brief, the hospital integrated a module in their electronic patient record (EPR) system in 2006 to enable the exchange of e-messages. At the same time, the municipality's EPR system was also prepared for exchanging messages. E-messages could thus be sent and received via the respective EPR systems. The project then introduced and implemented the electronic interdisciplinary discharge summary, which was sent via the e-message system from the hospital to the care services in the municipality. The overall objective of the project was to improve communication and information exchange between the different care providers [24].

Sample and data collection process

A convenience sample of health care providers and project managers was interviewed. The inclusion criteria encompassed nurses, enrolled nurses, and physicians working in either the municipality or in the university hospital who had experience in using e-messages. A further criterion was experience in collaborating with each other in discharge planning for patients in need of post-hospital nursing homes or nursing care in their homes. At the hospital, providers from the Clinic for Internal Medicine, including the Department of Oncology, Department of Geriatrics and Department of Rehabilitation, met the inclusion criteria. In the municipality, providers from three of the units fulfilled the inclusion criteria and consented to participate. Project managers who organised the development and implementation of e-messages were also interviewed to ensure insight into the system aspects of the project. Department managers recruited participants from the hospital. In the municipality, a top-level manager who had been involved in the EPR development and implementation project invited providers who met the inclusion criteria. Those who consented were interviewed by two researchers.

In total, 26 group and individual interviews were conducted with 49 informants in the sample described above. The distribution of informants between the municipality, hospital, and project management was 34/13/2. We deliberately chose a higher number of municipality providers because they cover a wider range of services compared to the more homogenous hospital.

The interviews were conducted at three points of time: June 2006, October 2006, and September–October 2007. When the interviews were conducted in 2006, the hospital had sent discharge summaries electronically for only about half a year, so that the users had somewhat limited experience with the technology at this stage. In addition, not all wards at the hospital had implemented electronic summaries in 2006. This meant that the municipality had received relatively few electronic messages, and received both electronic and paper-based summaries. When interviewed in 2007, all users had broader experience in sending and receiving e-messages. Health staff was asked about aspects, such as how they collaborated, what kind of information they exchanged and how, and how the use of electronic messages influenced their work. Project managers were asked questions concerning the background and objectives of the project, in addition to how the project was organised and implemented.

Analysis

All interviews were taped and transcribed. In addition, notes were made after each interview. The analysis took place in three phases [25]. In the first phase, both authors read all the interviews and identified overall themes [26]. Since the data were from two contexts, each author started the analysis from a different context, i.e. reader one started with the hospital interviews and reader two with the municipality interviews. This was done to avoid influence of one context on the reading from the other context. After identifying main themes across the contexts, we discussed the themes until agreement was reached. An example of a main theme we agreed on was ‘changed work processes’. Secondly, the data were organised according to the identified themes. In the third phase, we searched for subcategories within each theme. In connection with the main theme mentioned above, one subcategory concerned changes in the production of the interdisciplinary discharge summaries, thus reflecting mainly a sender’s perspective.

Results

In this section, we will describe the experience of health care staff with the introduction and use of e-messages.

Changed work processes

Two subcategories will be discussed: 1) how the sender, i.e. the hospital, changed its procedure for production of the interdisciplinary discharge summaries and 2) how recipients in the municipalities experienced the parallel processes of simultaneously managing both paper-based and electronic discharge summaries.

Production and transmission of information

The introduction of e-messages influenced both the production and the exchange of information between the two care settings compared with the previous paper-based transmission of information as shown in Table 1.

The transition to electronic interdisciplinary discharge summaries changed the work processes for hospital nurses and physicians. In the EPR they were forced to follow a specific procedure, which they felt to some extent constrained the flexibility they had when writing in the paper-based version. Earlier, both nurses and physicians could start the process of documenting when they had time. In the electronic version, nurses had to create the document and write the nursing documentation before transferring it to the physician, who would then add the medical information and approve the document. The unit’s executive officer was responsible for sending the summary to the municipality. Someone would then have to inform the

Table 1. The work process related to information production and transmission, before and after the introduction of e-messages

	Paper-based transmission of information	Electronic transmission of information (e-messages)
Hospital (sender)	Both nurses and physicians may initiate and start writing the discharge summary, depending on their workload	The nurse must initiate the discharge summary. He/she must first finish the nursing documentation, then send the summary to the physician for completion and approval of the summary
	The approved summary is given to the executive officer, who sends it to the municipality by mail	The approved summary is sent electronically to the executive officer, who sends it electronically to the municipality
	The patient receives a paper copy of the summary at discharge	The patient receives a printout of the discharge summary at discharge
Municipality (recipient)	The patient gives the discharge summary to the nurse on transfer to municipal care services. The nurse who first meets the patient hands over the summary to the nurse in charge	The summary is received electronically by the municipal care services before the patient is transferred
	The discharge summary is manually archived in the patient record	The summary is received via the EPR system, and is thus automatically placed in the patient's EPR
		The person responsible for email in the municipality receives an alert about a new incoming message and must ensure that the responsible nurse/physician gets the information

executive officer that the document was complete and ready to send.

Parallel information processes

The hospital introduced e-messages gradually, so in the beginning not all hospital wards sent discharge summaries electronically. This was confusing for the recipients because they had to manage two different work processes. The variety of formats they had to manage was described as frustrating by a number of informants. One nurse said:

> "…But then not all the departments have started to use it, not all are conscientiously doing it. So, some messages are sent on paper. And then someone forgets to send them… So that varies a lot."

The number of messages also varied. For the health care workers this was confusing, as indicated in the quote below.

> "I don't know the average number of messages, but it could be two, three a week. And then suddenly a couple of weeks pass, and there is nothing. And then we receive some…"

The recipients nevertheless emphasised that, as a whole, the result was an improvement. However, the variation in volume combined with uncertainty about whether the information had been transferred electronically or on paper complicated the information processes for the recipients. In addition, the reduced flexibility for senders in the process of producing the electronic summaries showed that combination of complex work processes with parallel processes made it difficult to ensure full integration of information in the care chain.

Increased preparedness for receiving patients

Following the findings in the previous section, we describe in more detail how the municipal health care workers were affected by the introduction of the electronic summaries.

The potential for being properly prepared for a patient's transfer to municipal services is highly related to health staff receiving timely and comprehensive information, so they could work out reasonable plans.

Predictability

Nurses in the municipality emphasised the importance of the possibility of receiving updated patient information via e-messages before the patient was discharged from the hospital. When they had the information in advance, nurses said they were able to prepare for a better transfer for the patient. In addition, they sometimes received information from the hospital *during* the discharge planning process. Being updated on the patient's status at discharge from the hospital would also increase a sense of predictability for the nurses, which was considered important.

Planning

Receiving the information in advance of the patient's transfer was helpful in the planning process. A nurse expressed the importance of updated information for

making well-informed decisions in their planning in this way:

> "It depends on whether they [the patients] have been in 'the system' before. What you know about them, whether we have had many visits at home—because there you will get information about the patient—and what is new and what is old [information], and these kinds of things. Anyway, 'is there anything in particular [concerning the patient's condition] that calls for a single room?' It might be 'acting out', it might be psychological problems, it might be that someone had lost their wife or their husband. That kind of significant information; it is very important to have."

Physicians in the municipality also expressed their satisfaction with receiving electronic summaries. After the introduction of the electronic system, patient information was generally received much earlier than with paper-based discharge summaries. However, in some instances, even after the hospital had been able to send information electronically for a year, the municipal health care service did not receive the information in advance of the patient's transfer. Not all the reasons for this are known, but one reason was the lack of proper routines to support the information exchange. In the interviews, health care staff in the municipality was nonetheless positive towards receiving information electronically, and when reflecting on the subject of electronic transfer of information in the interviews, they had many ideas about how they could potentially take advantage of the technology. They were also consistently positive when talking about how the EPR had made improvements in their daily work. As one of them said: "It would have been awful' if they were to be deprived of the EPR system". Fear that they would not have easy access to relevant information caused this reaction. Health care staff, both in the hospital and the municipality, became increasingly aware of the need for long-term hard work in changing internal work processes, procedures, and routines in order to realise the benefits of the e-message system.

Mixed quality of electronic discharge summaries

Looking at the quality of electronic discharge summaries, we identified two contrasting subcategories; one concerning legibility and one concerning content of the messages.

Improved legibility

The employees in the municipality emphasised that the most significant change for them was improved legibility of the summaries. The transition from handwritten to typed summaries made the text easier to read, thus preventing potentially dangerous misunderstandings. The quote illustrates this point:

> "It has improved a lot—really. We used to try to decipher all kinds of handwriting. It is really very dangerous with regard to misunderstandings and so on. So I think it has become a lot better now that we get it [the summary] on computer printouts."

Some of the recipients in the municipality said that the electronic summaries had a higher quality than the handwritten summaries. The information in the electronic summaries was described as 'better', as the quote shows:

> "In my experience, the electronic ones are absolutely the best. And it is always a bit annoying to get the paper [summaries] now, they are illegible… and it is completely hopeless."

Inaccurate information content

The content of messages changed somewhat, but not only in a positive direction: the information did not become more comprehensive [27]. Although this was not a goal of the project, many of the informants from municipal care services stated that they had had some expectations of improved content when the electronic summaries were introduced. Health care staff from the hospital and from the municipality also expressed differences concerning what they regarded as important information to exchange. For the recipients in the municipality, not all summaries were seen as accurate to fill their information needs.

> "What we get is basically diagnoses, but the diagnosis doesn't tell us very much. You can live perfectly well with a lot of diagnoses and be well-functioning in a double room. But what the diagnoses do to you—*that* I would like to know more about."

The recipient asked for individualisation of a standardised medical diagnosis because this was important in preparation of the care. Another concern for the recipients was that physicians in the hospital sometimes described in detail procedures that the patient had undergone, while the recipients preferred information about what implications the procedures had for the activities of daily living. When relevant and accurate information was not provided, this influenced the providers' ability to give the patients adequate recommendations. Health care staff in the municipality also asked for more information about recommendations for further care. This was rarely described. A nurse said:

> "It is not always that it [the summary] is thoroughly filled in. And it is not always… and not all people are equally good at filling in new medications, and send medication. So, it still happens that we have to call the hospital or the GP to ask: 'do you think this is right, or do you think

> they might have forgotten it?' It may happen that the patient has been admitted for something else than what their medications are indicating. That has happened, yes. Then the GP must decide."

Improved legibility is necessary to improve integration of care between the hospital and the municipality. However, the content did not change correspondingly, which hampered the process of integrating care across organisational boundaries.

Discussion

In the project studied and presented here, electronic interdisciplinary discharge summaries were introduced to improve communication and information exchange between municipal care services and the associated hospital. The electronic summaries represented a possibility for municipal health staff to obtain faster access to patient information, enabling them to provide higher quality care. We regard the introduction of electronic summaries as an attempt to integrate care across boundaries—on a clinical level (cf. [2]).

As pointed out previously [12], to enhance integration of care by means of ICT, it is necessary to build a common infrastructure. The e-message system may be regarded as an infrastructure that connects two parts of the health care sector, and in this respect it may be considered a first step on the way to integrating care across the hospital-municipal boundary. However, as our study shows, the introduction of an electronic discharge summary in itself is not enough to ensure integration of care.

First, the findings in our study indicate the importance of putting a great deal of effort into professional as well as organisational work that accompanies the introduction of technology. This is very much in line with Kripalani et al. [13], who found that the organisational challenges were greater than the technical ones. In our case, nurses in the municipality realised that much effort was needed in order to develop routines to take advantage of the technology (e.g. fast access to information)—and this would have to take place from the sender's side concurrently as well.

Secondly, the point of departure and rationale for the project studied here are similar to a number of other projects introducing ICT in health care. Lack of timeliness and poor quality of discharge summaries for transfer to outpatient care may lead to errors related to discontinuity of care, increasing the risk of rehospitalisation [19, 21]. Our study shows that the introduction of the electronic discharge summaries, at least partly, created greater predictability and hence the possibility for municipal health staff to be better prepared for patients' transfer. Being informed and thoroughly prepared is a prerequisite for ensuring seamless care and avoiding ad hoc solutions, as the informants stated.

Furthermore, municipal health care workers (including GPs) have been used to receiving information from various sources, including patients and their relatives. This is emphasised by our informants, and Kripalani et al. [13] point out how patients and relatives work as information transmitters when the formal systems for information exchange are too poor. In our case, the patient group in general has few resources and they cannot fill the role of information transmitters. The electronic discharge summary has great potential for providing fast access to information for municipal care and may reduce the need to use patients and relatives as information sources.

Another point raised by the informants is the need for obtaining the information they need at the right time. This is relevant for staff in nursing homes when planning for the patient's admission, but perhaps even more relevant for home care nurses who mainly perform their work in patients' own homes. The latter point underscores the importance of point-of-care technologies [16]. Mobile devices may be part of a solution to this challenge.

Besides reflecting on the implications regarding access to patient information, the informants also said that the implementation of the e-message system had contributed to increased professional networks and increased knowledge about each other. This illustrates how technologies may promote and enable networks across organisational boundaries, which may in turn improve coordination and integration of care [14, 17].

A final point we want to raise is tied to the information content of the discharge summaries. In general, our informants did not think that the content had changed noticeably. In that respect, the problem of insufficient information from the hospital continued—even though the information from the hospital might arrive earlier. In another quantitative study [27], we investigated changes in the discharge summaries, comparing paper-based with electronic summaries. This study confirms the informants' impression; the summaries did not become much more comprehensive after the change to an electronic format. These findings are in line with Callen et al. [18], who found that omissions and errors were more commonly present in electronic than in handwritten discharge summaries. We cannot comment on why this is the case, but when electronic summaries become more widespread in health care, there is a need to investigate why texts may suffer from the transition.

The lack of relevant and accurate information in the summaries may also be due to different perspectives on what kind of patient information hospital and municipal employees regard as important to exchange. This has previously been raised as a critical issue for ensuring continuity of care [15, 28, 29]. Hospitals and municipal health care have different objectives, which seem to reflect their perspectives on the patient. It is well-known that the health care services in the municipalities work towards ensuring a long-term perspective while hospitals focus on acute care [30, 31]. The different perspectives were reflected in the discharge summaries. In further studies, the implications of diversity in perspectives on the patients should be explored, and specifically how different perspectives may be a factor constraining integrated care.

Our findings indicate that introducing electronic discharge summaries alone does not compensate for the different perspectives and cultures in the two collaborating organisations. However, health care staff in municipalities highly appreciated receiving the electronic summaries in advance of the patients' transfer. What may seem a commonplace effect of electronic messages—the improved legibility—seemed to compensate for the disadvantages of starting to use a new system.

Conclusion

Our conclusion is that introduction of an electronic discharge summary was a catalyst for the collaborating participants to focus on their interaction with new perspectives. Development and implementation of electronic summaries implied an increased awareness of organisational aspects, like information and communication procedures and quality of information. In addition, health care workers expanded their contacts and perspectives both within their own organisation and across organisational boundaries. In this respect, the electronic discharge summary functioned as a facilitator for preparing for integration of care.

Reviewers

Erling C. Havn, Associate Professor, PhD, Department of Planning, Innovation and Management, Technical University of Denmark, Lyngby, Denmark

Hannele Hypponen, PhD, Research Manager, National Institute for Health and Welfare (THL), Helsinki, Finland

References

1. Stein KV, Rieder A. Integrated care at the crossroads—defining the way forward. International Journal of Integrated Care [serial online] 2009 Apr 8;9. Available from http://www.ijic.org.
2. Kodner DL, Spreeuwenberg C. Integrated care: meaning, logic, applications, and implications—a discussion paper. International Journal of Integrated Care [serial online] 2002 Nov 14;2. Available from http://www.ijic.org.
3. Ahgren B, Axelsson R. Evaluating integrated care: a model for measurement. International Journal of Integrated Care [serial online] 2005 Aug 31;5. Available from http://www.ijic.org.
4. Helse- og omsorgsdepartementet. Samhandlingsreformen. Rett behandling—på rett sted—til rett tid [The coordination reform. Proper treatment—at the right place and right time]. Oslo: Norwegian Ministry of Health and Care Services; 2009. (Report no. 47 (2008–2009)). [in Norwegian]. Summary in English available from www.regjeringen.no/upload/HOD/Samhandling%20engelsk_PDFS.pdf.
5. Helse og omsorgsdepartementet. Nasjonal Helseplan (2007–2010) [National health plan]. Oslo: Norwegian Ministry of Health and Care Services; 2006. [in Norwegian].
6. Helse og omsorgsdepartementet. Samspill 2.0. Nasjonal strategi for elektronisk samhandling i helse- og omsorgssektoren 2008–2013 [Teamwork 2.0. National strategy for electronic interaction in health- and care sector 2008–2013]. Oslo: Norwegian Ministry of Health and Care Services; 2008. [in Norwegian].
7. Norsk Senter for Elektronisk Pasientjournal. EPJ Monitor 2008. Oversikt over utbredelse og bruk av IKT i helsetjenesten [EPR monitor 2008. Overview of diffusion and use of ICT in the health care sector]. Trondheim: NTNU; 2009. [in Norwegian].
8. Hellesø R, Sorensen L, Lorensen M. Nurses' information management across complex health care organizations. International Journal of Medical Informatics 2005 Dec;74(11–12):960–72.
9. Winthereik BR, Vikkelsø S. ICT and integrated care: some dilemmas of standardising inter-organisational communication. Computer Supported Cooperative Work 2005;14:43–67.
10. Pirnejad H, Niazkhani Z, Berg M, Bal R. Intra-organizational communication in healthcare. Methods of Information in Medicine 2008;47(4):336–45.
11. Reddy MC, Shabot MM, Bradner E. Evaluating collaborative features of critical care systems: a methodological study of information technology in surgical intensive care units. Journal of Biomedical Informatics 2008;41:479–87.

12. Winthereik BR, Bansler JP. Connecting practices: ICT infrastructures to support integrated care. Editorial. International Journal of Integrated Care [serial online] 2007 May 16;7. Available from http://www.ijic.org.
13. Kripalani S, LeFevre F, Phillips CO, Williams MV, Basaviah P, Baker DW. Deficits in communication and information transfer between hospital-based and primary care physicians—implications for patient safety and continuity of care. Journal of the American Medical Association (JAMA) 2007 Feb 28;297(8):831–41.
14. Dinesen B, Gustafsson J, Nøhr C, Andersen SK, Sejersen H, Toft E. Implementation of the concept of home hospitalisation for heart patients by means of telehomecare technology: integration of clinical tasks. International Journal of Integrated Care [serial online] 2007 May 16;7. Available from http://www.ijic.org.
15. Granlien MF, Simonsen J. Challenges for IT-supported shared care: a qualitative analyses of two shared care initiatives for diabetes treatment in Denmark. International Journal of Integrated Care [serial online] 2007 May 16;7. Available from http://www.ijic.org.
16. Hägglund M, Scandurra I, Mostrõm D, Koch S. Bridging the gap: a virtual health record for integrated home care. International Journal of Integrated Care [serial online] 2007 May 16;7. Available from http://www.ijic.org.
17. Trisolini M, Roussel A, Zerhusen E, Schatell D, Harris S, Bandel K, et al. Activating chronic kidney disease patients and family members through the internet. International Journal of Integrated Care [serial online] 2004 Oct 15;4. Available from http://www.ijic.org.
18. Callen JL, Alderton M, McIntosh J. Evaluation of electronic discharge summaries: a comparison of documentation in electronic and handwritten discharge summaries. International Journal of Medical Informatics 2008 Sep;77(9):613–20.
19. O'Leary KJ, Liebovitz DM, Feinglass J, Liss DT, Baker DW. Outpatient physicians' satisfaction with discharge summaries and perceived need for an electronic discharge summary. Journal of Hospital Medicine 2006 Sep;1(5):317–20.
20. Schabetsberger T, Ammenwerth E, Andreatta S, Gratl G, Haux R, Lechleitner G, et al. From a paper-based transmission of discharge summaries to electronic communication in health care regions. International Journal of Medical Informatics 2006 Mar–Apr;75(3–4):209–15.
21. Moore C, Wisnivesky J, Williams S, McGinn T. Medical errors related to discontinuity of care from an inpatient to an outpatient setting. Journal of General Internal Medicine 2003 Aug;18(8):646–51.
22. Machan C, Ammenwerth E, Schabetsberger T. Evaluation of the electronic transmission of medical findings from hospitals to practitioners by triangulation. Methods of Information in Medicine 2006;45(2):225–33.
23. Helsedepartementet, Sosialdepartementet. S@mspill 2007. Elektronisk samarbeid i helse- og sosialsektoren. Statlig strategi 2004–2007 [Te@mwork 2007. Electronic cooperation in the health- and care sector]. Oslo: Ministry of Health, Ministry of Social Services; 2004. [in Norwegian].
24. Stavanger kommune. Prosjektbeskrivelse—Stavanger—kommunalt fyrtårn for elektronisk samarbeid på helse- og sosialtjenesteområdet [Project description—Stavanger—a municipal beacon for electronic cooperation in health- and social services]. Stavanger: Chief Municipal Executive; 2004. [in Norwegian].
25. Hsieh H-F, Shannon SE. Three approaches to qualitative content analysis. Qualitative Health Research 2005 Nov;15(9):1277–88.
26. Patton MQ. Qualitative research & evaluation methods. 3rd ed. Thousand Oaks: Sage Publications; 2002.
27. Melby L, Hellesø R, Wibe T. Elektronisk utskrivningsrapport og informasjon til kommunehelsetjenesten [Electronic discharge summary and information to the municipal care services]. Accepted for publication in Tidsskrift for Norsk Legeforening 2010;130(25). [in Norwegian].
28. Hellesø R, Lorensen M. Inter-organizational continuity of care and the electronic patient record: a concept development. International Journal of Nursing Studies 2005 Sep;42(7):807–22.
29. Paulsen B, Grimsmo A. God vilje, dårlige verktøy. Om samhandling mellom sykehus og kommunale omsorgstjenester ved utskrivninger av omsorgstrengende eldre [Good will, poor tools. About coordination between hospital and municipal care services at discharge of elderly frail persons]. Trondheim: SINTEF Helse; 2008. (Report No.: SINTEF A7877.) [in Norwegian].
30. Glouberman S, Mintzberg H. Managing the care of health and the cure of disease—Part II: integration. Health Care Management Review 2001 Winter;26(1):70–84. discussion 87–9.
31. Hellesø R, Fagermoen MS. Cultural diversity between hospital and community nurses: implications for continuity of care. International Journal of Integrated Care [serial online] 2010 Feb 18;10. Available from http://www.ijic.org.