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Patients in transition - improving hospital-community care collaboration through electronic messaging: providers' perspectives

Abstract (295 words)

Aims and objectives. To explore how the use of electronic messages (e-messages) support hospital and community care nurses' collaboration and communication concerning patients' admittance to and discharges from hospitals.

Background. Nurses in hospitals and in community care play a crucial role in the transfer of patients between the home and the hospital. Several studies have shown that transition situations are challenging due to a lack of communication and information exchange. Information and communication technologies may support nurses' work in these transition situations. An e-message system was introduced in Norway to support patient transitions across the healthcare sector.

Design. A descriptive, qualitative interview study was conducted.

Methods. One hospital and three adjacent communities were included in the study. We conducted semi-structured interviews with hospital nurses and community care nurses. In total, 41 persons were included in the study. The analysis stemmed from three main topics related to the aims of e-messaging: efficiency, quality and safety. These were further divided into sub-themes.

Results. All informants agreed that electronic messaging is more efficient, i.e. less time-consuming than previous means of communication. The shift from predominantly oral communication to writing electronic messages has brought attention to the content of the information exchanged, thereby

leading to more conscious communication. Electronic messaging enables improved information security, thereby enhancing patient safety, but this depends on nurses using the system as intended.

Conclusion. Nurses consider electronic messaging to be a useful tool for communication and collaboration in patient transitions.

Relevance to clinical practice. Patient transitions are demanding situations both for patients and for the nurses who facilitate the transitions. The introduction of ICT can support nurses' work in the transition situations, and this is likely to benefit the patients.

Key words: patient transitions, communication, collaboration, hospital, community care, e-messaging, information and communication technology

(Main text, excluded ref, tables and figures: 4889 words)

INTRODUCTION

Transitions of patients to and from hospitals to other healthcare service locations present challenges when it comes to creating the experience of a seamless, continuous trajectory for the patient (Grönroos & Perälä 2005, Jeffs *et al.* 2013, Kirsebom *et al.* 2013, Lyhne *et al.* 2012). Transitions may even present dangers to the patient, for example if medicine information is not communicated clearly at transition points (Manias *et al.* 2015). Extensive communication and information exchange is therefore needed among healthcare workers across organisations to facilitate transitions as smoothly as possible, and healthcare information technologies are being introduced to support these processes.

In Norway, the so-called Coordination Reform (Ministry of Health and Care Services 2009) was implemented in 2012. Overall, it aimed to create a more seamless healthcare system and to develop more efficient and sustainable healthcare services. The recipe was e.g. to treat patients at the 'right

level of care', so the Reform encourages early discharges from hospitals and enhanced follow ups and treatment at the community care level. It also emphasises the use of information and communication technologies (ICTs) in the healthcare field to create safe, efficient, high-quality services for patients. The project from which this paper stems is an evaluation of how ICTs are utilised in Norwegian healthcare to support the goals of the Coordination Reform.

The most salient—in fact, the only—tool developed especially to support transitions between hospitals and community care is electronic messaging (e-messaging). Development and implementation of e-messaging followed the acknowledgement that community care nurses had little access to any form of ICT 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 posted 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 (Lyngstad *et al.* 2013, Paulsen *et al.* 2013). The e-message system was consequently introduced to 'secure seamless patient trajectories across the health and care sector through electronic all-to-all communication' (Norwegian Nurses Organisation 2011).

The operationalisation of 'securing a seamless patient trajectory' entails elements related to efficiency, quality and safety. In policy documents these words are frequently used to describe the desired outcome of computerised communication in healthcare (Ministry of Health and Care Services 2012a, 2012b). Efficiency, in this context, means the ability to accomplish something with a minimal waste of time and effort. Quality of care for individual patients can be understood from two principal dimensions: access and effectiveness. In essence, the question is this: do users get the care they need, and is the care effective when they get it? (Campbell *et al.* 2000) Patient safety refers to the prevention of errors and adverse effects on patients associated with healthcare. The introduction of

ICT in healthcare has been known to both strengthen and decrease patient safety (Kaelber & Bates 2007).

BACKGROUND

Patient transitions may take place both within an organisation, e.g. the handover situation in a hospital, and between organisations. An example of the latter is when homebound patients who receive community care services are admitted to a hospital and are later discharged to their homes, where they need follow-up care from a community care service. Such inter-organisational patient transfers are our main concern in this paper.

Research on patient transitions paints a picture of them as challenging and at high risk for errors. Studies show that a lack of information and poor communication are obstacles faced in transitions, making it difficult for the provider who takes over responsibility for a patient to offer proper care (Bull & Roberts 2001, Gillespie *et al.* 2010, Grönroos & Perälä 2005, Hellesø *et al.* 2005; Holly & Poletick 2014, Jeffs *et al.* 2013, Kirsebom *et al.*2013, Paulsen *et al.* 2013). More concretely, studies have shown that there can be disagreements over what kinds of information should be exchanged (Hellesø *et al.* 2004; Olsen *et al.* 2013), and it is argued for the importance of having a shared view of a patient's health status and needs across organisations so that appropriate follow-up care can be given (Grönroos & Perälä 2005).

Olsen *et al.* (2013) look closely into what kinds of barriers hamper communication and collaboration in transfer situations. They divide the barriers for nurses' information exchange between hospital and community care into three main themes and several sub-themes: (1) **Barriers associated with the nurse** include a lack of motivation to spend time collecting and communicating patient information to collaborating partners, a lack of knowledge about how and where to send information and a lack of control over their workload, meaning that their days are so stressful that they find it difficult to

cope with tasks like information exchange. (2) **Barriers associated with interpersonal processes** include a lack of accessibility to collaborating partners in other organisations, different views of what is considered relevant information and a lack of confidence in the information received from others, as well as a feeling others do not trust the information sent by oneself. (3) **Barriers associated with the organisation**, which include a lack of resources (e.g. time, staff resources and equipment), unclear enactment of responsibilities (e.g. follow up) regarding hospitalised patients and a lack of staff continuity, as well as inappropriate routines and policies which together make information exchange challenging.

A number of studies discuss solutions for improving communication and information exchange between providers in transfer situations. ICTs are frequently suggested for this purpose (Abraham & Reddy 2010, Lyhne *et al.* 2012). ICTs do not eliminate all of the barriers explained above, but as we shall see, they affect some of them. Furthermore, in our understanding of the introduction of technology to an organisation, we apply a sociotechnical approach, meaning that the 'social' and the 'technical' are seen as tightly interwoven (Berg 1999, Berg *et al.* 2003). From a sociotechnical perspective, the implementation of technology in healthcare can be considered a complex, unpredictable process where human actors and technologies co-constitute each other rather than as a linear, predictable process (Ibid.). This means that even if e-messaging is introduced to achieve some specific aims, there is no guarantee that these will actually be achieved. Since computerised communication (i.e. e-messaging) between hospitals and community care is relatively new in Norway and internationally, there is very limited research on the subject. This motivated us to design the study of which we present parts here.

Aim

The aim of this paper is to explore how e-messaging supports hospital nurses and community care nurses' collaboration and communication concerning patients' admittance to and discharges from

hospitals. More precisely, we highlight the three central issues related to the aims of e-messaging: its efficiency, its influence on the quality of care, and its consequences for patient safety.

METHODS

We conducted a descriptive, qualitative interview study. In-depth interviews were conducted to explore participants' experiences with e-messaging in patient transition situations.

Setting

The e-messaging solution comprises of a set of messages integrated into the providers' electronic patient record (EPR) systems. Via Norway's secure national health net, messages are transmitted across the sector, e.g. between hospitals and community care. The messages are designed to support the phases of a patient's hospitalisation. One set of messages supports the admission phase, another set support the stay in hospitalisation and a final set supports the discharge phase. The messages are of two kinds: standardised messages for specific purposes and a dialogue message. All the messages contain prefilled information, such as the patient's name, address and national personal ID number as well as the sender and the recipient (on an organisational level) of the e-message. Figure 1 shows the various messages, while figure 2 provides a more detailed description of the functionality and purpose of the messages.

Insert fig 1- 2 approx. here

Sample and data collection

One large university hospital was strategically selected for the study. The hospital was one of the first in Norway to implement e-messaging for communication with community care, and consequently its

staff are quite experienced users. Our sample was drawn from three departments. The inclusion criterion was that informants must have worked for a minimum of six months in order to gain a certain level of experience with e-messaging. Staff were handed written information about the study and recruited by their managers. Sixteen nurses and one social worker were included. Furthermore, three municipalities whose patients are admitted to the hospital were selected. One municipality was strategically selected because they had the longest experience with e-messaging. The other two municipalities were randomly selected. The recruitment of informants in the municipalities followed the same procedure as in the hospital. Staff were informed in writing and recruited by their managers. In total 24 nurses were included in the study, all of whom had worked in community care services and had more than six months' working experience. A total of 41 persons were interviewed.

The interviews were conducted between February and November 2014. All three authors participated in the data collection. We developed an interview guide where the main themes were chosen from the wish to investigate if the aims of introducing ICT-based communication were reached; to create more efficient, high-quality and safe services for patients (Figure 3), as stated in the Coordination Reform (Ministry of Health and Care Services 2009).

Insert Fig 3 approx. here

The informants had been using e-messages for between six months and three years. Except for a few, all of the participants had working experience from before e-messaging was introduced, so they were able to reflect upon the changes that have occurred since.

All interviews took place in meeting rooms in the nurses' workplace, except for one that was conducted on the telephone. The interviews lasted 30-60 minutes and were audio-recorded and later transcribed verbatim by student assistants.

Data analysis

In parallel with the data collection, the authors discussed the emerging findings. These discussions led us to dedicate one paper to an overall analysis of how e-messaging has affected patient transitions as seen from the perspectives of providers. We wanted the paper to stem from the aims of e-messaging, (more efficient, high-quality and safe services for patients). Consequently, we have used a combined approach for developing the analytical codes, employing both a deductive organising framework (i.e. the overall aims of e-messaging) and an inductive approach where themes were identified from the ground up for the three aims (Bradley *et al.* 2007). LM held the main responsibility for the analysis, but all of the authors were involved in developing the final themes presented in this paper. Table 2 shows how the empirical examples and the analytic sub-themes are related to the organising framework's main themes and the corresponding roles of the e-message system.

Insert Table 2 here.

A study's trustworthiness depends on a clear description of the study process – from preparation, via organisation of data to the reporting of the results (Elo *et al.* 2014). We have tried to be transparent in the description of the whole research process so that readers can follow the steps from data collection to the results.

At vi har analysert sammen og representerer uilke bakgrunner hvilket styrker kredibilitet, forforståelse.

Ethical considerations

The study was approved by the Data Protection Official for Research, the Norwegian Social Science Data Services, the hospital's research board, and managers in the municipalities. Informed consent was obtained from the participants before the interviews, and they were assured that interview data would be treated confidentially and were guaranteed anonymity in the presentation of findings.

RESULTS

The study confirms that using e-messages to support patient transitions and collaboration between hospitals and community care has become a fully integral part of both hospital and community nurses' work tasks. Receiving, writing and sending e-messages is a daily task. In the hospital, nurses are responsible for particular patients and try to follow up all communication concerning them, including e-messaging. In community care, e-messaging is mostly delegated to the nurses who work on administrative tasks. The results are further presented according to the three main themes that structured the analysis.

E-messaging makes inter-organisational communication more efficient

There were considerable agreement among the informants that e-messaging means more efficient communication in patient transitions. When comparing current practice with how information was previously exchanged between hospitals and community care, nurses used phrases like 'less waiting in telephone queue', 'efficient and safe', 'more tidy', 'fewer misunderstandings', and 'easier to get hold of people'. One of the informants even stated that 'it is perhaps the best [thing] that has happened!' (Hospital, nurse 7)The positive experiences with e-messaging must be seen in contrast to previous practices, which were depicted as inefficient, cumbersome and unsafe: 'Not only did we take notes [from the telephone conversation], but we received an anonymized fax! We had to call the hospital to obtain the patient's name and number in order to identify him. And it was not easy to find the correct nurse. You just had a telephone number [to the ward]. It took some time'. (Community, nurse 11).

The quotes from nurses in community care and the hospital show how communication in the admission phase used to take place. They also illustrate that this was a shared experience. It was cumbersome relying on faxing to hand over information from community care to the hospital. Because Norwegian law does not allow sensitive personal information like social security numbers to be sent via fax, nurses had to delete such information from the transfer scheme and give it orally via telephone. As stated in the first quote above, if you were calling from community care to the hospital it could also be difficult to get hold of the right nurse, which delayed information exchange. The descriptions of the admission process also raise safety issues which we will return to.

Another change that the introduction of e-messaging brought along is that community care is now obligated to send an admission report to the hospital, informing the nurses there about patients' health condition, services, etc. Prior to e-messaging, community care nurses rarely gave the hospital any information on their own initiative, which meant that hospital staff had to collect information themselves from various sources, e.g. next of kin, general practitioners (GPs) and community care. Today's practice is considered more efficient because relevant information is provided unsolicited.

The informants also considered e-messaging to be a more efficient practice than previous ones for the period that a patient is in the hospital and for discharge planning. This, too, was a shared experience between community care nurses and hospital nurses. In particular, the view was expressed that e-messaging makes it easier to get in contact with the right person, i.e. a person that has knowledge of a given patient: 'When we called the hospital, you did not reach anyone who knew the patient, and you had to spend some time on that. I think it is easier today'. (Community, nurse 13) A similar experience was referred to by a hospital nurse: 'If you want to arrange a collaboration meeting with community care, you no longer have to search for the right case handler or the right person to call in order to try to telephone someone who perhaps does not answer. Now you simply send an e-message, and it is done in 1-2-3'. (Hospital, nurse 5)

Some informants also argued that making a request today is easier than before because they know that it will be read by someone familiar with the patient. This is a consequence of all e-messages being integrated in the patient's EPR. For the healthcare providers responsible for the patent, this means that it is simple to keep track of e-message communication.

E-messaging stimulates reflections on information quality and communication

Our study indicates that the content of the patient information communicated across providers has changed with the introduction of e-messaging. It seems that the transition from predominately oral communication to written communication has stimulated a greater reflection on information content. Such a reflection presents itself as relevant for messages during the whole hospitalisation phase, including at admission and discharge. Several of the informants stressed that writing instead of communicating orally means that 'you become more aware. [Because] what is written has a bit stronger value than what is just put in words'. (Hospital, nurse 4) Consequently, they also think more carefully about what they want to communicate: 'I can sit down and write and delete text if it turns out wrong. I think it is all right to have the possibility to formulate it in written text, and I think it is all right to give some thoughts [*sic*] to what I want to say'. (Hospital, nurse 6)

The written format presents the opportunity to be more precise in one's statements. However, today's emphasis on written communication puts strong demands on language skills. There is a concern that nurses coming from other countries who are not fluent in Norwegian will have problems with expressing themselves in an accurate way. Naturally, expressing oneself can also be a challenge for native speakers: 'Sometimes a nursing assistant has been writing on my note, and I would never have expressed myself in such a non-medical way. The report must have a certain professional standard'. (Hospital, nurse 19)

Since all messages are based on templates and contain some basic information about the patient, e-messaging may be helpful in providing the most complete and precise information possible to the receiver. Most of the messages (except for the dialogue message) are also semi-structured, utilising imported texts from the patient's EPR. This means that compared to earlier times, much of the information exchanged today is predetermined through the e-message system. However, though parts of the message content are predetermined, users still need to add their own freely-written text (as exemplified in the quote above), e.g. a description of a patient's health status. Many nurses explained that it could be somewhat difficult to determine what information to include in the message. However, this process was described as becoming less of a challenge with experience.

Transition situations demand extra attention to what kind of information the receiver needs to provide the best follow-up care to the patient. There seems to be an agreement when it comes to discharges and transfers to community care that the messages should contain thorough descriptions of a patient's functional level. Such information is called for by community care, but it is recognized by hospital nurses as well: 'I think that we could be better to be concrete and describe (…) especially from our side—when we send a request [for services], it has to appear [*sic*] relevant information'. (Hospital, nurse 4)

In general, informants agreed that information exchange via e-messaging is more comprehensive and precise than orally transmitted or faxed information.

E-messaging introduces 'conditional safety'

The introduction of ICT in healthcare presents challenges to patient safety. In parallel with implementing the Coordination Reform, all hospitals and municipalities in Norway were obliged to work out agreements that regulated their collaboration, including rules for e-messaging. The agreements ensure that responsibilities are formally delegated between the actors. However, as with

the introduction of all new technologies, there is an intricate interplay between humans and technologies in order to make it work as intended.

When patients are admitted to the hospital, they enter through the emergency department (ED). Consequently, the ED staff member is the one who must start the chain of e-messaging. He or she does this by sending a 'message about admitted patient' to community care. Informants pointed out that if the ED forgets to send this message, the collaboration process between the hospital and community care can be severely delayed. This is particularly true if the patient rarely receives community care services. This can delay and complicate the planning of the discharge transition phase.

When the exchange of e-messages proceeds smoothly, such communication was considered by the nurses in our study to ensure patient confidentiality much more effectively than previous systems. The process of faxing anonymised patient information from the hospital to community care was not particularly safe, e.g. it was possible to send faxes to wrong numbers.

The automatic recording of information in each patient's EPR was viewed as strengthening patients' safety. Several informants argued that a written message has a stronger value than information communicated orally: 'the fact that things are written down, commits you. You can see that we and community care are communicating'. (Hospital, nurse 4) Another nurse said that 'the communication is documented; it is proper quality assurance'. (Hospital, nurse 6) In the interviews, quality and safety were spoken of as inextricable and as two sides of the same coin. Improved documentation practices and more committed nurses can be expected to lead to safer patient transitions.

However, one safety critical issue was frequently brought up in the interviews. This had to do with the medicine list that the hospital sends to community care upon a patient's discharge. The medicine list was often incomplete, e.g. it did not always include the patient's regular medications that he or she used before hospitalisation. This can create potentially dangerous situations when the patient is at home again: 'It happens that the list does not correspond [with community care's list], or that

there are pills on the old medicine list that we think the patient shall continue to take. So when it's a weekday we have to consult the GP'. (Community, nurse 13)

Medicine lists that are not up to date require a lot of work from community care nurses in order to facilitate a safe transition to home for the patients. Nurses stated that the GPs—who hold the formal responsibility for homebound patients' medications—depend too heavily on them to clear up situations in which there are discrepancies between medicine lists. The nurses called for better communication between hospital physicians and GPs. This example shows how community care nurses act as a security mechanism for flaws in the system and gaps in communication.

Finally, several topics related to technical aspects of the system were frequently addressed in the interviews. For example, the hospital has encountered problems with the automatic importing of medicine lists from the EPR to the discharge message, a flaw which contributes to the problem outlined above. Access to correct and up-to-date addresses has also sometimes been lacking. On an organisational level, problems with e-messaging could arise when municipalities update the version of their EPR/e-message system. This can sometimes prevent the whole system from working, and nurses have to return to the old-fashioned telephone and fax procedures for exchanging information.

DISCUSSION

In this paper our aim has been to explore how e-messaging supports hospital nurses and community care nurses' work in patient transitions. The intention of e-messaging is that it will function as a 'digital bridge' for information exchange and communication between hospitals and community care. In particular we have looked at how nurses experience the influence of e-messaging in terms of efficiency, quality and safety in transition situations. Efficiency, quality and safety are intertwined and mutually affect each other, but they are addressed separately to provide structure to the discussion.

More efficient communication in patient transitions is probably the most apparent finding in our study. Communication and collaboration across hospitals and community care has been a problem in the healthcare field as shown in several studies (Gillespie *et al.* 2010, Jeffs *et al.* 2013, Kirsebom *et al.* 2013, Lyhne *et al.* 2012, Olsen *et al*. 2013). Prior to the introduction of e-messaging, the same applied to the hospital in our study. E-messaging has eliminated some of the barriers to communication that healthcare workers previously experienced (Olsen *et al.* 2013). For example, it has made collecting and transferring information easier and less time-consuming for nurses in the hospital and in community care. Nurses' motivation to spend time on information-related work is likely to increase when the work is easier (Ibid.) The accessibility to each other, or more precisely to the nurse that knows a particular patient, is also much improved. Lack of accessibility is known to be a barrier (Ibid.), and e-messaging has helped to remove this barrier.

When the e-message system was implemented, 'collaboration agreements' between the hospital and the municipalities were worked out to regulate e-messaging. The agreements set out rules for the new system, e.g. time limits within which e-messages must be sent. This parallel process of technology implementation and the development of agreements and routines pinpoints the socio-technological mantra: that technologies do not work by themselves; rather, they work because they are embedded in 'social' practices (Berg 1999, Berg *et al*. 2003). Our findings lend support to this view.

E-messaging is intended to play a part in strengthening the quality of care (e.g. creating a more seamless trajectory) for patients. E-messaging can affect information content and, in turn, influence both access to the appropriate levels of service for patients and the effectiveness of healthcare services.

The introduction of e-messaging has given more attention to communications' textual content, and hence to an important aspect of providing high-quality care. The e-message system is based on templates, and some of the messages contain imported text from the EPR. A fixed terminology

improves the quality of information shared by ensuring that predefined elements are included and by providing a common understanding of the information (Coiera 2003). However, the e-message system also requires nurses to compose text messages. Research has shown that nurses can lack insight into the working practices and informational needs of their collaborating partners, which makes it challenging to send them the 'right' information (Hellesø & Fagermoen 2010, Kirsebom *et al.* 2013). In our study we found that the introduction of e-messaging initiated reflections and conversations about the informational needs of others. The need for thorough descriptions of the patients' functional levels was emphasised; this would make it easier for community care nurses to decide upon the appropriate care level for a patient after discharge. We also found that utilising standards and terminologies can diminish the barrier faced by some who lack knowledge of what to write (cf. Olsen *et al.* 2013); nonetheless, documenting and communicating via text still require a high degree of reflection from nurses.

The introduction of ICTs represents the potential for enhanced information security and patient safety, but it can also create new risks (Kaelber & Bates 2007). We found that the e-message system itself facilitates improved patient safety by automatically storing every e-message in the patient's record, making them accessible to both hospital nurses and community care nurses. Research has repeatedly pointed to poor accessibility of information as a hindrance for good collaboration (Jeffs *et al.* 2013, Olsen *et al.* 2013). Good collaboration, when achieved, can increase patient safety.

However, in order to accomplish this, the e-message system must be used as intended. For example, as our study showed, it is vital that the hospital starts the communication process with community care by sending the 'message on admittance', informing community care that a common patient has been admitted. Otherwise, the follow-up plans for the patient may be delayed. Paradoxically, creating patient safety also means that nurses must use so-called work-arounds to bypass the system's errors or to compensate for missing functionality. It is not uncommon that users of health information systems use work-arounds (Vogelsmeier *et al.* 2008), and so, in that sense, using the

system in unintended ways can also be important to enhancing patient safety. In our study, this was particularly visible concerning communicating patients' medicine information at discharge. Research has shown that unclear communication and a lack of up-to-date medicine information at transition points represent potentially dangerous situations for the patient (Lyngstad *et al.* 2013, Manias *et al.* 2015). Nurses in our study communicate medicine information outside of the e-message system because the system does not properly support transfers of medicine information.

Another feature of the e-message system that can increase patient safety is the integration of predefined addresses in the system, which makes it easier to reach the right recipient. However, we learned of instances in which the hospital chose the wrong recipient and messages went astray. This points again to how the technology needs reflective users to be useful.

Limitations of study

The aim of the Coordination Reform and the e-message system is, overall, to create more seamless trajectories for patients. Based on this study, we cannot say if patients have had such an experience. However, it is likely that improved patient transitions have given patients a sense of a generally more seamless healthcare system. The personnel in the hospital and in the municipalities who were selected to participate in the study may have been positive towards the use of e-messages. This may have influenced their response in the interviews. However, the respondents' answers indicate that they have a nuanced view of the benefits and challenges and benefits of the introduction of e-messaging.

Relevance for clinical practice

The findings indicate that the various collaborators in the healthcare field need to ensure the efficiency of procedures and the sustainability of systems in order to produce a safe healthcare system. In addition, nurses need, to a greater extent, to clarify the informational needs of their collaborators in other healthcare settings to ensure continuity and safety of care. These changes will require a significant professional effort in order to achieve the full potential benefits of using e-messages. The study is conducted in a Norwegian context, but given that ICTs increasingly are being introduced worldwide for communication and information exchange between providers, the study's results should be relevant also for the international nursing community.

Conclusion

The introduction of e-messaging in Norwegian healthcare can be considered a success story in that it has led to more efficient, higher-quality and safer patient transitions. We have argued that this success has much to do with the situation prior to the new system's introduction, when patient transitions were characterised by slow, disrupted processes wherein the collaborating partners frequently experienced a lack of information. The e-message system is a quite simple technology, but it has clearly filled a need and removed barriers to communication between hospitals and community care. To further utilise the e-message system to support patient transitions, it is necessary that users continue to be aware of the informational needs of others, to work on documentation and language skills and to follow the routines that have been developed to guide the system's use.

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Figures and Tables—Patients in Transition

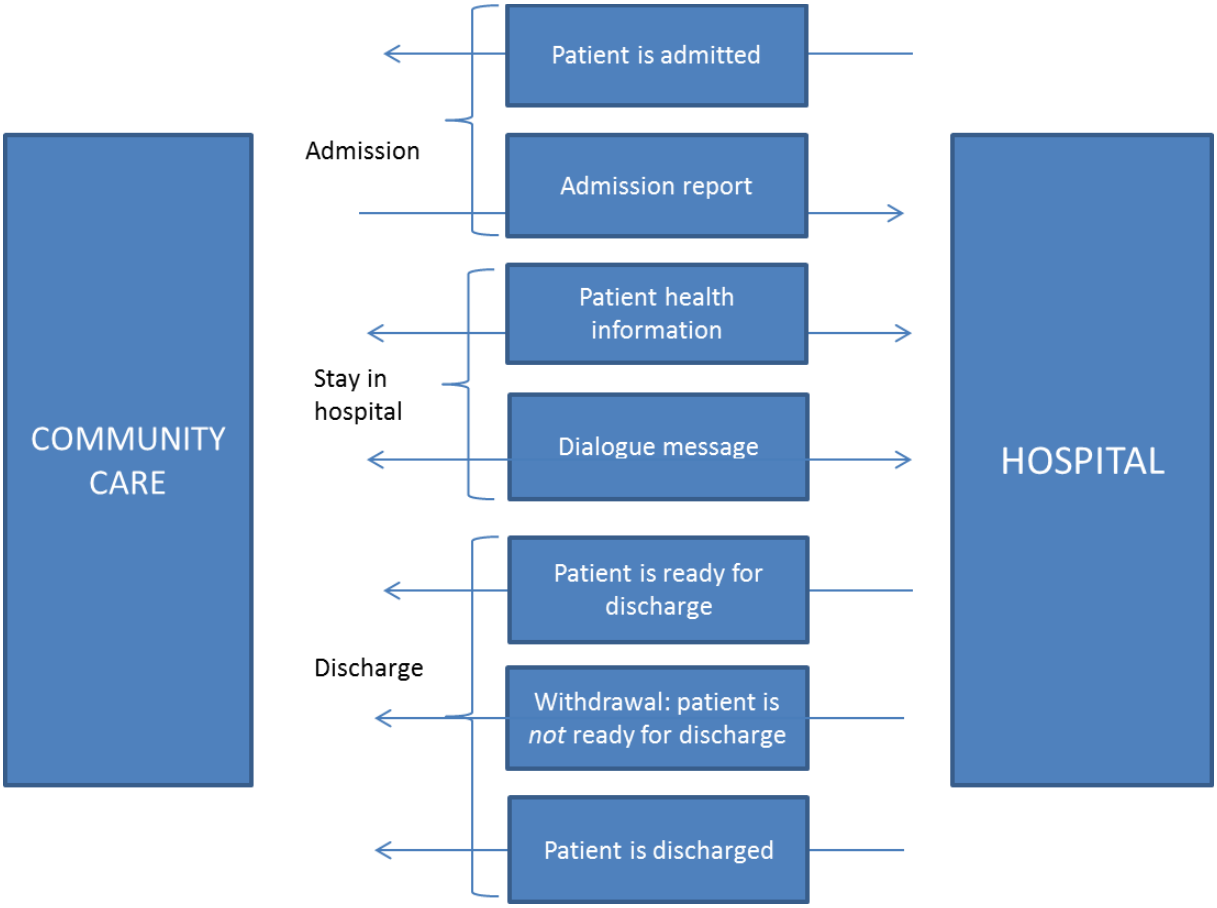

Figure 1. E-messages that can be sent between community care and the hospital

Descriptions
Patient is admitted. A patient who receives community care services is admitted to a hospital. The hospital starts the chain of communication and information exchange by sending a 'patient is admitted' message to inform the community care service of the patient's admittance. According to the guidelines, the admittance message should be sent within 24 hours of a patient's admittance. The admittance message replaces the previously used method of faxing a paper form.
Admission report. Receiving the 'patient is admitted' message from the hospital prompts the community care service to reply with health information about the patient and the type and amount of care provided to the patient by the municipality. This provides the hospital with a better overview of the patient's

resources (i.e., the patient's ability to take care of himself or herself) and problems and enables the hospital to adjust their treatment accordingly.
Patient health information. After the patient has spent some time in the hospital, the hospital sends the community care service a more detailed, up-to-date overview of the patient's status and needs as well as an indication of when the patient will be discharged. This message marks the starting point of community care for patients who did not receive such service prior to entering the hospital but whom the hospital believes will need such service after their discharge. The community care service can also use this message to inform the hospital about the patient's health status.
Dialogue message. The dialogue message is designed to support continuous dialogue and clarifications between the hospital and the community care service during the patient's hospital stay.
Patient is ready for discharge. This message is sent by the hospital to the community care service to inform them that the patient will be discharged in 24 hours' time. Twenty-four hours after the discharge message has been sent, the community care service becomes financially responsible for the patient. The message thus signifies an important transfer of responsibility.
Withdrawal: patient is *not* ready for discharge. If the patient's condition changes and he or she needs continued treatment in the hospital, this message must be sent to the community care service as soon as possible to inform them that the patient is no longer ready for discharge.
Patient is discharged. On the day of discharge, the hospital sends this message to inform the community care service that the patient has been discharged. The discharge report contains more comprehensive nursing information. A planned change to the system will involve the sending of medicine information, but this has not yet been implemented.

Table 1. E-messages and descriptions

Table 2. Examples of analysis. Relations between the organising framework and analytic subthemes as well as the corresponding roles of the e-message system