"Keeping on track" – Hospital nurses' struggles with maintaining workflow while seeking to integrate evidence-based practice into their daily work: A grounded theory study

ABSTRACT

Background: Evidence-based practice is considered a foundation for the provision of quality care and one way to integrate scientific knowledge into clinical problem-solving. Despite the extensive amount of research that has been conducted to evaluate evidence-based practice implementation and research utilization, these practices have not been sufficiently incorporated into nursing practice. Thus, additional research regarding the challenges clinical nurses face when integrating evidence-based practice into their daily work and the manner in which these challenges are approached is needed.

Objectives: The aim of this study was to generate a theory about the general patterns of behaviour that are discovered when clinical nurses attempt to integrate evidence-based practice into their daily work.

Design: We used Glaser's classical grounded theory methodology to generate a substantive theory.

Settings: The study was conducted in two different medical wards in a large Norwegian hospital. In one ward, nurses and nursing assistants were developing and implementing new evidence-based procedures, and in the other ward, evidence-based huddle boards for risk assessment were being implemented.

Participants: A total of 54 registered nurses and 9 assistant nurses were observed during their patient care and daily activities. Of these individuals, thirteen registered nurses and five assistant nurses participated in focus groups. These participants were selected through theoretical sampling.

Methods: Data were collected during 90 hours of observation and 4 focus groups conducted from 2014 to 2015. Each focus group session included four to five participants and lasted between 55 and 65 minutes. Data collection and analysis were performed concurrently, and the data were analysed using the constant comparative method.

Results: "Keeping on track" emerged as an explanatory theory for the processes through which the nurses handled their main concern: the risk of losing the workflow. The following three strategies were used by nurses when attempting to integrate evidence-based practices into their daily work: "task juggling", "pausing for considering" and "struggling along with quality improvement".

Conclusions: The "keeping on track" theory contributes to the body of knowledge regarding clinical nurses' experiences with evidence-based practice integration. The nurses endeavoured to minimize workflow interruptions to avoid decreasing the quality of patient care provided, and evidence-based practices were seen as a consideration that was outside of their ordinary work duties.

Keywords: Clinical Competence, Evidence-Based Practice, Focus Groups, Grounded Theory, Knowledge, Nursing Staff, Hospital; Nurses, Observation, Research utilization, Workflow

What is already known about the topic?

- Nurses are not uniformly ready to implement evidence-based practice.
- Clinical nurses infrequently incorporate new scientific evidence into daily work.
- Nurses experience lack of authority to change practice and recognize that change requires hard work.

What this paper adds

- The clinical nurses' major concern is to minimize losing the workflow to maintain the quality of patient care provided.
- Clinical nurses regard integrating evidence-based practice as a task that comes in addition to their ordinary duties.
- The grounded theory "keeping on track" contributes to better understanding of clinical nurses' experiences and behavioural patterns when attempting to integrate evidence-based practice into daily work.

1. Introduction

Nurses are expected to deliver health care in accordance with evidence-based practice (Department of Community Health Care Services, 2005; Melnyk and Fineout-Overholt, 2015; Registered Nurses' Association of Ontario, 2007; World Health Organization, 2016), which is considered a foundation for the provision of quality care and, therefore, is important for the promotion of patient treatment and care by clinical nurses (Melnyk et al., 2012; Pravikoff et

al., 2005a). Evidence-based practice may be regarded as a problem-solving strategy whereby scientific evidence that is applicable to each patient's situation is integrated with clinical expertise, local circumstances, available resources, and patient preferences when making clinical decisions (Melnyk and Fineout-Overholt, 2015; Polit and Beck, 2016). Thus, evidence-based practice is a manner in which to translate (Melnyk and Fineout-Overholt, 2015) or to apply (Titler, 2014) evidence in clinical practice. Evidence-based practice also involves organizational level activities, such as gathering and integrating evidence into a manageable form through the development of evidence-based clinical guidelines (Polit and Beck, 2016). Research indicates that nurses are not sufficiently ready for evidence-based practice and use new scientific knowledge infrequently. This study will investigate nurses' challenges and how they solve these when seeking to integrate evidence-based practice into clinical decisions.

2. Background

Barriers and facilitators to implementing evidence-based practice in hospital settings have been the focus of research for many years and have not changed during the last two decades (Melnyk et al., 2012). Traditionally, barriers such as lack of time, knowledge, and skills have been reported as the most common individual barriers among nurses (Chiu et al., 2010; Mallion and Brooke, 2016; Melnyk et al., 2012; Yoder et al., 2014). The capacity for organizational change and social, political and legal factors have also been identified as important in the promotion of evidence-based practice (Atkinson et al., 2008; Flodgren et al., 2012; Pravikoff et al., 2005b), and it appears the application of tailored principles may influence the implementation process (Aasekjær et al., 2016). Several implementation theories and models have been developed to promote effective implementation. An overview of theories in the literature revealed the use of different terminologies and definitions and the presence of overlapping components and missing key constructs included in other theories (Damschroder et al., 2009). Therefore, Damschroder et al. (2009) established the Consolidated Framework for Implementation Research by embracing common constructs from a synthesis of existing implementation theories, to be used to help guide evaluation of interventions in context. From year 2000 May and colleagues (May and Finch, 2009; May et al., 2009) developed the Normalization Process Theory from empirical studies, rather than from existing theories, to better understand how new practices are integrated into their social contexts. By addressing the difficulties to implementing and integrating new treatments and

ways of organizing health care, the Normalization Process Theory focuses on the manner in which the social actions of workers contribute to implementation, embedding and integration (May and Finch, 2009; May et al., 2009). The current study sought to apply another perspective on social interactions, grounded theory, to investigate nurses' challenges in integrating evidence-based practice into their daily work and the manner in which these challenges are approached.

Although nurses may be better prepared for the implementation of evidence-based practice than they were some years ago (Mallion and Brooke, 2016; Melnyk et al., 2012; Pravikoff et al., 2005b), recent research still indicates that clinical nurses may not be uniformly prepared for evidence-based practice (Saunders et al., 2016; Saunders and Vehvilainen-Julkunen, 2016). Despite knowledge about and positive attitudes towards evidence-based practice, clinical nurses have been found to use scientific knowledge infrequently (Forsman et al., 2010; Kajermo et al., 2010; Mallion and Brooke, 2016; Squires et al., 2011). When evidence-based guidelines are used, the use of new evidence in clinical situations is promoted (Grol and Grimshaw, 2003). Guideline-associated factors, such as the utility, strength of evidence, compatibility, complexity, and ability to be tested by clinicians, may affect clinicians' compliance to with guidelines (Cochrane et al., 2007; Gurses et al., 2010). In practice, clinical nurses' willingness to enact the guidelines and normalize them in practice is decisive contributors to their implementation (May et al., 2014). Support from leaders and administrators seems to be important for promoting the use of research among clinical nurses (Gurses et al., 2010; Kaplan et al., 2014; Melnyk et al., 2012; Sredl et al., 2011; Yoder et al., 2014), and lack of organization and teamwork structure as well as work overload have been identified as barriers to research use (Adib‐Hajbaghery, 2007; Cochrane et al., 2007; Solomons and Spross, 2011).

Different determinants may contribute to variations in health care, and their effects depend upon the context in which they are embedded (Baker et al., 2015; Flottorp et al., 2013; Gurses et al., 2010; Jun et al., 2016). Tailored strategies that address the identified determinants can improve health care (Baker et al., 2015). Despite the extensive amount of research that has been conducted, we still have insufficient knowledge about challenges in research utilization among clinical nurses (Kajermo et al., 2010; Melnyk et al., 2012; Yoder et al., 2014). Nurses have reported a lack of authority to change clinical practice (Adib‐Hajbaghery, 2007;

Solomons and Spross, 2011) and recognize that change requires hard work (Asadoorian et al., 2010). Thus far, research has also suggested that it may be challenging to incorporate activities associated with evidence-based practice, such as searching for the literature and participating in journal clubs and evidence-based practice groups, into daily work (Aitken et al., 2011; Pitkänen et al., 2015). To understand these difficulties in more detail, we conducted this grounded theory study. The goal was to gain a better understanding of the challenges perceived and behaviours exhibited by hospital nurses when attempting to integrate evidence-based practice into daily work.

The context of this study was that the leadership of a large Norwegian hospital trust implemented a policy on the use of evidence-based practice in 2006. A framework was developed and applied for incorporating evidence-based practice. It included four domains: competence development, organizational adjustments, technological infrastructure and information resources for knowledge support (Vandvik and Eiring, 2011). The nurses' evidence-based care activities included participating in developing evidence-based procedures, care pathways or standardized care plans in groups that included a supervisor. In this study, we focused on what they were concerned about approximately eight years after the new policy was initiated. Data were collected from nurses in two wards that used different approaches to integrate evidence-based practice, and we focused on the manner in which the clinical nurses handled the integration and use of new evidence. Patient preferences, local circumstances and available recourses should be taken into consideration during the implementation of evidence-based practice. However, these are not the focus of this paper.

3. Methods

3.1 Aim

The aim of the study was to generate a theory about the general patterns of behaviour that are discovered when clinical nurses attempt to integrate evidence-based practice into their daily work.

3.2 Design

We used Glaser's classical grounded theory methodology (Glaser, 2013, 1998, 1978; Glaser and Strauss, 1967) to generate a substantive theory about clinical nurses' main concern and their strategies for handling their concern in hospital wards. Main concern can be understood as a problem, that with which participants are occupied or that which is relevant to participants (Glaser, 1998). Grounded theory is a general methodology often used as a systematic qualitative approach; this methodology is well-suited for the exploration of complex and latent patterns and social interactions (Glaser and Strauss, 1967). When using grounded theory, researchers are required to suspend preconceived concepts and remain open-minded; trusting that the ways in which the participants resolve their main concern will emerge from the data (Glaser, 2013, 1998). The use of the grounded theory approach allowed for the emergence and development of a theory that reflected the experiences of clinical nurses in their daily work.

3.3 Setting and Participants

Data collection was conducted in two different medical wards with two distinct geographical locations eight to nine years after the hospital leadership implemented evidence-based practice. The first ward was selected through theoretical sampling; it was assumed that it would contribute comprehensive data for development of a theory because of the nurses' engagement in an on-going evidence-based practice project. The ward had 18 beds, 33 nurses and 3 assistants. The second ward was selected guided by theoretical sampling, as it was likely to provide rich data for the assessment of emerging categories because they were in an early phase of implementing huddle boards in their daily work. This ward had 38 beds, 63 nurses and 5 assistants.

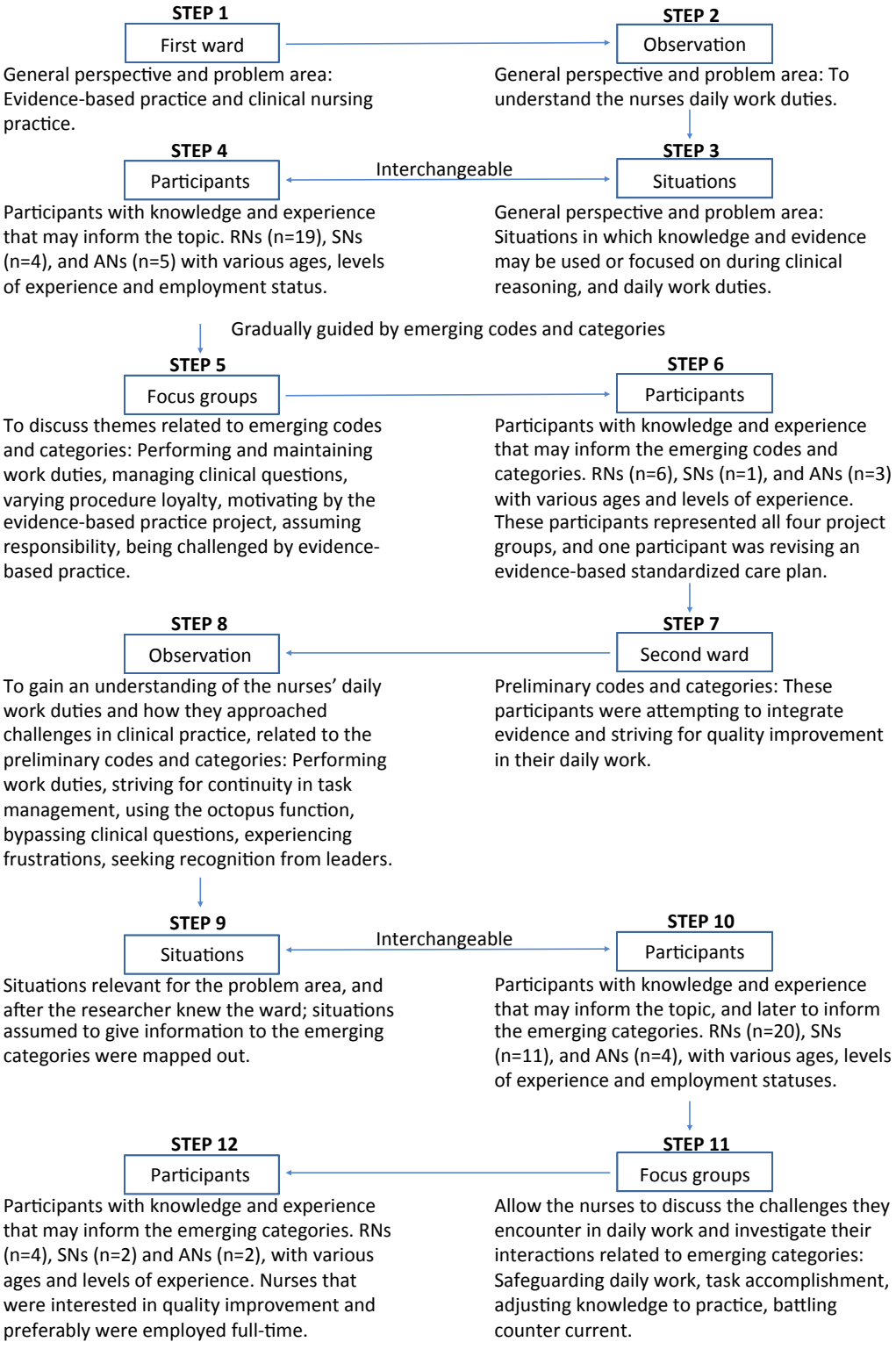
The participants were recruited by theoretical sampling and comprised registered nurses, specialist nurses and assistant nurses working in care positions in the two units. The theoretical sampling method will be elaborated upon in the data collection section. In Norway, registered nurses are required to have a bachelor's degree that was awarded after three years' university level education. Thirteen of the specialist nurses completed a twelve- to eighteen-month specialization after their Bachelor's degree, and two had a master's degree. The assistant nurses were required to have completed two years of upper secondary education. Of the 96 nurses who worked in the two wards, 63 were observed, some of whom were not

intensively observed and some of whom were followed closely. Of these 63 nurses, 18 participated in the focus groups.

3.4 Data collection

Data were collected between March 2014 and November 2015. In the first ward, data collection began with an observation stage (details given below), giving the researcher the opportunity to observe the clinical nurses' daily work duties. As mentioned above, the data collection process was guided by theoretical sampling, in which the collected data are used to develop a theory as it emerges. The researcher collected, coded and analysed the data and, based on these findings, decided what data to collect next and where to collect them (Glaser and Strauss, 1967). An overview of the guiding elements used for selecting study settings, methods, situations and participants are shown in Figure 1.

Figure 1. Flow of the theoretical sampling process with guiding elements used for selecting study settings, methods, situations and participants.



RN = Registered Nurse, SN = Specialist Nurse, AN = Assistant Nurse

In theoretical sampling, data collection is initially guided by a general perspective and problem area (Glaser and Strauss, 1967). Thus, the researcher included situations and participants presumed to contribute to the generation of information of relevance for the research topic. Then, the theoretical sampling was guided by gradually emerging codes and categories through the application of strategic successive selection of participants assumed to have the capacity to contribute knowledge that could strengthen the emerging theory (Glaser, 1978; Glaser and Strauss, 1967). After the analysis of the last observations, the preliminary core category, "striving for work accomplishment", emerged and the main concern indicated a confrontation between evidence-based practice and clinical practice. We then carried out two focus groups to allow the nurses to discuss their daily work and experiences with evidence-based practice and simultaneously investigate their interactions (Kitzinger, 1994; Polit and Beck, 2016).

Observational data were collected in the second ward to gain a better understanding of the nurses' daily work duties and how the nurses approached challenges in clinical practice. When the researcher had mapped out these real-life situations based on information relevant to the emerging concepts and became familiar with the nurses, sampling was guided by codes and categories. After the data from the last observation period were analysed, two focus groups were carried out to allow the nurses to discuss the challenges they encountered during everyday work, and to investigate their interactions and discussions about their challenges and opportunities. The sampling process was carried out in cooperation with the nursing leadership and/or a teaching nurse while taking into consideration practical issues in the wards.

The primary researcher (ÅR) was an experienced nurse who developed an interest in the topic after working in hospital clinical care and management at the hospital where the present study was performed for several years. Thus, she was familiar with the hospital as an organization and its strategic plans, system of procedures and other routines. However, at the time of the study, she was a researcher at the hospital with a PhD-scholarship. She did not know the wards or the health care workers included in this study well, but a few of the participants were familiar with her work history at the hospital.

3.4.1 Observations

Ninety hours of observation were performed in the two wards. The researcher followed clinical nurses during their patient care and daily activities, and in interdisciplinary work with physicians, physiotherapists, occupational therapists and students, and in internal teaching events. During participant observation, the researcher participated as an observer and simultaneously interacted with the health care workers by observing, asking questions and obtaining insider views of the structures relevant to the nurses (Creswell, 2013; Polit and Beck, 2016). The researcher, thus, undertook unstructured observations, which provided the opportunity to understand the participants' experiences and behaviours as they occurred in the clinical settings under study (Polit and Beck, 2016). Both descriptive and reflective field notes were written during the observations or immediately after (Creswell, 2013), and the researcher subsequently initiated coding.

3.4.2 Focus groups

Four focus group discussions involving eighteen participants in total were conducted at the participants' workplaces three to twelve months after the observation periods. Each focus group session consisted of four or five participants and lasted between 55 and 65 minutes. The researcher contacted the participants via email. The optimal focus group size has been suggested to range from five to ten or twelve people (Polit and Beck, 2016; Speziale and Carpenter, 2007). Nevertheless, larger groups may be difficult to control and may limit each person's contribution; thus, five to eight participants have also been recommended (Krueger and Casey, 2015). We planned for the inclusion of approximately eight participants, but practical issues associated with daily work tasks and absence due to illness resulted in the enrolment of fewer participants. The participants in each group were very familiar with each other as colleagues, and the group dynamic seemed to be positive. The participants reacted to what was said by their colleagues, and the following discussions may have led to deeper expressions of their opinions, which can be of benefit in focus groups (Polit and Beck, 2016). ÅR moderated the focus groups, and SH served as a co-moderator, which provided the opportunity to subsequently discuss what was being said and not said in the groups. The focus group sessions were audiotaped and transcribed. A thematic interview guide was developed for each focus group discussion based on the principle of staying open-minded and allowing the participants to discuss their main concern without preconceived questions (Glaser, 2011). The interview guide was adjusted to incorporate emerging concepts and events from observational data and emerging codes and categories (Glaser, 1978). The discussions were

initiated with an open-ended question and were supplemented with questions based on the participants' contributions (Table 1).

Table 1. Example of the dynamic use of a thematic interview guide

We started all focus group discussions with this open-ended question	What has the use of evidence-based practice been like in your ward?
If necessary, we asked these questions to the groups	Can you tell us about a situation in which you have succeeded in the integration of evidence-based practice? Can you tell us about a situation where you did not succeed in the integration of evidence-based practice?
We elucidated these questions in all groups in different ways depending on the situation	What is evidence-based practice? What is your work environment like? What are the relationship and cooperation between newly graduated nurses and more experienced nurses like? What do you think about the role of the students in the ward?
Examples of questions that relied upon information obtained during the observations and questions adjusted to the emerging codes and categories	During the observation period, I observed that you were asked questions by others and continually received new messages and other tasks while you were working. How do you experience such situations? During the observation period, I observed that it is routine practice to change peripheral vein catheters at set intervals. How did this process occur before huddle board implementation, and how does it currently work? During the observation period, I heard repeated discussions about performing the best procedure for the patients, but difficulties solving this problem were expressed. How do you solve similar challenging clinical problems?

3.5 Ethical considerations

The health care workers in the wards had been informed of the study beforehand by their leader. Before the observations, the researcher gave the participants written information about the study and its purpose (i.e., investigating their challenges in using new research knowledge related to implementation of evidence-based practice), and informed consent was obtained. When the researcher followed a nurse into a patient's room, the nurse informed the patient and obtained oral consent for the researcher to observe the nurse working with the patient. Written consent was obtained from all participants in the focus groups.

3.6 Data analysis

Data collection and analysis were performed concurrently as prescribed in grounded theory, with open and selective coding (Table 2).

Table 2. Processing the data

Field notes from the observation	Open coding line-by-line	Selective coding	Category
SN 3 is telling the researcher that SN 3 and a colleague have assumed responsibility to revise an evidence-based standardized care plan. They are going to do it this afternoon. Because they both are working the day shift, the researcher asks if they are going to do it in their spare time. Yes, they have several times tried to do the revisions, but they fail each time because of excessive patient care work, which is impossible to put aside. The researcher asks if they have asked their leader about getting protected time to do it. They have not, because it is so difficult to hire a substitute. The leader has more than enough to do with this already. No, the nurses are tired of not getting it finished, so this afternoon things will be finished.	Are responsible for revising Are revising this afternoon Using their spare time Failing to revise during work shifts Too much work with the patients Cannot leave the patient care work Do not ask the leader about protected time Are getting tired of not getting it done	 Using their spare time Failing with revising at work Patient care work takes all of the time on duty Tiring of not getting it done	 Assuming responsibility

At first, in open coding, field notes and transcriptions were coded line-by-line by naming events. Then, events were compared with events through the constant comparative method to elicit categories and properties (Glaser, 1978; Glaser and Strauss, 1967), and the categories then were compared with categories. Data from observations and focus groups were connected in the same analysis. When the researchers gained a sense of what the core category might be, the code process focused on the data related to the core category through selective coding (Glaser, 1978). ÅR coded all data, and in addition SH, EH and MK coded the first set of data to be able to compare the coding. The co-authors scrutinized field notes and transcribed material with its associated codes and categories, and the group of authors discussed codes and categories repeatedly during data collection and analysis. After

identifying the nurses' main concern, we identified patterns and moved from description to conceptualizing (Glaser, 2005). Simultaneous to the coding, the researcher wrote memos about the coded data, which were used during the theoretical coding to develop the theory. The theoretical codes conceptualized how the emergent categories and properties and the memos related to each other, thereby establishing hypotheses that could be integrated into a theory (Glaser, 1978). Theoretical coding allows the researcher to talk substantively while thinking theoretically of the relationship between the codes (Glaser, 1978). The data collection and analysis continued until theoretical saturation was achieved and no new categories emerged. Prior to and during data analysis, the transcriptions and field notes were de-identified and stored in the hospital's research data server. All coding and discussions in the research team were performed using de-identified data.

3.7 Rigour

Stemming from our previous experiences with the research setting, we were thoughtful about suspending our preconceived notions and tried to remain open and sensitive to understand what was going on in the field (Glaser, 2013; Glaser and Strauss, 1967). All authors discussed codes and categories throughout the analysis, so the findings proceed from the experiences of the participants and fit with the empirical data, which is one quality criterion for a grounded theory (Glaser, 1978). Moreover, the criteria of work, relevance and modifiability are the central quality criteria in a grounded theory (Glaser, 1998, 1978). To be workable, the theory must explain what is going on in the substantive area, and the theory must be relevant for the participants, which is ensured by the pattern of behaviour's emergence from the data through the constant comparative method. This also implies that if someone uses the theory for further analyses, the theory could be modified based on new data.

To ensure rigour in the focus groups, two of the authors participated, and the discussions were audiotaped and transcribed. The focus groups were held in a meeting room in the participants' own area, which was established as a protective and supportive atmosphere. The observer was acquainted with some of the participants and knew the system and routines at the hospital. This may have influenced the researcher-participant interactions. Therefore, in order to minimize effects on the participants, the researcher tried to maintain a low profile and establish trust to fit into the group (Polit and Beck, 2016). Furthermore, knowledge of the

field may affect theoretical sensitivity, which is important in developing a grounded theory (Glaser, 1978).

4. Findings

Through generating a substantive theory about clinical nurses' pattern of behaviour in seeking to integrate evidence-based practice, the nurses' main concern was identified: the risk of losing the workflow. This was all-important in their daily work. We came to understand the concept of workflow as a continuum of work tasks that the nurses carried out to support medical treatment, care for the patients, organize the ward, cooperate with colleagues, and maintain oversight and control, while simultaneously being a good professional and colleague. Losing the workflow implied the loss of oversight and control of work tasks, which could have serious impact on patients and the work of colleagues.

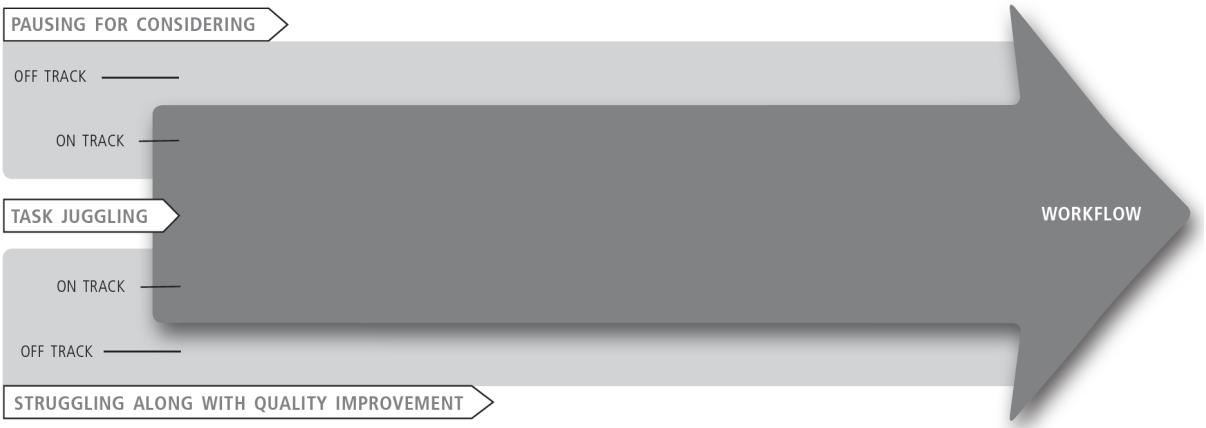
"Keeping on track" emerged as the behavioural pattern through which the clinical nurses resolved their main concern. This behavioural pattern is an analytic abstraction comprising all that the clinical nurses did to maintain and ensure the workflow, including keeping control and finishing tasks. As the workflow was a continuous, on-going process around the clock, the caregivers were getting "on track" when they started their shift, stayed "on track" during their working days and got "off track" when the next shift was taking over. "Keeping on track" seemed to be an appropriate strategy by which the nurses reduced the risk of losing the workflow, thereby endangering the patients' care and treatment on the ward. They based their work on available knowledge, including evidence-based knowledge, whenever possible. Their use of knowledge was omnipresent and, in a way, hidden and indirect.

In contrast to "keeping on track", the nurses sometimes "got off track" during their workdays. This implied sidestepping away from the workflow. This could be necessary in order to reflect on a clinical question arising from practice, which required an answer beyond one's own competence. Such "off track" situations could lead to searches of the literature and the use of scientific knowledge to promote patient outcomes.

"Keeping on track" encompassed a pattern of three strategies used by the nurses under varying conditions: "task juggling", "pausing for considering" and "struggling along with quality improvement" (Figure 2). These processes were interwoven, sometimes conflicting

and sometimes mutually supportive. When conflicts occurred, keeping on track guided nurses in finding solutions.

Figure 2. The interrelationship between the three strategies of "keeping on track": task juggling, pausing for considering and struggling along with quality improvement.



4.1 Task juggling

The concept of task juggling emerged as a generic term for handling all of the tasks that nurses had to keep running simultaneously and continuously within the time available on their shifts. Juggling the tasks was crucial for their work satisfaction and for keeping control and maintaining oversight over their work, which was important for good patient care and treatment. The main feature in task juggling consisted of navigating daily routines, exchanging information and dividing tasks. The nurses' use of knowledge in task juggling was integrated into all of their decision-making, but it was mainly unconscious and intuitive, and the nurses did not really reflect on where the knowledge came from. High efficiency requirements, heavy workload, lack of resources and facilitation were conditions out of the clinical nurses' hand, contributing to the nurses' task juggling "on track".

4.1.1 Navigating daily routines

Much of the nurses' activities were characterized by navigating daily routines, such as managing medications, planning and documenting patient care, participating in different scheduled meetings and pre-rounding and regular rounding, besides solving upcoming tasks. All of these routines filled much of the clinical nurses' work time, which they handled by constantly juggling the prioritization of "what to do" and "in which order", as well as what

they could not do. The nurses attended to what one of them termed an "octopus function" much of their workday and had to stay on track to manage this. The "octopus function" referred to handling a composite of unpredictable or uncontrolled upcoming tasks simultaneously—tasks that had to be solved ad hoc.

4.1.2 Exchanging information

To ensure a functioning ward and oversight maintenance, the nurses were continuously exchanging information as a part of their task juggling. This implied receiving information from others about both administrative and clinical issues and returning information based on what was occurring in the ward. The nurses' conveyance of information among themselves in their working groups, within the interdisciplinary teams and with patients and relatives about patient-related issues also demanded much of their time. Altogether, this demanded the exchange of huge amounts of information ("information overload"). To handle the information overload, the nurses were juggling information to select the most important information for the actual situation. However, this was difficult, because the important information could easily be overwhelmed by less important information thereby making it challenging to keep sight of what was relevant.

4.1.3 Dividing tasks

The entire structure of the clinical nursing work was characterized as belonging to a to-do culture. The need to solve all necessary tasks during the work shift determined how the nurses divided the tasks among themselves. Habitually, the nurse who was group leader divided the tasks in a democratic process based on agreement. Throughout the day, they also got new tasks from their leader, the ward secretary and the physicians, which resulted in a need for reorganizing themselves during the workday through continuously changing tasks and dividing new tasks.

4.2 Pausing for considering

The clinical nurses were pausing for considering in situations requiring something more than task juggling. We understood these to be difficult situations where the nurses did not immediately know the solution to a clinical problem. Good social work environment among the staff together with a professional focus and the clinical nurses' own motivations seemed to stimulate the nurses' demand for knowledge. "Good environment" was characterized by open

communication, respect and cooperation, despite differences in age, education, competence and skills. Pausing for considering was executed by three strategies: seeking solutions "on track", venturing "off track" or adjusting their commitment to using knowledge.

4.2.1 Seeking solutions "on track"

The main pattern behind the nurses' "on track" considerations was that they made inquiries to each other and the physicians and searched for answers by making phone calls to other colleagues. They also used printed procedures, paper checklists and descriptions together with the physicians' desktop reference. The nature of seeking solutions "on track" was to use as little time as possible and quickly find an easy solution to put into effect, which implied that the nurses used established knowledge based on colleagues' experience and printed material easily accessible in the ward. Each nurse determined the appropriate time to spend on seeking solutions for any given situation in order not to lose the workflow. In any case, seeking solutions "on track" represented a lower risk of losing the workflow than seeking solutions "off track".

4.2.2 Venturing "off track"

Sometimes, when the nurses did not find the solution to a problem "on track", they had to consider if they were willing to increase the risk of losing the workflow by venturing "off track" to find new knowledge that could be positive for the patient. This meant that they intentionally decided to step away from the workflow for a while to search for updated knowledge either in a local procedure from the computer, in a database or on a specific Internet website. The nurses rarely did this, and when they actually tried, they shared experiences of seldom finding anything they could use.

4.2.3 Adjusting commitment to using knowledge

The clinical nurses were adjusting their commitment to using knowledge depending on existing conditions, endeavouring not to lose the workflow. In a sense, they redefined their expectations from those associated with an idealized position to simply doing what was feasible, in each situation. Even when the nurses were familiar with the most recent scientific knowledge or the best solution to a problem, in stressful and busy situations, they could reduce the expectations of their own performance and refrain from choosing the best solution.

Likewise, the nurses considered unknown clinical questions with the result of varying procedure loyalty. In a clinical situation marked by promoting conditions, a nurse could prioritize following an evidence-based procedure, whereas in a similar situation but with inhibiting conditions, she could refrain from following the same procedure. The nurses were confident in their use of experience-based knowledge and acknowledged the lack of using scientific knowledge. They did not seem to trust or apply new scientific knowledge if it differed a lot from established practice. Neither did they expend energy on new scientific knowledge that implied small differences with no importance for practice or which just confirmed established practice.

4.3 Struggling along with quality improvement

In the third strategy, the nurses struggled along with quality improvement, which was initiated by hospital leaders to achieve quality enhancement and improve treatment and care. Thus, we understood struggling along with quality improvement to be a strategy for coping with requirements in addition to ordinary tasks. Both "on track" and "off track", this struggling along was competing for the nurses' attention, engagement and time, above and beyond task juggling and pausing for considering. The nurses' struggling along with quality improvement was characterized by engaging with ambivalence, battling counter current and seeking the leaders' recognition.

4.3.1 Engaging with ambivalence

We understood engaging with ambivalence to be an expression of the nurses' conscientious participation in quality improvement work, while also acknowledging the engagement as a threat to losing the workflow or the need to put in extra effort not to lose the workflow. Quality improvement could be put into effect either "on track" or "off track" or both. While "on track", all nurses had to be engaged in it, because it reflected their daily work with meetings and registrations and carrying out measures. Scientific knowledge as the basis for an evidence-based practice project "on track" could stimulate the nurses to use scientific knowledge indirectly in clinical situations, even if it did not automatically do so.

In contrast, an "off track" project could be carried out on internal teaching events and other kinds of meetings as well as (sometimes) in the nurses' spare-time. When working with evidence-based practice projects "off track", the clinical nurses searched for scientific

knowledge in relevant sources and used this knowledge in the work with the projects. Consequently, to a certain extent, they acquired new scientific knowledge, which influenced their thinking, their attention to some issues and their consciousness about where the knowledge comes from. The nurses were proud of their work, and simultaneously, they were frustrated by having to wait for it to get it implemented into practice. For instance, preparing, approving and implementing new evidence-based procedures were time-consuming, and seemingly contributed to few changes in clinical practice.

4.3.2 Battling counter current

The nurses were sometimes battling counter current when being involved in quality improvement. This meant that although they wished to contribute to the quality improvement of their clinical practice, this became a battle against existing conditions to go through with the project due to insufficient support. This appeared to be projects that received support from the hospital leadership in the initiation phase, but later became the nurses' responsibility to take the project further. The clinical nurses missed support, such as specific project plans and a shared commitment among the staff group to succeed. "On track", they were on the look-out for time that they never seemed to find. They did not get enough specific time set aside from their leaders to work on a project, nor did the nurses ask for it themselves. They also protected their spare time for seminars and projects because it was difficult for them to get compensation time since they always had to work "on track", every day on duty. Thus, they were trying to work with projects using time they did not have.

4.3.3 Seeking the leaders' recognition

Nurses doing their utmost in quality improvement did not necessarily get recognition for it. But, this was something they largely wanted from their leaders. Here, the leaders' recognition meant attention and expressed appreciation to the nurses for their contributions to quality improvement. The nurses experienced this recognition as inadequate and longed for their leaders to see their contributions. Without this recognition, it was harder to keep the motivation up and care about doing a good job. Especially when working on projects "off track", this recognition seemed to be important and less common. The nurses received wider recognition and more regular attention for getting the tasks done during their daily work.

5. Discussion

In this study, “keeping on track” emerged as the behavioural pattern through which the clinical nurses resolved their main concern: the risk of losing the workflow. “Keeping on track” encompassed three strategies used by the nurses: task juggling, pausing for considering and struggling along with quality improvement. Seen in the light of this grounded theory, we can begin understanding the clinical nurses’ challenges and why it may be difficult to integrate scientific knowledge in practice. The nurses were “keeping on track” to get the work done and doing their best to achieve favourable patient outcomes; they mainly used experience-based knowledge and other established knowledge easily accessible in the ward. The work “on track” was all-consuming for the nurses who all along had to be on the alert, which gave them limited time for other activities. Lack of time is reported among nurses as one of the most common barriers to using scientific knowledge (Chiu et al., 2010; Melnyk et al., 2012; Solomons and Spross, 2011; Yoder et al., 2014), and sufficient time is acknowledged as a promoting factor for integrating evidence in clinical practice (Tan et al., 2012; Yoder et al., 2014). A lack of time included not having time to find or read research and insufficient time to implement evidence-based changes in their current practice (Brown et al., 2010; Chien et al., 2013; Funk et al., 1991; Oranta et al., 2002; Strickland and O'Leary-Kelley, 2009; Tan et al., 2012). As a complement to this conceptualization, in the grounded theory “keeping on track”, the clinical nurses’ lack of time may be understood as a situation tightly connected to a limited capacity to give attention to activities “off track”. The concept of time, connected to capacity, may also be related to Mallion and Brooke’s (2016) summary of how nurses described “sufficient time” as time away from clinical practice, and then emphasized that sufficient time set aside appears to be a simplification and an unlikely solution in current health climate. Based on these perspectives on time, we argue that time set aside, if possible at all, is inadequate to enhance the use of scientific knowledge among clinical nurses.

The attitude by clinical nurses was that they regarded working “off track” as something additional to their ordinary work, and each nurse, based on his/her own competence, determined the appropriate time to spend on “off track” activities, while not losing the workflow in any given situation. Other research has also highlighted that healthcare practitioners and managers as well experience evidence-based practice as tasks beyond their normal workload (Gray et al., 2013) and believe that a heavy workload reduces the ability to engage in evidence-based practice activities (Majid et al., 2011). It may appear that the assignments to the clinical nurses by the ward leaders were conflicting, with the main task to

get the job done within an intended tight framework. Simultaneously, the leadership requested quality improvement and use of scientific knowledge within the same framework. Getting new evidence into practice may depend on contextual integration, an organizational condition described in the Normalization Process Theory (May and Finch, 2009). This means that a new practice has to be incorporated within a social context to be sustained as a new resource for the workers. Otherwise a new practice will add complexity and workload without being integrated with existing practice (May and Finch, 2009). The mechanisms we see in this grounded theory imply that the scientific knowledge to be used by clinical nurses had to be present "on track" and made available in a form that the nurses could utilize in a busy working day. For example, this could be to integrate scientific knowledge through an evidence-based huddle board programme as used in this study or in evidence-based standardized care plans, which new research has shown that nurses may utilize in their everyday practice (Jansson and Forsberg, 2016).

Support from leaders and administration seems to be important for clinical nurses' use of research (Gurses et al., 2010; Voldbjerg et al., 2016; Yoder et al., 2014), and lack of system organization and a teamwork structure, as well as work overload, have an inhibiting impact on research use (Cochrane et al., 2007). In line with these results, this study shows that the clinical nurses experienced a lack of support and recognition from their leadership. Thus, we argue that important actions from the leaders would be to continuously and persistently sustain engagement in evidence-based practice by seeing and supporting the nurses in their efforts. Similar actions to promote use of scientific knowledge are suggested in newer research: leaders adapting, supporting and requesting nurses' use of scientific knowledge in clinical situations (Jansson and Forsberg, 2016) and leaders sustaining commitment and engagement to ensure the long-term survival of an organizational programme (Fleiszer et al., 2015; Aasekjær et al., 2016). Our theory "keeping on track" demonstrates a complexity of nurses' clinical practice that may help leaders understand which tasks to initiate "on track" and which to carry out "off track", how to do it and what the consequences may be. While "on track", the nurses did their best for the patients using experience-based knowledge consisting of knowledge built up from both integrated evidence and practice. They did not build their work on continuously in-flowing new scientific knowledge. Because of the nurses' concerns of keeping control and getting the patient-related tasks done "on track", we argue that one cannot expect from each individual nurse to look for, find, assess, and adjust new scientific knowledge. There is a need for a clearly defined work allocation, where leaders and teaching

nurses identify the new scientific knowledge and structure it to be useful for the clinical nurses. This could be done through initiating, carrying through and following up on the development of, for example, evidence-based procedures or guidelines "off track" or finding evidence-based guidelines developed by others. Leaders and teaching nurses should facilitate the integration of the new scientific knowledge into the nurses' work "on track", ensure that the knowledge is easy accessible for clinical use, and simultaneously teach and support the nurses.

6. Limitations of the study

The recruiting of participants through theoretical sampling was thoroughly handled, based on the researchers' knowledge and insight in the field and the cooperation with the leaders in the wards. However, choices were made by the authors, and an emergent analysis can take various forms depending on the researchers involved (Engward and Davis, 2015). The focus groups were planned for up to eight participants, but because of absence due to illness and demanding tasks in the wards, nurses could not leave their duties in the ward. Consequently we missed some registered nurses and specialist nurses in the focus groups.

An explicit theoretical code has not been consciously chosen. Nevertheless, theoretical codes and code families have been considered during the theory development. According to Glaser a theoretical code is not necessary, but it helps integrate categories and their properties into the theory (Glaser, 2005).

Although the sample size in the study is adequate in a grounded theory, it is a relatively small sample and limited to the voice of nurses. However, we consider it a strength that observations and focus group interviews were conducted in two different wards located in two different geographical areas. It may be difficult to assess the relevance for other kinds of wards or hospitals. However, we do not consider the wards to be untypical for general wards of this kind. It might be reasonable to assume that wards with more specialist nurses or nurses with a master's degree may give other results.

7. Conclusions

The substantive grounded theory “keeping on track” helps us better understand clinical nurses’ experiences with evidence-based practice and particularly their challenges trying to integrate new scientific knowledge into their daily work. The clinical nurses’ major concern was “keeping on track” to minimize losing the workflow in order not to threaten patient care. Thus evidence-based practice was seen as something coming in addition to their ordinary work.

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References

Adib‐Hajbaghery, M., 2007. Factors facilitating and inhibiting evidence‐based nursing in Iran. J. Adv. Nurs. 58 (6), 566-575. doi: 10.1111/j.1365-2648.2007.04253.x

Aitken, L.M., Hackwood, B., Crouch, S., Clayton, S., West, N., Carney, D., Jack, L., 2011. Creating an environment to implement and sustain evidence based practice: a developmental process. Aust. Crit. Care 24 (4), 244-254. doi: 10.1016/j.aucc.2011.01.004

Asadoorian, J., Hearson, B., Satyanarayana, S., Ursel, J., 2010. Evidence‐Based Practice in Healthcare: An Exploratory Cross‐Discipline Comparison of Enhancers and Barriers. J. Healthc. Qual. 32 (3), 15-22. doi: 10.1111/j.1945-1474.2010.00081.x

Atkinson, M., Turkel, M., Cashy, J., 2008. Overcoming Barriers to Research in a Magnet Community Hospital. J. Nurs. Care Qual. 23 (4), 362-368. doi: 10.1097/01.NCQ.0000336675.48466.37

Baker, R., Camosso-Stefinovic, J., Gillies, C., Shaw, E.J., Cheater, F., Flottorp, S., Robertson, N., Wensing, M., Fiander, M., Eccles, M.P., Godycki-Cwirko, M., van Lieshout, J., Jäger, C., 2015. Tailored interventions to address determinants of practice. Cochrane Db. Syst. Rev. (4). doi: 10.1002/14651858.CD005470.pub3

Brown, C.E., Ecoff, L., Kim, S.C., Wickline, M.A., Rose, B., Klimpel, K., Glaser, D., 2010. Multi-institutional study of barriers to research utilisation and evidence-based practice among hospital nurses. J. Clin. Nurs. 19 (13-14), 1944-1951. doi: 10.1111/j.1365-2702.2009.03184.x

Chien, W.T., Bai, Q., Wong, W.K., Wang, H., Lu, X., 2013. Nurses' perceived barriers to and facilitators of research utilization in mainland china: a cross-sectional survey. Open Nurs. J. 7, 96-106. doi: 10.2174/1874434601307010096

Chiu, Y.W., Weng, Y.H., Lo, H.L., Hsu, C.C., Shih, Y.H., Kuo, K.N., 2010. Comparison of evidence-based practice between physicians and nurses: a national survey of regional hospitals in Taiwan. J. Contin. Educ. Health Prof. 30 (2), 132-138. doi: 10.1002/chp.20070

Cochrane, L.J., Olson, C.A., Murray, S., Dupuis, M., Tooman, T., Hayes, S., 2007. Gaps between knowing and doing: understanding and assessing the barriers to optimal health care. J. Contin. Educ. Health Prof. 27 (2), 94-102. doi: 10.1002/chp.106

Creswell, J.W., 2013. Qualitative inquiry and research design: choosing among five approaches, 3. SAGE Publications, Inc., Thousand Oakes, California

Damschroder, L.J., Aron, D.C., Keith, R.E., Kirsh, S.R., Alexander, J.A., Lowery, J.C., 2009. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implement. Sci. 4 (1), 50. doi: 10.1186/1748-5908-4-50

Department of Community Health Care Services, 2005. ... And it's going to get better! National Strategy for Quality Improvement in Health and Social Services (2005-2015) For leaders and providers. Norwegian Directorate of Health, Oslo. ISBN: 978-82-8081-073-0

Engward, H., Davis, G., 2015. Being reflexive in qualitative grounded theory: discussion and application of a model of reflexivity. J. Adv. Nurs. 71 (7), 1530-1538. doi: 10.1111/jan.12653

Fleiszer, A.R., Semenic, S.E., Ritchie, J.A., Richer, M.-C., Denis, J.-L., 2015. An organizational perspective on the longterm sustainability of a nursing best practice guidelines program: a case study. BMC Health Serv. Res. 15, 535-550. doi: 10.1186/s12913-015-1192-6

Flodgren, G., Rojas-Reyes, M.X., Cole, N., Foxcroft, D.R., 2012. Effectiveness of organisational infrastructures to promote evidence-based nursing practice. Cochrane Db. Syst. Rev. 2, CD002212. doi: 10.1002/14651858.CD002212.pub2

Flottorp, S.A., Oxman, A.D., Krause, J., Musila, N.R., Wensing, M., Godycki-Cwirko, M., Baker, R., Eccles, M.P., 2013. A checklist for identifying determinants of practice: A systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice. Implement. Sci. 8 (1), 35-45. doi: 10.1186/1748-5908-8-35

Forsman, H., Rudman, A., Gustavsson, P., Ehrenberg, A., Wallin, L., 2010. Use of research by nurses during their first two years after graduating. J. Adv. Nurs. 66 (4), 878-890. doi: 10.1111/j.1365-2648.2009.05223.x

Funk, S.G., Champagne, M.T., Wiese, R.A., Tornquist, E.M., 1991. BARRIERS: The Barriers to Research Utilization Scale. Appl. Nurs. Res. 4 (1), 39-45. doi: 10.1016/S0897-1897(05)80052-7

Glaser, B.G., 1978. Theoretical sensitivity: advances in the methodology of grounded theory, Sociology Press, Mill Valley, California.

Glaser, B.G., 1998. Doing grounded theory: issues and discussions, Sociology Press, Mill Valley, California.

Glaser, B.G., 2005. The grounded theory perspective III: Theoretical coding, Sociology Press, Mill Valley, California.

Glaser, B.G., 2011. Getting out of the data: grounded theory conceptualization, Sociology Press, Mill Valley, California.

Glaser, B.G., 2013. No Preconceptions: The grounded theory dictum, Sociology Press, Mill Valley, California.

Glaser, B.G., Strauss, A.L., 1967. The discovery of grounded theory: strategies for qualitative research, Aldine de Gruyter, New York.

Gray, M., Joy, E., Plath, D., Webb, S.A., 2013. Implementing Evidence-Based Practice: A Review of the Empirical Research Literature. Res. Social Work Prac. 23 (2), 157-166. doi: 10.1177/1049731512467072

Grol, R., Grimshaw, J., 2003. From best evidence to best practice: effective implementation of change in patients' care. Lancet 362 (9391), 1225-1230. doi: 10.1016/S0140-6736(03)14546-1

Gurses, A.P., Marsteller, J.A., Ozok, A.A., Xiao, Y., Owens, S., Pronovost, P.J., 2010. Using an interdisciplinary approach to identify factors that affect clinicians' compliance with evidence-based guidelines. Crit. Care Med. 38 (8 Suppl), 282-291. doi: 10.1097/CCM.0b013e3181e69e02

Jansson, I., Forsberg, A., 2016. How do nurses and ward managers perceive that evidence-based sources are obtained to inform relevant nursing interventions? - an exploratory study. J. Clin. Nurs. 25 (5-6), 769-776. doi: 10.1111/jocn.13095

Jun, J., Kovner, C.T., Stimpfel, A.W., 2016. Barriers and facilitators of nurses' use of clinical practice guidelines: An integrative review. Int. J. Nurs. Stud. 60, 54-68. doi: 10.1016/j.ijnurstu.2016.03.006

Kajermo, K.N., Bostrom, A.M., Thompson, D.S., Hutchinson, A.M., Estabrooks, C.A., Wallin, L., 2010. The BARRIERS scale - the barriers to research utilization scale: A systematic review. Implement. Sci. 5 (1), 32-53. doi: 10.1186/1748-5908-5-32

Kaplan, L., Zeller, E., Damitio, D., Culbert, S., Bayley, K.B., 2014. Improving the culture of evidence-based practice at a Magnet(R) hospital. J. Nurses Prof. Dev. 30 (6), 274-280; quiz E271-272. doi: 10.1097/NND.0000000000000089

Kitzinger, J., 1994. The methodology of Focus Groups: the importance of interaction between research participants. Sociol. Health Ill. 16 (1), 103-121. doi: 10.1111/1467-9566.ep11347023

Krueger, R.A., Casey, M.A., 2015. Focus groups: a practical guide for applied research, fifth ed. SAGE Publications, Inc., Thousand Oaks, California.

Majid, S., Foo, S., Luyt, B., Zhang, X., Theng, Y.L., Chang, Y.K., Mokhtar, I.A., 2011. Adopting evidence-based practice in clinical decision making: nurses' perceptions, knowledge, and barriers. J. Med. Libr. Assoc. 99 (3), 229-236. doi: 10.3163/1536-5050.99.3.010

Mallion, J., Brooke, J., 2016. Community- and hospital-based nurses' implementation of evidence-based practice: are there any differences? Br. J. Community Nurs. 21 (3), 148-154. doi: 10.12968/bjcn.2016.21.3.148

May, C., Finch, T., 2009. Implementing, Embedding, and Integrating Practices: An Outline of Normalization Process Theory. Sociology 43 (3), 535-554. doi: 10.1177/0038038509103208

May, C., Sibley, A., Hunt, K., 2014. The nursing work of hospital-based clinical practice guideline implementation: an explanatory systematic review using Normalisation Process Theory. Int. J .Nurs. Stud. 51 (2), 289-299. doi: 10.1016/j.ijnurstu.2013.06.019

May, C.R., Mair, F., Finch, T., MacFarlane, A., Dowrick, C., Treweek, S., Rapley, T., Ballini, L., Ong, B.N., Rogers, A., Murray, E., Elwyn, G., Legare, F., Gunn, J., Montori, V.M., 2009. Development of a theory of implementation and integration: Normalization Process Theory. Implement. Sci. 4, 29. doi: 10.1186/1748-5908-4-29

Melnyk, B.M., Fineout-Overholt, E., 2015. Evidence-based practice in nursing & healthcare. A guide to best practice, third ed. Wolters Kluwer, Philadelphia.

Melnyk, B.M., Fineout-Overholt, E., Gallagher-Ford, L., Kaplan, L., 2012. The state of evidence-based practice in US nurses: critical implications for nurse leaders and educators. J. Nurs. Adm. 42 (9), 410-417. doi: 10.1097/NNA.0b013e3182664e0a

Oranta, O., Routasalo, P., Hupli, M., 2002. Barriers to and facilitators of research utilization among Finnish registered nurses. J. Clin. Nurs. 11 (2), 205-213. doi: 10.1046/j.1365-2702.2002.00587.x/abstract

Pitkänen, A., Alanen, S., Rantanen, A., Kaunonen, M., Aalto, P., 2015. Enhancing Nurses' Participation in Implementing Evidence-Based Practice. J. Nurses Prof. Dev. 31 (2), E1-E5. doi: 10.1097/NND.0000000000000161

Polit, D.F., Beck, C.T., 2016. Nursing Research: Generating and assessing evidence for nursing practice, tenth ed. Wolters Kluwer, Philadelphia.

Pravikoff, D.S., Pierce, S.T., Tanner, A., 2005a. Evidence-based practice readiness study supported by academy nursing informatics expert panel. Nurs. Outlook 53 (1), 49-50. doi: 10.1016/j.outlook.2004.11.002

Pravikoff, D.S., Tanner, A.B., Pierce, S.T., 2005b. Readiness of U.S. nurses for evidence-based practice. Am. J. Nurs. 105 (9), 40-51.

Registered Nurses' Association of Ontario, 2007. Professionalism in Nursing. Registered Nurses` Association of Ontario, Toronto, Canada http://rnao.ca/sites/rnao-ca/files/Professionalism_in_Nursing.pdf (accessed 20.12.16.)

Saunders, H., Stevens, K.R., Vehvilainen-Julkunen, K., 2016. Nurses' readiness for evidence-based practice at Finnish university hospitals: a national survey. J. Adv. Nurs. 72 (8), 1863-1874. doi: 10.1111/jan.12963

Saunders, H., Vehvilainen-Julkunen, K., 2016. The state of readiness for evidence-based practice among nurses: An integrative review. Int. J. Nurs. Stud. 56, 128-140. doi: 10.1016/j.ijnurstu.2015.10.018

Solomons, N.M., Spross, J.A., 2011. Evidence-based practice barriers and facilitators from a continuous quality improvement perspective: an integrative review. J. Nurs. Manage. 19 (1), 109-120. doi: 10.1111/j.1365-2834.2010.01144.x

Speziale, H.J.S., Carpenter, D.R., 2007. Qualitative Research in Nursing. Advancing the Humanistic Imperative, fourth ed. Lippincott Williams & Wilkins, Philadelphia.

Squires, J.E., Hutchinson, A.M., Bostrom, A.M., O'Rourke, H.M., Cobban, S.J., Estabrooks, C.A., 2011. To what extent do nurses use research in clinical practice? A systematic review. Implement. Sci. 6 (1), 21-37. doi: 10.1186/1748-5908-6-21

Sredl, D., Melnyk, B.M., Hsueh, K.-H., Jenkins, R., Ding, C., Durham, J., 2011. Health care in crisis! Can nurse executives' beliefs about and implementation of evidence-based practice be key solutions in health care reform? Teach. Learn. Nurs. 6 (2), 73-79. doi: 10.1016/j.teln.2010.06.001

Strickland, R.J., O'Leary-Kelley, C., 2009. Clinical nurse educators' perceptions of research utilization: barriers and facilitators to change. J. Nurses Staff Dev. 25 (4), 164-171. doi: 10.1097/NND.0b013e3181ae142b

Tan, M., Akgun Sahin, Z., Kardas Ozdemir, F., 2012. Barriers of research utilization from the perspective of nurses in Eastern Turkey. Nurs. Outlook 60 (1), 44-50. doi: 10.1016/j.outlook.2011.07.002

Titler, M.G., 2014. Overview of evidence-based practice and translation science. Nurs. Clin. North Am. 49 (3), 269-274. doi: 10.1016/j.cnur.2014.05.001

Vandvik, P.O., Eiring, Ø., 2011. The Hospital Trust Project: Towards evidence-based practice in specialist health care. Norwegian Knowledge Centre for the Health Services, Oslo, pp. 6-10

https://brage.bibsys.no/xmlui/bitstream/handle/11250/2378238/NOKCrapporter16_2011.pdf?sequence=1&isAllowed=y (accessed 07.03.17)

Voldbjerg, S.L., Gronkjaer, M., Sorensen, E.E., Hall, E.O., 2016. Newly graduated nurses' use of knowledge sources: a meta-ethnography. J. Adv. Nurs. 72 (8), 1751-1765. doi: 10.1111/jan.12914

World Health Organization, 2016. Global strategic directions for strengthening nursing and midwifery 2016–2020. Health Workforce Department, W.H.O., Geneva, Switzerland. http://www.who.int/hrh/nursing_midwifery/en/. (accessed 29.04.17)

Yoder, L.H., Kirkley, D., McFall, D.C., Kirksey, K.M., StalBaum, A.L., Sellers, D., 2014. Staff Nurses' Use of Research to Facilitate Evidence-Based Practice. Am. J. Nurs. 114 (9), 26-37. doi: 10.1097/01.NAJ.0000453753.00894.29

Aasekjær, K., Waehle, H.V., Ciliska, D., Nordtvedt, M.W., Hjälmhult, E., 2016. Management Involvement—A Decisive Condition When Implementing Evidence-Based Practice. Worldviews Evid. Based Nurs. 13 (1), 32-41. doi: 10.1111/wvn.12141