CHAPTER 13

Work Interruptions as a Source of Knowledge When Nurses Administer Medicines in Nursing Homes: Hermeneutic Approach to Narratives

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Abstract: Nurses administer medicines amidst constant interruptions. They must simultaneously perform other tasks, such as direct patient care or addressing system failures. However, there is a lack of research relating to nurses' perspectives on these work interruptions: what they are, and what they are not. The purpose of this chapter is to elucidate nurses' perspectives on and experience of work interruptions, as well as discuss the significance of their perspectives for safe drug management among nursing home residents. The study has a qualitative design. Data consisted of narratives on work interruptions shared by nurses. The narratives were analyzed, and a sample narrative was developed using Gadamer's hermeneutical circle. The narrative stems from several years of experience as a nurse administering medicines in nursing homes, and as a researcher doing field studies, along with testimony developed from narratives nurses shared on how they view work interruptions during medicine rounds. In a sample narrative, a nurse reflects on administering medicines during constant interruptions in a somatic ward in a Norwegian nursing home. The residents' needs define whether a work interruption is a work interruption, or a source of knowledge important for medication treatment and care in nursing homes.

Keywords: work interruption, medicine administration, nursing homes, nurses, narrative, source of knowledge

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In healthcare services worldwide, nurses administer medicines amidst constant interruptions (Alteren et al., 2018; Biron et al., 2009; Cottney & Innes, 2015; Thomson et al., 2009; Trbovich et al., 2010). Work interruptions are caused by breaks in the activities being performed in order to carry out a task: for example, direct patient care or addressing system failures, such as missing medicines (Alteren et al., 2018). In Norway, the health and care services in municipalities have an overall responsibility for ensuring safe drug use among the residents of nursing homes. In terms of daily activities, it is the nurses who have the closest contact with residents and who follow-up their drug use.

The theme chosen for the current chapter was developed from nurses' experiences relating to administering medicines in the healthcare services in Norway. Nurses shared narratives in which they described and reflected on work interruptions while they administered medicines. Their reflections served as documentation of their ideas on work interruptions: what they are, and what they are not. Nurses' perspectives on work interruptions during medicine administration, and their significance for responsible and safe drug handling, must receive greater attention in order to achieve best practices.

Background

Work Interruptions During Medication Administration

Work interruptions (WIs) are common, and frequently cause problems during medication administration rounds (Alteren et al., 2018; Getnet & Bifftu, 2017). Further, WIs generally have negative consequences for patients' safety and outcomes, employees' well-being and performance, as well as a country's resources (Alteren et al., 2018; Getnet & Bifftu, 2017; WHO, 2016). Nurses are rarely able to complete nursing activities without being interrupted (Alteren et al., 2018; Biron et al., 2009). An observational study on work interruptions during medication administration in nursing homes concluded that work interruptions happen four or five times per hour (Lee, et al., 2015). The findings of several studies in

hospitals have described nurses' colleagues, other staff, and nurses themselves performing other activities, as the most common sources of interruptions during medication administration (Alteren et al., 2018; Schroers, 2018; Schutijser, et al., 2018). In nursing homes, the residents are the major source of work interruptions, especially during the administration phase (Lee et al., 2015).

Odberg et al. (2017) describe interruptions during medication administration in nursing homes. Interruptions are prevalent and can be characterized as passive, for example alarm and background noises, or active, such as discussions or technological interruptions, such as use of mobile phone apps. In hospital environments, perceived interruptions from patients, and telephone calls seemed to be the most problematic (Schroers, 2018). However, few interruptions are related to medication tasks, demonstrating a considerable opportunity to reduce unnecessary interruptions (Westbrook, et al., 2017).

Safe Administration of Medicines

Patient safety is defined as freedom from harm and adverse events while receiving healthcare (WHO, 2020). Odberg et al. (2017) have observed factors that contribute to the complexity of medication administration in nursing homes. Factors observed were: the high number of single tasks; varying degree of linearity; the variability of technological solutions; demands regarding documentation; and staff's apparent freedom as to how and where to perform medication-related activities. Five categories are identified as work system factors affecting medication safety in nursing homes (Dilles et al., 2011; Pharm & Doucette, 2017). These are: persons; residents and staff, organization; tools and technology; tasks; and environment; staff distraction and interruptions. While preparing, administering and monitoring medication, being interrupted, not knowing enough about interactions, and barriers to interdisciplinary cooperation, caused the most hindrances (Dilles et al., 2011).

Studies conducted in hospitals have examined the safe administration of medications by nurses to inpatients, despite the challenges in their working environment (Alteren et al., 2018; McLeod et al., 2015). In their

study, Alteren et al. (2018) found that when nurses were interrupted, they left the medicine round, and then subsequently re-entered the procedure. Nonetheless, they managed to re-focus and continue to administer the medication. Interruptions and disturbances made little difference to the behavior and actions of experienced nurses. McLeod et al. (2015) identified three interrelated themes in the work environment, which both facilitated and impeded safe medication administration. The first relates to specific configurations and features of the ward-based medication system, which in turn could influence nurses' behavior in terms of workflow. The second pertains to how nurses manage interruptions and distractions, and the third involves nurses' interaction with patients.

Strategies for Handling Interruptions

Medication administration is typically considered inseparable from other nursing work and embedded in their day-to-day activities (Odberg et al., 2018; Sitterding, 2014). The nurse's role is compensating, flexible and adaptable (Odberg et al., 2018). Nurses individualized their coping strategies and techniques, either by multi-tasking, engaging with the task (Alteren et al., 2021; Jennings et al., 2011; Sitterding, 2014; Sitterding et al., 2014), or focusing solely on patient interactions (McLeod et al., 2015), depending on the complexity of the task and their nursing experience (Colligan & Bass, 2012). Some nurses use the medicine round as an opportunity to interact with their patients, in addition to the administration of medicines (McLeod et al., 2015). McLeod et al. (2015) observed that nurses appeared to have a general inherent tendency either to be primarily "task-focused", where the main goal was to administer medicines as efficiently as possible, or "patient-interaction focused", where the medicine round was an opportunity to interact with their patients in addition to the administration of medicines. Colligan and Bass (2012) found that nurses prioritized task execution based on both risk and workflow efficiency assessments. Handling interruptions depended on both task and experience.

To handle these interruptions and the ward organization in hospitals, nurses developed their own personal strategies to overcome

inherent problems with their working conditions, the absence of effective management, and colleagues' reluctance to assume responsibility for minimizing interruptions (Alteren et al., 2021). Odeberg et al. (2018) describe a dynamic interaction between several contributory factors in nursing homes: shifting responsibility; need of competence; invisible leadership; varying available competence; staff stability; and vulnerable shifts.

Nurses can divide their attention efficiently across several resource-demanding tasks (Alteren et al., 2018; Sitterding, 2014; Sitterding et al., 2014). For example, they can simultaneously walk and make patient-related decisions, administer medicine whilst answering the phone, notice another patient's physician and decide to engage with them while administering intravenous medicine (Alteren et al., 2018; Sitterding, 2014; Sitterding et al., 2014). In another study, managing time was the dominant strategy for handling interruptions (Jennings et al., 2011). In addition to their own strategies, nurses must adhere to the organization's expectations of how interruptions were to be handled (Sitterding et al., 2014). Maximizing patients' satisfaction could weigh against patient safety. For example, nurses judged when it was more important to stop to answer a call light, than to administer medicines on time.

Previous research sheds light on interruptions and how the nurses deal with them during the distribution of medicines, as well as errors as a result of interruptions, and the consequences these errors may have for the patient's safety, mainly in a hospital setting. However, how the nurses experience their own work situation, and the importance of interruptions to patient safety is, only to a small extent, present in previous research. The ongoing discussion regarding the importance of nurses' perspectives for patient safety requires an elaboration of their perspective, within the municipal setting. Drug management is the nurses' responsibility, and knowledge regarding their perspective provides essential information on how to increase patient safety in nursing homes and reduce severe avoidable medication-related harm by 50% globally by 2022, a figure set by WHO (World Health Organization, 2016; 2020). The purpose of this chapter is to elucidate nurses' perspectives on and experiences of work interruptions: what they are, and what they are not, as well as discuss

the importance of their perspectives for safe drug management among nursing home residents.

Research Methodology

Data Collection

The narrative "Losing Concentration on the Medicine Round" is a sample narrative representing the nurse's perspective when administering medicines in a nursing home. This narrative stems from several years of experience as a nurse administering medicines in nursing homes and as a researcher doing field studies, along with testimony developed through several field studies. During the field studies, I collected narratives of how nurses experience work interruptions during medication administration.

The nurses represented in this study, were purposely selected to participate in the different field studies relating to different perspectives on administering medicines. In the field studies, I followed the nurses through their shifts, where administering medicines was one of their areas of responsibility. The nurses shared narratives on their views of work interruptions during medicine rounds. The narratives were recorded and transcribed by me. After a day in the field, I wrote field notes regarding our reflections on the theme and personal notes regarding my reflections and thoughts related to interruptions during medicine rounds.

The Context of the Study

In this chapter, the field of action was a somatic ward in a Norwegian nursing home. The nursing home consisted of four wards, 20 residents living in each ward. Three of the wards are somatic wards, while one ward is for the demented. The representative nurse in the narrative has been given a fictitious name, Bente. She has worked as a nurse for 12 years, seven of them in nursing homes. Bente works in a somatic ward where she has the responsibility to administer medicine to 15 women and five men. The residents live alone in one-bed rooms. The age of the residents is between 68 and 92. They have multiple diagnoses and to varying degrees need help with basic nursing.

In the daytime, there are often two nurses at work, but in the evening and night shifts, there is only one nurse. In daytime, there are all together five healthcare personnel at work, including Bente. In addition, there is a ward nurse, who has the overall professional and administrative responsibility for the staff and care in the ward. Bente administers medicines twice during the day shift, during breakfast from 8.30 a.m., and dinner from 1.30 pm. She administers medicines from a drug trolley.

Research Approach

The narratives were analyzed using the hermeneutic circle described by Gadamer (2003). The hermeneutic circle is a philosophy of interpretation involving a dialectic transition between the whole and the parts – between the phenomenon being interpreted and the environment, as well as the phenomenon and one's personal prejudices that influence this interpretation. The narratives relating to interruptions during the administration of medicines were brought together interpretively by constructing a narrative that was grounded in their actual experiences, and was representative of the participants. In the interpretation the analysis moved towards understanding the essence of the narratives and of the nurses' working situation.

I read the narratives without trying to attain an overall impression of the content. When I read them again, I tried to form a picture of the central idea in the narratives. Starting with my first experience and understanding of the narratives, I read the narratives again. In the next round, I interpreted these descriptions in relation to my first understanding of the content of the single narrative, as well as a holistic perspective of the narratives. In this process, I combined my own narrative with the nurses' narratives in order to develop a narrative representing our common experiences. This draft, the narrative, was constantly edited considering what emerged as I explored the theme further. This process resulted in the constant composition of a new draft narrative, describing the nurse administering medicines during constant interruptions in a somatic ward in a nursing home.

The result of the analysis was the sample narrative: "Losing Concentration on the Medicine Round", which is presented below. In the analysis,

I extensively explored Bente's reflections on administering medicines in the situation in which she found herself. By providing a further analysis and reflection on this narrative, I seek to amplify the nurse's perspective on work interruptions during medicine rounds, as well as their significance for patient safety.

Ethical Considerations

The research projects were approved by the Norwegian Centre for Research Data, NSD. The researcher requested participation, verbally and in writing, from the nurses participating in the field studies. The nurse leader explained the study and asked the nurses if they wanted to participate, and they gave verbal and written informed consent. They received the assurance that participation was voluntary, and they could withdraw from the studies whenever they wanted to without consequence or having to explain why. No one withdrew from participation during the studies.

Losing Concentration on the Medicine Round: A Sample Narrative

The situation I am going to tell you about is typical for distributing medicines in the ward. This is when the residents have their breakfast. The residents need their medicines in the morning. Administering medicines during breakfast requires time and concentration. When I administer medicines, I follow my own and the ward's routines, and I follow a specific route. Before I start the medicine round, I check the medicine in the dose distribution system according to the medicine journal. I find the medicine that is not in the dose distribution system in the medicine room or the refrigerator. I prepare the drug trolley and bring with me the medicine journal, glasses, and a jug of water.

Normally, I begin distribution of medicines in the living room, where most of the residents have their breakfast. Sometimes residents ask me

for help getting to the living room, either by using the alarm clock or asking me for help. Then, I interrupt the medicine round: close, and lock the drug trolley and help the resident. Other times, residents may ask for painkillers. I check which medicine they can get in the medicine journal, and if the painkillers are in the dose distribution system. If not, I interrupt the medicine round and return to the medicine room for the resident's painkillers. When I return to the living room, there are often colleagues requesting medicines on behalf of other residents. In the living room, I distribute the medicines based on where the residents are placed. While I hand out, colleagues can ask for medicine for the residents eating their breakfast. Other nurses who help residents with care can ask for painkillers. Again, I check the medicine journal, find painkillers, and sign the medicine journal before I give the medicine to the resident.

Interruptions from colleagues happen many times every day, and mostly I find them disturbing. When I prepare the medicine round, I am very concentrated. When I am disturbed, I lose concentration. I must work my way into the procedure again, and that takes time. There are situations where I am not interrupted, when I administer medicines the way I find appropriate. I do not experience it as an interruption when communicating with residents, serving coffee, or bringing the residents water. But sometimes there are too many tasks like this. Then I experience them as interruptions, and I lose concentration.

Many interruptions like this, not only in the living room, residents' rooms, and corridors, but also in the medicine room, delay distribution and increase time pressure. The consequence might be that the residents do not receive their medicine at the right time. Other disturbances where I lose concentration are when I must interrupt distribution and answer the phone or an alarm clock. There is a doctor's visit every Wednesday. Sometimes the doctor comes earlier than the predicted routine, and other times I am so late that I am not done with the medicine round. The interruptions delay and shift the work I am responsible for in the ward. This applies not only to administering medicines. Patients do not receive their medication on time, which has consequences for treatment, care, and patient safety.

The Narrative: Interruptions as a Source of Knowledge

In the narrative, a nurse administers medicines to residents amidst constant interruptions. Through the narrative, she reflects on being interrupted, and how she defines and handles the interruptions. In the narrative, the interruptions are caused by breaks in the activities being performed in order to carry out a task: for example, helping residents to the living room for breakfast and serving coffee. The nurse states that she is concentrated and focused. When she is disturbed, she loses concentration. At the same time, the nurse feels that the interruptions are not experienced as interruptions when she finds them appropriate. It depends on the situation and to what extent the nurse needs information about the patient, relevant to the patient's use of medication.

Discussion: Work Interruptions as a Source of Knowledge

There are many sources of interruptions in the nursing home ward (Lee et al., 2015; Odberg et al., 2017). Odberg et al. (2017) characterized interruptions in nursing homes as passive, active, and technological. The major source of work interruptions was the residents, especially during the administration phase (Lee et al., 2015). This chapter highlights in particular, residents, nurses, head nurses, relatives, the nurses themselves, and the ward's daily routines as sources of interruptions. The ward's daily routines are planned to be carried out in time periods. An example is breakfast, which is served between 8.30 and 9.30 am. During this period, many of the residents are gathered in the living room where breakfast is served. It creates a limited area for the interruptions, which both hinders and contributes to interruptions. It hinders interruptions, as many of the residents are gathered in a limited area. The nurses have an overview of the situation and can distribute medicines in a concentrated manner. At the same time, many people in a room creates more activity, as well as inquiries from residents and other healthcare professionals, which can also contribute to interruptions. This two-sidedness places demands on

the nurses when it comes to staying concentrated on the task they are to perform. Three interrelated themes are identified in the work environment in hospitals, which both facilitated and impeded safe medication administration (McLeod et al., 2015). They are: the wards medication system; how nurses manage interruptions and distractions; and nurses' interactions with patients. The findings in this chapter show that when Bente administers medicine during constant interruptions, she moves between holding onto and losing concentration regarding the medication and the resident concerned.

Bente said that she must interrupt the distribution of medicines and perform other tasks not relevant to the distribution of medicines. Findings indicate that performing nursing tasks is more of a normal condition than an exception, which is supported by other research (Alteren et al., 2018). The consequences of WIs are generally negative for patients' safety and outcomes, employees' well-being and performance, as well as a country's resources (Alteren et al., 2018; Getnet & Bifftu, 2017; WHO, 2016). When Bente must interrupt distribution, close and lock the medicine trolley, she loses her concentration and her plan for distributing medicines. Alteren et al. (2018) found that nurses subsequently re-entered the procedure and managed to re-focus and continue to administer the medication. Further, research showed that interruptions and disturbances made little difference to the behavior and actions of experienced nurses. Nevertheless, these interruptions can create a domino effect, in which the rhythm of the ward is disturbed, and the nurses fall behind in other nursing tasks for which they are responsible, such as follow-ups of the dying and their relatives, or more specific tasks, such as wound care. The consequence is missed nursing care in the form of delays in order to complete necessary patient care (Abdelhadi et al., 2021).

At the same time, Bente states that whether she experiences the task as an interruption depends on what tasks she has to do, and whether the tasks are relevant to the resident's medical treatment. Research in hospitals show that some nurses used the medicine round as an opportunity to interact with their patients in addition to administering medicines, defined as patient-interaction focused (McLeod, et al., 2015). This chapter shows that it is the patient's needs that define whether an interruption is

an interruption. Bente did not experience the situation where she helped a resident from their room to the living room as an interruption. The situation became an opportunity to observe the resident's physical and mental condition, and the effect of the medication. The knowledge she obtains is, for example, whether the painkiller the resident received at six o'clock has had an effect or not.

Drug handling involves more than the technical, such as physically taking the tablets out of the glass and giving them to the resident. Competence in drug management is complex (Sulosaari et al., 2010) and involves knowing which drug the resident receives, the effect, side effect, and why the resident is receiving that particular drug. Competence in drug management involves 11 areas of knowledge (Sulosaari et al., 2010). These areas of knowledge are described as: anatomy and physiology; pharmacology; communication; interdisciplinary collaboration; information retrieval; mathematical and drug calculations; drug administration; drug management; summary and evaluation; documentation; and establishing drug management as part of the resident's safety. The areas of knowledge are connected through handling medicines, and the knowledge the nurses must master to be able to handle medicines safely.

A theory of knowledge developed by Aristotle, among other things, distinguishes between different forms of knowledge (2006). These are: episteme, theoretical-scientific, techne, skill knowledge, and phronesis, practical knowledge. Knowledge about the diagnosis of rheumatism and how the disease is expressed is defined as episteme. Bente is aware that a resident diagnosed with rheumatism has pain, and may be stiff in their joints and muscles in the morning, which can lead to unsteady walking. Knowledge of how to help the resident from their room to the living room is defined as techne. In addition to using theoretical knowledge about the patient's illness, Bente uses her thinking to find out how she should concretely perform the action, so that the walk to the living room is as comfortable as possible for the resident. Through conversation and the resident's body language, Bente experiences and observes the resident's pain and gait. Phronesis is to act wisely based on the specialness and uniqueness of the situation. When Bente helps the resident, these three forms of knowledge are integrated and her overall knowledge about the

resident's state of health is developed. This knowledge becomes important for the nurse's assessment and decisions on new measures.

For Bente, these tasks do not constitute interruptions, but a situation where she acquires knowledge about the resident, which is relevant and related to medication management, and the responsibility she has for medication management in the ward. Conversations with other healthcare professionals are also examples of situations where knowledge is obtained about the resident's condition. Healthcare personnel who, for example, have helped a resident and ask for painkillers can convey to Bente the resident's degree of pain, and how the resident is functioning today. This knowledge is important in order to be able to follow up their treatment. This knowledge can also mean that Bente should have a conversation with the patient later, as well as convey the observation to the doctor for further medical treatment.

Interruptions that are not relevant nor can be linked to medication management and responsibility for the resident are experienced by Bente as interruptions. Helping a resident who is stable onto the toilet, or situations where there are no reasons for extra observation are examples of interruptions. Serving coffee and food to the residents during breakfast when there are other healthcare personnel responsible for the task, is another example. Focus is removed from medication management and the nurses lose concentration. There will be a break in the train of thought in which the nurses make observations, on the medication and how the resident works in context, integrating the knowledge that is relevant to the patient (Aristotle, 2006). An interruption creates a break in this cognitive thought, and the nurses lose concentration.

Conclusions

The resident's needs define whether a work interruption is a work interruption or a source of knowledge important for medication treatment in nursing homes. When nurses administer medicines, they simultaneously give medicines and acquire knowledge about the resident's health. Interruptions as a source of knowledge should therefore receive greater attention in the organization of medication administration, especially

aimed at interruptions related to caring and medical treatment. Greater attention to interruptions as a source of knowledge also contributes to increased knowledge about the patient, safeguarding patient safety. This knowledge forms the basis for the nurse's assessments and decisions about further treatment and care, as well as aiding the development of evidence-based practice in nursing homes. A change in focus requires management, and an organization in which tasks that are not related to medication treatment and care are handled by other professionals than nurses.

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