



# The association between hospital nurses' perspectives on their information practices and quality of care transitions in older patients: A nation-wide cross-sectional study

Heidi Gautun

*Research Professor, Norwegian Social Research (NOVA), Oslo Metropolitan University*

PhD

[Heidi.gautun@oslomet.no](mailto:Heidi.gautun@oslomet.no)

Ragnhild Hellesø

*Professor, Institute of Health and Society, University of Oslo; Centre for Care Research, NTNU i Gjøvik*

[Ragnhild.helleso@medisin.uio.no](mailto:Ragnhild.helleso@medisin.uio.no)

Marijke Veenstra

*Research Professor, Norwegian Social Research (NOVA), Oslo Metropolitan University*

PhD

[Marijke.Veenstra@oslomet.no](mailto:Marijke.Veenstra@oslomet.no)

## Abstract

**Background:** The main aim of the current study is to provide updated knowledge on hospital nurses' assessments of quality of care transitions in older patients in Norway. A secondary aim is to analyse to what extent these assessments are associated with perceived information practices.

**Methods:** Nation-wide cross-sectional web-based survey conducted in 2017 including hospital nurses involved in the discharge of older ( $\geq 65$  years) patients ( $N=1,785$ ). Four items were used to measure different aspects of quality of transitional care in older patients. Information practices were operationalised as Medical information; Follow-up Information, Cross-sectoral contact. Analyses of variance (ANOVA) were used to analyse associations.

**Results:** Seven out of ten respondents perceived that older patients feel safe in the transition. Six out of ten respondents perceived that the patient was well informed about the availability of community services, and six out of ten perceived that the patient was well informed about the timing of discharge. Only a little over half of the nurses agreed or strongly agreed with the statement that the patient knows where to turn in case of complications. More positive assessments of quality of care transitions were associated with better perceived information practice (i.e. Follow-up) Almost 50 % of the nurses wanted more contact with community nurses. A stronger perceived need for more contact was negatively associated with all four aspects of quality of care transitions.

**Conclusion:** Our findings suggest a need for more telephone contact and face to face contact over and above the digital/electronic contacts between hospital- and community care nurses to improve quality of care transitions in older patients.

## Keywords

Health services research, Hospitals, Nurses, Discharge Planning, Care Transitions, Older Adults, Cross-sectional Survey

**What is known about this topic**

- Many countries have taken measures to ensure quality of care transitions in the discharge of older patients from hospitals to follow-up care in the community setting.
- However, health services offered to older patients in transition are still fragmented, lacking continuity, and have inadequate information exchange.


**What this paper adds**

- The current study provides updated knowledge on hospital nurses' assessments of quality of care transitions in older patients in Norway.
- Too little contact and insufficient exchange of information on post-hospital care between community nurses and hospital nurses causes essential information not to be communicated to older patients before discharge.
- More telephone contact and face to face contact over and above the digital/electronic contacts between hospital- and community care nurses might improve quality of care transitions in older patients.

**Background**

The current trend in Western countries is to transfer a larger proportion of health services from specialised hospital services to the community care sector, aiming to improve patient outcomes, reduce costs and optimise use of available resources (Deraas, Berntsen, Hasvold & Førde, 2011; Purdy, Paranjothy, Huntley, Thomas, Mann & Huws, 2012; Holmås, Kamrul & Kjerstad, 2013; Norwegian Ministry of Health and Care Services, 2013; Spasova, 2018). In particular older hospitalised patients are being discharged «quicker and sicker» and constitute a particularly vulnerable group that depends heavily upon good and effective collaborations when moving across care settings (Gautun, Kjerstad & Kristiansen, 2001; Kvæl, 2020). In Norway and other European countries, ensuring quality of care transitions in the discharge of older vulnerable patients from hospitals to follow-up care in the community setting has been high on the agenda for policy makers, health care personnel as well as for patients and their relatives. Transitional care refers primarily to the relatively brief time interval that begins with preparing a patient to leave a setting and concludes when the patient is received in the next setting. Previous studies addressing the experiences of patients and their relatives with the quality of transitional care have identified lack of involvement of and information to patients about (i) timing of hospital discharge; (ii) follow-up care; and (iii) whom to contact if they need help, to be among the most common complaints (Hvalvik & Dale, 2015; Dyrstad, Testad & Storm, 2015). From the perspective of health care personnel, effective procedures for collaboration as well as channels for communication between health care personnel are considered crucial for ensuring safe and good-quality care transitions (Mur-Veeman, Van Raak & Paulus, 2008; Armitage & Kavanagh, 1995; Lopes, Fernandes & Santana, 2016; Hellesø, Melby, Brattheim & Toussaint, 2016; Hellesø & Gautun, 2018; Preston, Cheater, Baker & Hearnshaw, 1999). Findings from previous research suggest that existing hospital information practices at discharge are neither sufficient regarding the content nor timely with respect to the information needs of nurses in community care services (Paulsen, Romøren & Grimsmo, 2013). Moreover, a recent scoping review indicated lack of shared knowledge about professional practices across care settings to be a recurrent topic in publications on care transitions in Norway (Vik, 2018).


Many countries have taken measures to ensure quality of care transitions in the discharge of older patients from hospitals to follow-up care in the community setting. However, health

services offered to older patients in the transition are still fragmented, lacking continuity, and have inadequate information exchange. Therefore, there continues to be an urgent need for more knowledge that can be used to improve the quality of transitions for older patients. Hospital nurses play a pivotal role in information exchange related to discharge planning and care transitions and in ensuring quality in the patient healthcare trajectory (Allen, 2014). They are positioned to get in-depth knowledge about hospitalised patients' post-hospital need and conduct much information work throughout the patients' trajectories (Allen, 2014; Hellesø et al, 2016). Thus, hospital nurses are key actors in the health system, supporting and sustaining the delivery, networks and organisation of health and care services (Allen, 2014). The main aim of the current study is to provide updated knowledge on hospital nurses' assessments of quality of care transitions in older patients in Norway. A secondary aim is to analyse to what extent these assessments are associated with information practices  net the influence of factors related to services context (type and size of ward, geographical location).

## Methods

We used data from a nationwide web-based survey among nurses working in hospitals in Norway. Data were collected in 2017. Only nursing staff working in in-patient wards with older patients ( $\geq 65$  years) and who had been involved in the discharge of older patients to community care settings were included in the survey. Thus, nurses working in administration or at maternity wards, in-patient wards for children, out-patient wards and day-treatment wards were excluded from the survey. No national register of nurses fitting our inclusion criteria exists. Therefore, we employed e-mail lists of nurses who were members of the Norwegian Nurses Organisation (NNO), where most Norwegian nurses are organised. The NNO granted access to the e-mail addresses from all 29,316 members who were registered as working in Norwegian hospitals.

Initial contact was made by sending all member nurses an e-mail containing information about the study and a link to the electronic questionnaire. The e-mail specified the inclusion criteria and asked only nurses who were part of the target group to participate. The e-mail also provided information concerning the aim of the study, the confidentiality of the data handling and the voluntary nature of participation. Informed consent was provided by returning the questionnaire confidentially. Screening questions identified nurses who did not fulfil the inclusion criteria. The first screening question was: Are you working in a hospital? The respondents that answered no, were not allowed to answer more questions; the second screening question was: What type of ward are you working at? Respondents that answered Psychiatry, Children and Youth, Outpatient Clinic, were not allowed to answer more questions. The third screening question was: Are you working at an inpatient ward? Respondents that answered no, were not allowed to answer more questions. Further, how many of the patients at your ward are 65 years or older? Respondents that answered none, were not allowed to answer more questions.

Three reminders were sent out: one, two and three weeks after the initial e-mail contact. A total of 2,431 eligible hospital nurses responded to the questionnaire, of whom 94 % were female. For the purposes of the current paper, we excluded respondents who had never contact with the allocation office in the municipality (N=115) and those who did not indicate the region they were working in (N=422). The resulting analytical sample comprised 1,785 hospital nurses 

### The questionnaire

The items and response scales in the survey were derived from previous data collections on discharge planning and further developed through semi-structured interviews conducted with nurses in three different hospitals, and expert validations of new questions (Gautun & Syse, 2017; Bragstad, Kirkevold, Hofoss & Foss, 2012; Hellesø, Sørensen & Lorensen, 2005). The resulting survey was piloted with a random sample of 20 nurses. Minor revisions were made based on feedback from the pilot participants.

The final electronic questionnaire consisted of five sections. Section 1 included background information. Section 2 assessed conditions affecting the timing of hospital discharge. Section 3 assessed the quality of transitions, and section 4 assessed information practices. In addition, the questionnaire contained several questions on the resource situation at the workplace of community nurses (Section 5). The nurses used an average of 15 minutes to fill out the questionnaire.

### Dependent variables: Quality of care transitions

Our study operationalises quality of care transitions through hospital nurses' assessments of the involvement of and information to patients regarding four aspects of transitional care: (1) Feeling safe at discharge; (2) Timing of hospital discharge; (3) Follow-up care; (4) Whom to contact if they need help. Hospital nurses were asked to indicate their agreement/disagreement with the following statements reflecting these four aspects: (1) The patient feels safe when he/she is being discharged from the hospital; (2) The patient is well-prepared about the timing of hospital discharge; (3) The patient is well-informed about the community care services he/she will receive; (4) The patient knows whom to contact in case of complications. Responses were given on a five-point Likert scale, ranging from 1 (Strongly disagree) to 5 (Strongly agree).

### Independent variables: Assessments of information practices

Assessments of information practices were operationalised as (i) the provision of information from hospital nurses to community care settings; and (ii) types of cross-sectoral contact.

(i) Hospital nurses' assessments of the provision of information to community care settings were measured with eight items that were part of the same battery and introduced with the following question: How common or uncommon is it to provide sufficient information to municipality care about older patients discharged from the hospital about: Practical procedures, Patient's medical condition, Treatment received, Patient's level of functioning, Medications, Medical advice, Social needs and Nursing care ahead. Responses to single items were measured on a five-point Likert scale, indicating how (un)common this type of information was provided to community care services, and ranged from 1 (Very uncommon) to 5 (Very common). The eight items are formulated to highlight two different dimensions of information: Medical Treatment received and Follow-up Care. To provide an aggregate account of these dimensions we combined the eight items into two rating scales. An additional advantage is that rating scales built-up by summing several single items tend to be more reliable over single item scores. The first scale measured information related to Medical treatment and consisted of the following five types of information (see also Table 2): Practical procedures, Patient's medical condition, Treatment received, Patient's level of functioning, Medications. The second scale measured information on Follow-up care and consisted of three items (see also Table 2): Medical advice, Social needs and Nursing care. Scores ranged from 5- 25 and 3-15 on Medical treatment and Follow-up care respectively,

with higher scores indicating more positive experiences with the provision of information. Cronbach's alpha was 0.86 for Medical treatment and 0.75 for Follow-up care.

(ii) Hospital nurses' assessments of cross-sectoral contact was assessed with two single items (1) How (un)common is it for the allotment office to visit the hospital ward before patient discharge? The response scale ranged from 1 (Very uncommon) to 5 (Very common). (2) How (un)common is it for community care nurses to visit the hospital ward before patient discharge? This item was measured on a 6-point response scale ranging from 1 (No contact) to 6 (Very common). In addition to these items on actual contact, the questionnaire inquired whether nurses agreed with the following statement «Nurses in community services and nurses at the in-patient ward [in the hospital] should have more contact regarding older patients who are being discharged». Response categories for this question ranged from 1 to 5 (Strongly disagree, partly disagree, neither agree nor disagree, partly agree, strongly agree).

The respondents were also asked how (un)common it was for them to visit older patients in the community care services after the patients had been discharged from hospital. This item was not included in the analysis because less than one percent reported that it was common/very common for them to do so.

### Potential confounders

We included the following characteristics of the nurses' workplace as potential confounders of the associations between quality of care transitions and information practices: the hospital's geographical location, the type of ward and the ward size. The hospital's geographical location differentiates between Central, North, South-east, West of Norway, and Oslo. Oslo is included as a separate category as it is by far the largest city/area in Norway, with almost four times as many inhabitants as the next major city. In addition, Oslo is characterised by more complex housing situations, less availability of informal support, as well as greater strain on community care services (KS, 2015). The type ward distinguishes between wards for internal medicine and geriatrics versus other wards (e. surgery, orthopaedic wards). The variable describing ward size was based on the number of beds and categorised as  $\leq 20$  beds versus  $> 20$  beds.

### Statistical analyses

We used chi-square statistics (crosstabs) and Pearson's correlations to describe the data. We conducted analyses of variance (ANOVA) to study the association of the independent variables with hospital nurses' ratings of the four aspects of quality of care transition in older patients. A significance level of 5% ( $p < 0.05$ ) was considered statistically significant. In addition, we used the partial eta squared to illustrate the share of total variation that is explained by each of the dependent variables in the multivariate model. This can be interpreted as an effect size where 0.01 indicates small, 0.06 medium and 0.14 a large effect size.

## Results

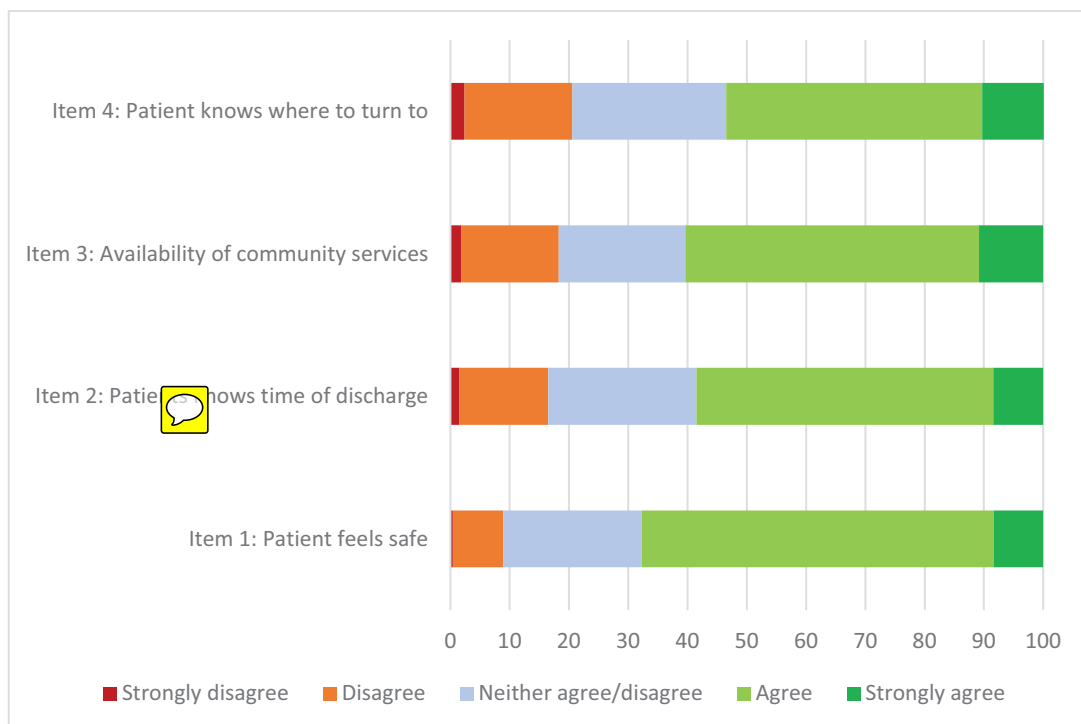
Table 1 gives an overview over the workplace characteristics of the hospital nurses included in the present sample. One out of three nurses (32%) worked at hospitals located in the South-east of Norway (excluding Oslo), 17% worked in Oslo and 23% in West of Norway. Furthermore, 10 % of the responding nurses worked at hospitals in North Norway, the least densely populated area. Altogether 42 % of the respondents worked in wards for internal medicine and 34% of the nurses worked in wards for in-patient surgery. Very few nurses

worked on in-patient geriatric wards (5 %). Altogether 59% worked in large hospital wards with more than 20 beds.

**Table 1** Work place characteristics (%) respondents (N=1,785)

Hospital regional location	
Oslo	17,3
South-East (excluding Oslo)	32,3
Central	17,9
West	22,7
North	9,7
Type of hospital ward	
Internal medicine	42,3
Combined medicine/surgery	4,1
Orthopaedic/Surgery	33,8
Geriatrics	4,5
Other	15,3
Number of beds (ward size)	
1-10	6,9
11-20	34,0
21-30	47,5
> 30	11,5

Figure 1 illustrates the distribution of nurses' responses on the four single items measuring quality of care transitions among older patients. The share of nurses agreeing or strongly agreeing with the statement that the patient feels safe at discharge was 68 %. Similarly, 60 % perceived that the patient was well informed about the available of community services, and 59 % perceived that the patient was well informed about the timing of discharge. A little over half (53 %) of the nurses agreed or strongly agreed with the statement that the patient knows where to turn to in case of complications.



**Figure 1** Response distribution (5-point scale) hospital nurses on the four items measuring quality of care transitions in older patients (N=1,785), percentages (%)

Table 2 provides an overview of the percentage of nurses responding in the two most positive response categories for information provision and cross-sectoral contacts. As shown, a majority of the nurses assessed that information was provided. This is also to some extent reflected in the high average score on the medical treatment index and the follow-up index. Compared to the positive scores on medical condition, substantially fewer nurses indicated this was the case for medical advice (68 %) and social needs (46 %).

Regarding the cross-sectorial contact, the nurses assessed that they had frequent contact with the allocation office, but only 13 % had common/very common supplementary visits from the allocation office to the hospital ward. One out of four nurses (24 %) perceived that it was common/very common for community care nurses to visit the hospital ward before the patient's discharge. Altogether 44% of the hospital nurses (strongly) agreed that there is a need for more contact between hospital and community care nurses in the discharge of older patients from the hospital.

**Table 2** Descriptive statistics hospital nurses' assesment of Information provision and Cross-sectoral contacts (N=1,785)

	%	Mean (SD)
<b>Sufficient information provision (% common/very common)</b>		
Practical procedures	83,9	4,3 (0,8)
Patient's medical condition	96,8	4,6 (0,6)
Treatment received	96,2	4,6 (0,6)
Patient's level of functioning	96,1	4,6 (0,6)
Medications	94,8	4,6 (0,7)
<i>Index Medical Treatment (5-25) Mean (SD)</i>		22,8 (2,6)
Medical advice	67,8	3,9 (0,9)
Social needs	45,9	3,4 (1,0)
Future nursing care	85,5	4,3 (0,8)
<i>Index Follow-up (3-5) Mean (SD)</i>		11,6 (2,3)
<b>Cross-sectoral contact</b>		
Contact frequency with allocation office (% Daily/Weekly)	86,8	
Allocation office visits hospital (% Common/very common)	12,8	
Contact with nurses in community care (% Common/very common)	23,7	
Need for more contact between hospital and community nurses (Agree/Strongly agree)	47,3	

Table 3 shows the results of the multivariate analyses of variance for hospital nurses' assessments of the four aspects of quality of care transitions in older patients: (1) Patient felt safe; (2) Patients were informed about discharge; (3) Patients were informed about community care services, (4) Patients know where to turn in case of complications.

More positive ratings on the two scales measuring information provision to community care settings were positively associated with better assessment of quality of care transitions. Only the association of Information provision on Medical Treatment with Item 4 (Patients know where to turn to in case of complications) was not statistically significant. Information provision on Follow-up care was most strongly associated with all four aspects of quality of care transitions in older patients. The explanatory power of the respective independent variables is relatively small. The index Follow-Up and the need for more communication have the strongest associations with all four dependent variables. Their coefficients correspond to small to medium effect sizes.

Another strong and consistent association was found for hospital nurses' perceptions of the need for more contact between hospital and community care nurses. This item was statistically significant associated with all four aspects of quality of care transitions. Stronger

perceived needs for more contact was associated with lower scores on quality of care transitions for older patients. However, a lower contact frequency with the allocation office was associated with more positive ratings on three of the four aspects of quality of care transitions (safety, timing of discharge and patient knows where to turn to). In addition, more common visits from community care nurses to the hospital wards was only significantly associated with Item 3 (Availability of community care services) and not with any of the three other aspects of quality of care transition. More common visits from the allocation office to the hospital ward was only significantly and negatively associated with assessments of item 4 (Patients know where to turn to in case of complications).

	Item 1 Patient feels safe	Partial Eta Squared	Item 2 Patient knows timing of discharge	Partial Eta Squared	Item 3 Available community care services	Partial Eta Squared	Item 4: Patient knows where to turn to	Partial Eta Squared
<b>Provison Information</b>								
Index Medical Treatment (5-25)	0,02 (0,01)**		0,02 (0,01)*		0,02 (0,01)*		0,02 (0,01)	
Index Follow-up (3-15)	0,04 (0,01)***	0.012	0,06 (0,01)***	0.015	0,07 (0,01)***	0.023	0,09 (0,01)***	0.036
<b>Cross-sectoral contact</b>								
Allocation office visits hospital (1-5)	-0,01 (0,02)		0,01 (0,02)		0,01 (0,03)		-0,05 (0,02)*	
Contact with community care nurses (1-5)	0,01 (0,02)		0,02 (0,02)		0,05 (0,02)*		0,04 (0,02)	
Need for more contact between hospital and community nurses (1-5)	-0,14 (0,02)***	0.034	-0,15 (0,02)***	0.027	-0,17 (0,02)***	0.033	-0,12 (0,02)***	0.015
Hospital regional location								
North (reference)								
Oslo	-0,21 (0,07)**		-0,11 (0,08)		-0,25 (0,09)**		0,11 (0,09)	
South-East (excluding Oslo)	-0,10 (0,07)		0,04 (0,08)		-0,07 (0,08)		0,14 (0,09)	
Central	-0,05 (0,07)		0,11 (0,08)		-0,07 (0,09)		0,14 (0,09)	
West	-0,07 (0,07)		0,03 (0,08)		-0,15 (0,09)		-0,01 (0,09)	
Type of ward								
Other (reference)								
Medicine/Geriatrics	ref		ref		ref		ref	
Number of beds (ward size)	-0,02 (0,04)		-0,09 (0,04)*		0,07 (0,04)		-0,22 (0,04)***	
≤ 20 beds	ref		ref		ref		ref	
> 20 beds	0,02 (0,04)		-0,03 (0,04)		-0,01 (0,05)		0,11 (0,05)*	

\*P&lt;0.05; \*\*P&lt;0.01; \*\*\*P&lt;0.001

**Table 3** Analyses of variance (ANOVA) for hospital nurses' assessments of four aspects of quality of care transitions in older patients (N=125); unstandardized coefficients (β) and standard deviation (SD).

The results also show that hospital nurses from wards for internal medicine/geriatrics have less positive assessments of item 4 and item 2 compared to other types of wards. Also, nurses working in larger wards perceive to a greater extent that patients know where to turn to in case of complications. Hospital nurses working in Norway's capital, Oslo, have significantly lower ratings on three of four aspects of quality of care transitions for older patients. Differences across regions were not statistically significant for item 4 (Patients know where to turn to in case of complications).



## Discussion

The main aim of the current study was to provide knowledge on hospital nurses' assessments of quality of care transitions in older patients in Norway. Almost seven out of ten nurses perceived that the older patients feel safe in the transition. Six out of ten respondents perceived that the patient was well informed about the availability of community services, and six out of ten perceived that the patient was well informed about the timing of discharge. Only a little over half of the nurses agreed or strongly agreed with the statement that the patient knows where to turn to in case of complications.

A secondary aim of the current study was to analyse to what extent these assessments were associated with information practices. More positive assessments of information practices (i.e. Follow-up) were associated with better assessments of quality of care transitions. Contact with community care nurses was positively associated with more positive assessments of availability of community care services. Almost half of the nurses wanted more contact with community nurses. A stronger perceived need for more contact was negatively associated with all four aspects of quality of care transitions.

### The importance of information on follow-up for quality of care transitions

Only a little over half of the nurses agreed or strongly agreed with the statement that the patient knows where to turn in case of complications. This, combined with a similar share of hospital nurses indicating a need for more contact with community nurses in the discharge of older patients, suggests too little contact and insufficient exchange of information between community nurses and hospital nurses. This way, essential information on follow-up care might not be communicated to older patients before discharge. Hospital nurses' expressed need for more contact with community nurses in the discharge of older patients is in line with findings from previous studies emphasizing a lack of attention in both research and policy development to facilitating contact between staff across care levels (Gautun & Syse, 2017). The Norwegian Coordination Reform from 2012 has contributed to the appropriate establishment of a comprehensive set of agreements on the administrative level, and to the digitalization of information exchange between hospitals and municipalities (Hagen, 2016; Norwegian Ministry of Health and Care Services. The Coordination Reform, 2008-2009; Hellesø & Gautun, 2018). However, a side-effect of the increased formalization and digitalizing may have been a downgrading of direct, telephone contact and face-to-face, contact between nurses in hospitals and community care services.

Our findings also suggested a negative association of contacts with the allocation office and one aspect of quality of care transitions: More frequent contacts between hospital nurses and the allocation office was associated with more negative perceptions of that the patient knows where to turn to in case of complications. One possible explanation for this finding is that the nurses and the allocation office have more frequent contact when disagreements occur about which services older patients need after discharge.

Both nurses working at inpatient wards in hospitals and nurses working in nursing homes and home care services have reported that some of the older patients that have been offered home care services after discharge from hospitals, should be followed up in short-term residential care facilities (Gautun, 2020). This is in line with our finding of lower ratings for quality of care transitions in wards for internal medicine, where most older people with multimorbidity and complex health conditions are discharged. This is an area that deserves closer attention in planning for improving the discharge process and the information practices.

### The «Oslo-effect»

Hospital nurses in Norway's capital (Oslo) tend to report somewhat lower ratings of quality of care transitions. Part of the explanation might be related to more complex housing situations, less availability of informal support, as well as greater strain on community care services. Severely ill older persons have less access to family care and also home care in Oslo (The Norwegian Association of Local and Regional Authorities (KS, 2015). Whether a relative of the patient or a formal caregiver is present when the older patient comes home after a hospital stay is important for how safe the patient feels and how well she is doing (Bragstad, Kirkevold, Hofoss & Foss, 2015).

### Strengths and Limitations

A particular strength of the current study is its use of large-scale data from a nation-wide survey among hospital nurses in Norway. Nursing staff are among the core professions ensuring a good quality of care transition in older people. Together with experiences from other core actors, including community nurses and patients themselves, their perceptions of quality of care transitions and cross-sectoral information exchange are of utmost importance in suggesting potential needs for revisions and/or adjustments in policy and practice.

Our findings must also be considered in light of some limitations. With our current approach of data collection, we were not able to calculate the accurate response rates. However, the share of nurses who responded from each health region corresponds quite well with national statistics on the distribution of nurses employed in somatic units in Norwegian hospitals (SSB; 2021). In line with national statistics, the largest share of nurses in our study is working in South-East. The share of respondents from Mid and North corresponds to the shares reported by national statistics. Our study is cross-sectional, and thus we are not able to draw any conclusions on causality in the associations between quality of care transitions and information practices.

In addition, in assessing quality of care transitions in older patients, the current paper underlines the perspectives of hospital nurses only. Perspectives from other core users, most importantly those from older patients themselves, might reveal different results and associations with information practices.

## Conclusions

Taking the perspective from hospital nurses, the findings from our study emphasized the importance of good information practices, in particular in providing information of follow-up care, for ensuring good quality of care transitions, and suggested a need for more direct contacts with community care nurses. Future research should assess whether more direct contact between nurses may contribute to improved information practices, which in turn ensures that older patients receive information in the hospital that can prevent them feeling insecure after hospitalisation. An intervention study in a limited number of care settings, including experiences from hospital staff, community nurses and older patients would be one way to proceed in obtaining this knowledge.

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No conflict of interest

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