

Exploring implementations of electronic nurse and care messaging at municipality level

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Abstract

Electronic exchange of nurse- and care-related information between hospitals, nursing homes, and home nursing care has been included for a number of years in national strategies for the Norwegian health and care sector. This focus has increased over the last year, and according to the Norwegian Health Network (NHN), most municipalities are now beginning to use so-called “e-messaging.” The aim of this abstract is to investigate efforts to improve these kinds of implementations. The abstract compares experiences from first-line leaders (FLLs)¹ and “their” nurses in three municipalities. Data were collected through two surveys: one for leaders, and one for nurses. The study findings indicate that both leaders and project organizations underestimate the implementation challenges at nurse level and the need for implementation plans adjusted to local resources and work environment.

Keywords:

electronic messages, leadership, training

Introduction

Because of substantial problems with automatic exchange of patient information across different electronic patient record (EPR) systems, the Norwegian government launched the national e-messaging program “Nasjonalt meldingsløft” in 2008 [1]. The aim was to develop an e-message system (EMS) that could be integrated into different EPR systems and make selected patient information available for all partners in the health and care sector within their own EPR system. In addition, one overall goal was to improve collaboration and continuity of care [2]. As this project has been delayed, the Norwegian Office of the Auditor General last year requested faster development of technical solutions and a greater use of political and administrative instruments [3]. A new deadline has been set: from the end of 2015, e-messaging is expected to be the norm for exchange of patient information between municipalities, general practitioners, and hospitals [4]. Recent research shows that there are still many challenges related to the exchange of patient information; for example, at the interface between hospitals, nursing homes, and home care services [5, 6, 7]. In addition, and with respect to e-messaging in particular, there are many factors affecting dissemination [8]. The National Health Network (NHN) groups these by 1) the municipality, 2) the regional resource organizations (“kompetanseorganisasjoner”) and/or 3) external circumstances. At the municipal level, the largest risk factors so far have been lack of anchoring, national standards, collaboration, delivery, priorities of collaborating actors, and internal priorities in the municipalities. This makes it relevant to study the implementation of e-messaging between hospitals

and nursing homes/home nursing care as a holistic approach². This abstract refers to a project in which e-messages were implemented in hospitals, nursing homes, and home nursing care throughout one Norwegian county. Space limitations restrict this report to an account of the implementations at the municipal level, in nursing homes, and home nursing care, focusing on how the first-line leaders (FLLs) contributed to the implementation processes. Three research questions were investigated: RQ1) In what ways and to what extent did the FLLs prepare for the implementation; RQ2) What challenges emerged during/after the introduction; and RQ3) How were the emerging challenges explained?

Materials and Methods

To answer the research questions, a quantitative study was carried out [9]. Because of potential differences in the integration between the EMS and the three EPR systems used in the county, three municipalities with different EPR systems were selected. One of these served as a county pilot, which began at the end of 2013. The other two municipalities joined the project in spring 2014. Two Questback online surveys were developed, one for the FLLs (N = 12) and one for their nursing staff (N = 64). Because nurses are mainly responsible for the exchange of patient information, they were also responsible for the e-messages. The questions were based on previous research on implementations of information and communications technology-based Information Systems (in Health- and Care Organizations as well as in others), public reports on e-messaging, and theories of change management. The surveys included the following topics: use of e-messages, characteristics of the introduction process, leader focus on quality and change, experienced internal and external challenges (as well as their underlying causes) during and after the introduction³, deviations and errors, satisfaction with the e-message implementation and the e-messaging system, and suggestions for improvement. In addition, leaders were asked how they had prepared staff for development and change, whether they had experienced changes in roles and responsibilities, and their own contribution to success. While a six-point Likert scale (1 = to a very large extent; 6 = to a very small extent) was used for most of the questions, some questions permitted a binary choice and a few required free responses. Scale responses were placed into three categories: “To a large extent” (1 and 2), “To a medium extent” (3 and 4), and “To a small extent” (5 and 6). The written responses were first coded according to the questions and the above concepts. Thereafter, the meaning was condensed [10].

²Implementation is used here to describe an organizational effort directed toward diffusing appropriate information technology throughout a user community.

³Internal challenges are challenges related to their own institution; external challenges are those related to their collaborating hospital.

¹First-line leaders lead colleagues who carry out work or services near the end of the production chain.

Results

FLLs' preparation efforts (RQ1)

In response to the sixteen specified preparation efforts, FLLs indicated that they had prepared their staff for the implementation as follows: 1) "To a large extent": Clear information about leader expectations (75%), available for dialogues (75%), motivate to work in new ways (64.6%), information about the implementation (58.3%), motivate staff to change current ways of working (58.3%), provide for sufficient time for testing (50%), and relevant training (49%); and 2) "To a medium extent": Sufficient training (64.6%), new internal routines (58%), new routines and ways of working to achieve error-free message exchange (58.3%), quality assurance of new routines and ways of working (64.6%), control routines for message exchange (58.4%), exchange of experiences between staff and external collaborators (50%), and provide for sufficient economic resources to the unit (64.6%).

Challenges and explanations (RQ2 & RQ3)

All participants were asked in the surveys about the two biggest challenges that they had experienced during and after the introduction, both internally (related to their own organization) and externally (related to their collaborating hospital). Table 1 shows differences in group responses. The greatest differences were related to the assessment of technical challenges, the EMS, and message control.

Table 1 - Two biggest challenges (I = internal; E = external)

Challenges (%)	Leaders N = 12		Nurses N = 64	
	I	E	I	E
Technical	16.7	8.3	40.6	29.7
Security	25	16.7	9.4	9.4
The EMS	33.3	16.7	45.3	31.3
Message control	41.7	41.7	31.3	28.1
Lack of collaboration	8.3	16.3	7.8	18.8
Unclear responsibilities	25	25	26.6	37.5
Weak FLL leadership	0	0	1.6	4.7
Other organization challenges	33.3	41.7	34.4	32.8

Both surveys also asked about the underlying causes of these challenges. The FLLs referred mainly to unsatisfactory internal routines (41.7%). Rated second were poor training, insufficient message control, insufficient leader involvement (themselves), and lack of meeting places for exchange of experiences between hospital and municipality (all 25%). Insufficient routines/procedures for external collaboration, errors in the EMS, and system downtime were cited by 16.7% of leaders, while poor end user support and too few staff were cited by 8.3%. No FLLs chose lack of anchoring at the municipal level. Most nurses explained the challenges were because of poor training (46.4%). Insufficient routines/procedures and lack of internal meeting places for exchange of experiences were both rated next (25%), followed by too little information (21.9%), lack of meeting places for experience exchange between municipalities and hospitals and insufficient message control (both 20.3%), and too few staff (17.2%). Too little support, difficulty using EMS, and system

downtime were all cited by 12.5% of nurses. There were four additional causes, but these were cited by fewer than 10% of the nurses.

Discussion and Conclusion

Transfer of care information within and between departments and across organizations is demanding. Research highlights that even today many of the challenges related to patient safety in public health services are linked to mistakes related solely to this type of communication [11]. The present findings indicate that these problems remain after the introduction of e-messaging. This comparison of leader and nurse experiences illustrates both similarities and differences in the two groups' explanations of the challenges. For both groups, the most frequent explanations were poor training and insufficient internal and external routines (though the order differed between groups). Training was also frequently mentioned by nurses in the free response questions; for example, more time for compulsory, better, and more detailed training; hands-on testing/trials before and during the implementation; and more extensive exchange of EMS practices and extended follow-up. This comprehensive need for training and extended user support is so far not reflected in national and regional project implementation guides and evaluation reports [2, 8]. We suggest that insufficient training and a strong demand for improved internal and external routines, together with concerns about lack of meeting places, might indicate that organizational preparation tends to be insufficient and its need underestimated. Our findings show that this kind of organizational preparation was only assessed "To a medium extent" by leaders, despite the fact that previous research emphasizes the importance of involving leaders, not least FLLs [12, 13], to successfully implement organizational development and changes.

Also of interest are the differences between groups in responses to the two biggest internal and external challenges. Although more than 40% of the nurses cited the EMS and technical issues as the largest internal challenges, a similar proportion of responses by FLLs was found only for message control, and they rated technical challenges as the second lowest. This might indicate that there is little discussion of internal challenges between leaders and nurses. Regarding external challenges, the nurses identified mainly unclear responsibilities and other organizational challenges; the latter was frequently cited by FLLs. This suggests that external organizational challenges need further investigation and could be an area for improvement. This finding is in contrast to the findings in the final report from the Norwegian e-message project [3], which claims that the important factors for dissemination and use are related to the municipality and not to external conditions and circumstances.

As mentioned above, further work on this issue is needed. For instance, it would be interesting to interview some of the FLLs and nurses about the issues they identified as organizational challenges and examine in more detail the type of training nurses received. Finally, one weakness of this study should be mentioned. The Likert scale did not allow participants to choose "Not at all" as a response; this might have led to biased responses.

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