

## Digitalized Discharge Planning Between Hospitals and Municipal Health Care

Ragnhild Hellestø<sup>a, b</sup>, Heidi Gautun<sup>c</sup>

<sup>a</sup> Department of Nursing Science, Institute of Health and Society, Faculty of Medicine, University of Oslo, Oslo, Norway,

<sup>b</sup> Centre for Care Research, NTNU

<sup>c</sup> Norwegian Social Research NOVA, University College of Oslo and Akershus, Oslo, Norway

### Abstract

The use of digitalized collaboration between levels of care is expected to improve coordination in patients' transitions. The aim of this study was to investigate how safe and effective e-messages were regarding discharge planning between hospital nurses and the municipal level of administration. A nationwide survey was conducted among 2 431 Norwegian nurses working in inpatient wards in general hospitals. A majority (86%) of the nurses used e-messages as their main mode of communication with the administration when older patients were discharged. Most nurses (73%) found that e-messages were effective in their collaboration, and that e-messages ensured safe discharge for older patients (65%). More than half of the nurses reported being satisfied with the collaboration with the administration. E-messages supported hospital nurses in their discharge planning for older patients. However, they sometimes needed to use the telephone to exchange additional and more detailed information.

### Keywords:

Patient discharge, Electronic Health Record, Continuity of care

### Introduction

Developing information systems to ensure seamless transitions for patients between different levels and facilities has long been in focus [2]. Caring for patients at the right place and the right level has become a political mantra both internationally [15] and in Norway [11; 12]. Norwegian authorities are transferring responsibilities from specialist health services to community care, preferably in the patient's own home [6; 25]. At the same time, health care is becoming increasingly complex as new services are established to ensure safe and high-quality care for a variety of patient groups. Despite many promising projects to develop health care information systems as electronic patient records (EPR), both patients and health care providers report a lack of timely and accurate information at point-of-care [8; 14]. Gaps in exchange of information have been identified at several levels of care. Previous research has revealed that providers in hospitals and community care held different perspectives on patients [9; 22], which makes it complicated to agree on the accuracy of information in different settings.

In Norway, where the current study was conducted, the population has universal access to health care. The health care system is separated into specialist health care services located in hospitals and community health care such as primary care ser-

vices, nursing homes and home health care run by municipalities. The hospitals are run by the state and are organized into four health regions. The 328 Norwegian municipalities have mainly organized their health and care services according to a provider/purchaser model. The purchasers represent an administrative level that assesses, decides on and allocates the level of care for all applicants for health care services, including patients who are hospitalized and need follow-up care after discharge [23]. However, not all municipalities are organized according to this model, and several other models exist. Therefore, for the purpose of this paper, we use the term "administrative level" to refer to municipal health care. Hospital nurses have to collaborate with the administrative level during the discharge planning phase and at discharge itself. Gaps in the accuracy of the information exchanged in this process have been identified for many years [8]. To enhance collaboration, the authorities at the national level have decided that electronic messaging integrated in the patients EPR will help to bridge the information gaps between different levels and sectors of care. From introduction in 2012 until today, an increasing number of e-messages has been exchanged in a secure digital way. Qualitative studies have shown promising results regarding quality, safety and efficiency when nurses in hospitals and municipalities exchange information using e-messages throughout patient trajectories from hospitalization to discharge [4; 18]. Few quantitative studies have been identified that address nurses' use of e-messages in their collaboration. However, Lyngstad and colleagues [16] found that ease of use was important in using e-messages when home care nurses collaborated with general practitioners.

Thus, in this paper we address hospital nurses' assessment of using e-messages in discharge planning. This paper is based on a project named Cross Care Old (CCO). The main objective of CCO is to develop research-based knowledge on cross-sectional care transitions for geriatric patients from specialized hospital care to municipal health and care services in Norway. One of the topics was to investigate the characteristics of good and bad discharges from hospital. In the present paper, we report on hospital nurses' assessment of the appropriateness of using e-messages in their communication with administrative staff when planning discharge to community care. Our research question is as follows: How safe and effective are e-messages for discharge planning between hospital nurses and municipal administration?

In our investigation of collaboration between hospital nurses and municipal administration, a comprehensive conceptual framework of integrated care proposed by Valentijn and colleagues [24], guided us as our analytical framework. The framework is structured around three levels of integration: macro level (system), meso level (organizational) and micro

level (clinical/personal). In accounting for the complexity of integrated care, the framework provides an approach to overcome the issues of context specificity and limited transferability. The macro level reflects the political regulations regarding how the authorities expect health care to be performed. In Norway, a set of regulations addresses problems of discontinuity due to fragmentation and specialization. In 2017, the government launched an eHealth strategy in which IT is regarded as a prerequisite for seamless and integrated care. The meso level refers to partnerships and interactions/pathways that reflect collaborative processes occurring within and across health professions, between service levels and between health and social services. These collaborative processes include information sharing, role delineation, closing the gap between service levels and reducing fragmentation of health and other welfare services essential for the facilitation of community participation. At the micro level, user pathways involve collaborative processes between the patient, his/her family and wider social network, and the health/social/welfare professionals that are integral to patient trajectories. In our paper, we address in particular the meso level, but the three levels are to some extent interdependent.

## Methods

We used a descriptive design consisting of a nationwide web-based survey among nurses working in inpatient wards in general hospitals. Data was collected in May 2017. An inclusion criterion was work on a hospital ward where some or all patients were 65 years or older. Nurses working in the administration, maternity wards, children's wards and outpatient facilities were excluded.

At national level, there are no registers where we could identify nurses filling our inclusion criterion. Therefore, we sent an e-mail with a request for participation, and a link to the questionnaire, to all the 29 316 members of the Norwegian Nurses Organisation (NNO) who were registered by the NNO as working in general hospitals. We sent three reminders. Most Norwegian nurses are members of this organization (about 80%). Thus, we had to rely on this method, although only an unknown number of the many nurses contacted were in the target group.

### The questionnaire

We used a self-developed questionnaire based on findings from semi-structured interviews with nurses in three different hospitals, previous research on discharge planning, questions tested in previous data collections [7], and expert validations of new questions. The survey questions and response options were piloted on a random sample of 20 nurses. Minor revisions were made based on feedback from the pilot participants. The questions had different response alternatives. For the purpose of the current paper, we used a 5-item scale from "strongly agree" to "totally disagree" for questions regarding the nurses' perceptions of whether e-messages were a safe and effective tool and about their collaboration with administration.

We employed descriptive statistics, frequencies and cross tabulations in the analysis. All analysis was undertaken in SPSS, and the significance level was set at 5%.

The survey was approved by NSD, the Norwegian Centre for Research Data (Project Number 52722). Responding to the web-based data was regarded as ensuring informed consent. All the collected data were stored in a safe database where only a

few researchers have access. These people were approved for access by NSD.

## Results

A total of 2 431 nurses responded to the online questionnaire. Almost all respondents were women (97%); 66% were under 40 years, 17% in the age group 41 to 50 years, and 13% between 51 to 60 years. Very few, 4%, were 61 years or older. More than half of the respondents worked part time (i.e. fewer than 35 hours per week, including extra shifts and second jobs). Only 38% of the respondents had continuing education after gaining a bachelor's degree. The type and size of wards and the hospitals' geographic location are shown in Table 1.

Table 1: Type and size of ward and geographic location

Type of ward:*	Percent
Internal medicine	45%
Surgery	25%
Combined medicine/surgery	5%
Orthopedic	11%
Geriatric	2%
Others e.g. gynecology, critical care, neurology	14%
<i>Size (number of beds):**</i>	
1-10	8%
11-20	33%
21-30	48%
>30	11%
<i>Geographic location (health region)***</i>	
South-Eastern Norway	49%
Western Norway	23%
Central Norway	18%
Northern Norway	10%

\* N=2 147. Those (284) working in more than one type of ward are excluded

\*\*N=2 431

\*\*\*N=1 998. Name of hospital is unknown for 433 respondents

The nurses reported that the most frequent way of having contact with the administration when older patients were discharged from hospitals was by using e-messages. Altogether 86% reported that they only used e-messages in their communication (always/almost always). Seven out of ten were using e-messages daily or weekly with the municipal administration (Table 2).

Table 2: Hospital nurses' amount of contact in general with the municipal administration

	N	Percent
Daily	917	37.5
Weekly	1055	43.4
Monthly	212	8.7
Less than monthly	137	5.6
Never	115	4.7
Total	2431	100

We identified that more than half of the respondents used e-messaging with the administrative level on a daily basis, as shown in Table 3.

Table 3: Hospital nurses' amount of e-messaging with municipal administration in discharge planning

	N	Percent
Daily	1211	52.3
Weekly	865	37.3
Monthly	157	6.8
Less than monthly	65	2.8
Never	18	0.8
Total	2431	100

A majority (73.9%) agreed/fully agreed that e-messages ensured *effective* collaboration in discharge planning, and 65% responded that they agreed/fully agreed that e-messages ensured *safe* discharge for older patients. The other informants answered "no opinion" or "disagree/strongly disagree".

There were no significant differences regarding department or number of beds in the ward. However, we identified significant differences regarding the region where nurses worked. A minority, 35.8%, of the nurses reported that it was usual/very usual that they supplemented e-messages with use of the telephone. The rest reported that this was sometimes/unusual/very unusual. It was unusual that anybody from the administrative decision level visited the hospital to assess a patient. Only 12.1% responded that this was common/very common

No differences between wards or size of wards were identified, but also for this variable, significant differences between regions were found (p-value .003).

An overall finding is that more than half of the nurses (52%) strongly agreed that they were satisfied with collaboration with the municipal administrative decision level. 40% partly agreed, 7% disagreed, and 1% were not sure.

Almost half of the respondents (48%) partly or fully agreed that they wanted more contact with local nurses when older patients were discharged from hospitals. Four out of ten (41%) reported that they neither had too little nor too much contact, and very few (3%) experienced that they had too much contact.

## Discussion

The nurses in our study used e-messages in the discharge planning process as their main communication channel when older patients were discharged to municipal health care. The most striking and new finding was that more than half of the hospital nurses reported satisfaction with their collaboration with the municipal administration. In previous studies, many barriers and challenges in collaboration between the different levels of care have been identified [5; 21; 22]. This finding was therefore unexpected. One explanation might be that almost 90% of the nurses communicated with the administration as often as daily or weekly in planning patient discharge. This indicates that they were very experienced in such collaboration during discharge planning. Another explanation might be that the health authorities in Norway have initiated and implemented a nationwide safety program where one of the topics is safe discharge [13].

The finding that more than half of the nurses reported using e-messages with the administrative level daily shows that coordination at meso level is extensive [24]. Often nurses' organizing work, which has great implications for a safe patient trajectory, has not been very visible because it is often embedded in practice [1]. We would argue that the findings in our study, which show the extensive use of e-messages, highlight and make visible what takes place at meso level, i.e. a strong focus on ensuring safe and effective discharge planning for the individual patient.

International and national trends are to develop EPR systems to be available and accessible for patients and all health care providers involved in patient care [10]. Due to Norwegian legislation highlighting the protection of privacy, it is not yet possible to share information through one EPR system. However, what is often overlooked in the struggle to achieve one source of health information is that providers need effective systems for communicating and planning for future care. The fact that health care is distributed and provided at many settings requires systems that address both communication and exchange of information [3]. E-messages go beyond only being a tool for sharing information; they serve to clarify work processes because they are useful for making allocation of responsibility transparent. Furthermore, the communication factor ensures the need for communication, clarification and discussion between the collaborating partners using e-messages [19; 20].

The ability to have this opportunity for communication is considered very important for providing safe and effective care for patients, both from the perspective of hospital nurses [18] as well as for general practitioners in their collaboration with nurses in community care [17]. Nurses find e-messages easy to use [16], which may explain the extensive use in their daily practice.

More than one third of the nurses supplemented e-messages with use of the telephone. These findings are supported by other studies. The reason for using the telephone is that sometimes it is difficult to provide sufficient nuances and details in e-messages. In addition, hospital nurses want more contact with nurses at the local level. This finding indicates that the administrative level does not provide them with sufficient information about patients' health care needs.

Several limitations should be considered when assessing the generalizability of this study's findings. Firstly, we do not have information about how many of the nurses filled the inclusion criteria in the questionnaire. Therefore, it was not possible to calculate an accurate response rate. Based on information from the administration in four hospitals, only half of the nurses working in general hospitals might work on inpatient wards receiving older patients. However, there is uncertainty associated with this number, and even fewer than the estimated number, 15 000, might be in the target group. Incomplete/not updated email registers led us to send questionnaires to members who had changed jobs, retired, or were on long-term sick leave. We also lost potential informants due to technical problems that occurred when data were collected. The strength of this study is the size of the sample, which represents providers from a large number of hospitals throughout the entire country. The findings are supported by findings from other studies. Despite the limitations, we rely on the data and findings.

## Conclusions

In this study, we investigated hospital nurses' assessment of how safe and effective e-messages are in discharge planning between the nurses and the municipal administrative level. We identified that a majority of nurses agreed that e-messages were both safe and effective. We conclude by stating that using e-messages as a collaborative medium is appropriate in discharge planning, but not fully sufficient. For ensuring accurate and nuanced information, the use of the telephone was regarded as a necessary supplement. In addition, the fact that many nurses miss contact with local nurses should be noted. Future research should address hospital nurses' requirement for "double communication"; i.e. they need access to both administrative personnel and nurses at point-of-care to ensure safer and more efficient care.

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### Address for correspondence:

Ragnhild Hellesø, Institute of Health and Society, P.O. box 1130 Blindern, NO-0318 Oslo  
[ragnhild.helleso@medisin.uio.no](mailto:ragnhild.helleso@medisin.uio.no)  
 Phone +47 22850566, cell phone +4797699973