The influence of flow culture on nurses’ use of research in emergency care: An ethnographic study

Flowkulturs betydning for sygeplejerskers brug af evidensbaseret viden

Within the field of implementation science there is increasing recognition of the relevance of organizational context and culture, i.e. influences beyond the individual level, for successful implementation of evidence-based nursing practices. Applying the Cultural Historical Activity Theory (CHAT), the aim of this study was to explore how the organizational culture in an emergency department in Denmark influenced nurses’ priorities with regard to the use of research. The study was designed as an ethnographic inquiry based on fieldwork and semi-structured interviews. Based on an activity system analysis, the concept of flow culture emerged. This culture is defined as a cultural–historical activity system, mediated by artefacts, in which the objective of the nursing staff is primarily to free up beds, thus ensuring a flow of patients. A flow culture leads to a strong focus on securing vacant beds which impeded the nurses’ use of research in everyday clinical practice.

Keywords: Activity theory, ethnographic study, flow culture, implementation, nursing.

Introduction

Implementation of evidence-based nursing practices is essential for the supply of high-quality care. However, it is well recognized that it is often difficult to implement research evidence in clinical practice. It is documented that many patients do not receive treatments of proven efficacy or they receive care that is of little benefit or even harmful to them (1). Implementation science has emerged as an interdisciplinary field to address the challenges associated with the gap between the production and application of research (2).

Much of the research on nurses’ implementation and use of research have focused on individual barriers such as time restrictions, limited access to research, lack of confidence in the skills needed to identify and critically appraise research and difficulties in interpreting guidelines (3). Hence, determinants of implementation of evidence-based practices are often sought at the individual health care provider level.

However, there is increasing recognition within the field of implementation science of the relevance of the organizational context, i.e. influences beyond the individual
level (4, 5). This has led to the development of many models and frameworks that attempt to account for the context, such as Promoting Action on Research implementation in Health services (PARIHS) and the Knowledge To Action model (KTA) (5,6,7). Organizational culture is described in implementation models and frameworks as a critical aspect of the context of implementation (2). Many definitions of culture suggest that culture emerges from shared assumptions, beliefs, values, and norms among members of an organization, unit, team, or other group that influence how these members think, feel and behave (8). Research is still limited regarding the impact of the context and culture on the use of research in clinical practice. Researchers (9, 10) have called for more studies to improve the understanding of cultural influences on implementation processes and the use of research in health care.

In recognition of the potential importance of culture on nurses’ implementation of research evidence into clinical practice, this study provides an alternative perspective on how the local organizational culture in an emergency department in Denmark shapes nurses’ behaviours. Applying the Cultural Historical Activity Theory (CHAT) (11), the aim of this study was to explore how the organizational culture in an emergency department influenced nurses’ priorities with regard to the use of research, exemplified by screenings and guidelines. CHAT offers an alternative perspective on the implementation of evidence-based practices. This study contributes to improved understanding of the difficulties involved in the implementation of evidence-based practices.

Theoretical framework: CHAT

CHAT posits that learning is collective, social, and situated and is achieved through participation in practice (12). The theory attempts to overcome dichotomies between the individual and the collective, proposing that a so-called activity system is the most appropriate unit of analysis. People can be involved in various projects with different aims simultaneously, which means that they participate in multiple activity systems (11). CHAT was developed by the Russian psychologists Vygotsky (13) and Leontiev (14) and is now a global, multidisciplinary research approach. CHAT concerns the concepts of artifact-mediated and objects-oriented action (13). The theory posits that a human individual never reacts directly to environment. The relationship between human agent and objects of environment is mediated by artefacts, such as language, physical objects and other people which are understood as cultural tools that groups of people have developed over time to reflect their values, ideas, principles, and practices (12). CHAT is premised on the idea that the development of the human psyche is always linked to the culture and is a social process that takes place between people.

According to Engeström (11), human activity can be represented by a triangular model. The uppermost triangle in Fig. 1 represents the basic components of cultural mediation: subject, object, and mediating artefact. Engeström has extended this model of cultural mediation (the uppermost triangle) to a model of an activity system. Engeström elaborates Leontiev’s idea of the collective (14) and suggests that participants in collectives create connections
in the context of workflow, taking part in a relational interaction with rules, community, and division of labour. The components of the activity system, together with other related activity systems, constitute the context. Activity systems are historically based which means that networks develop over time through social relations and individuals’ assumptions, values, norms, and beliefs that constitute the culture in these systems.

The subject in Fig. 1 refers to the acting individuals who, through mediating artefacts, are included in the various object-related activities which are directed towards the common object.

The object is understood as connecting the individual actions within the collective activity. Objects can be material things, plans, common ideas—everything that can be shared and transformed by the participants in the activity and that motivates participants’ actions. Community refers to a group of individuals, all acting in relation to the same object and simultaneously constructing themselves differently from other groups and other social contexts.

Rules refer to the implicit and explicit regulations, norms, and conventions that influence and affect the efficacy of actions and interactions within the individual activity system. Division of labour incorporates both the vertical division of power and status and the horizontal distribution of tasks and functions (11,15).

Activity, defined as an object and targeted activity, represents dynamic interactions between individual and collective actions mediated by artefacts and context. The direction of an activity is determined by a motive towards its object—an individual, psychological, driving force to achieve the objective. What connects the object of an activity with its motive, in terms of expected outcome, is the collective within which the outcome is shared and distributed (11). Needs are not satisfied through individual goal creation, but as a result of the

![Figure 1. A complex model of an activity system (Engeström et al., 1987).](image-url)
proportion of the collective activity that each group member performs through relations with each other in the process of working together (16).

Our reasons for acting can be driven by many factors (14), but some objects are more important than others, and these drive our motives. In the prioritization of actions, the concept of a leading activity refers to the activity that plays a crucial role in a given period of development (13). The various activities in which subjects participate are part of a dynamic, hierarchical set of interactions which sometimes produce conflicting relationships (tension) between different motives. Engeström and Middleton (17) explain that opposing motives and activities may be necessary for change to occur whereas Sannino (18) suggests that a leading activity can become dysfunctional, acting as a protective or constraining enclosure which can dominate development to the point of stagnation.

**Methods**

**Design**

An in-depth ethnographic study was carried out in a department in a 750-bed university hospital in Denmark. The field method was selected to understand what shapes nurses’ behaviours and priorities in everyday practice. The ethnographic approach allowed for the study of everyday life as it unfolded in a situated practice (19).

**Setting**

Patients who needed emergency treatment for injuries and/or diseases were admitted to the emergency department. Patients varied in ages, from the young to the elderly. The medical patients usually stayed between 24 hours and four days. Approximately 60% of the patients were discharged within 24 hours. There were 30 medical beds in the department and 10 rooms for injured patients. There was a central nursing office within the department where all general coordination took place. The office included an electronic whiteboard on which patients were registered when they were admitted to the emergency department, transferred to other departments, or discharged. Nursing in the emergency department involves both providing individualized and holistic care to patients, who are often elderly people, and maintaining the patient flow.

**Participants**

During the study, 70 employees were working in the department, represented by medical secretaries and registered nurses (RN). Every day, a large number of specialized doctors from other wards in the hospital came to examine the patients. Both medical secretaries, doctors, and nurses were followed in the study to understand the culture of the department as all three professions comprise the network of relationships in everyday clinical practice and act in relation to the same object. Table 1 shows the number of health professionals that the researcher followed in the field study.
Data collection: field study
Initially, a 3-month field study was carried out in which the researcher (J.K.) participated as an observer (20). The field observation took place from September to December 2011. The researcher was present in the emergency department for approximately 420 hours, covering different times of day, and primarily followed nurses but also doctors and medical secretaries. Field notes were recorded daily after each observational period.

Data collection: interviews
In June 2012, the researcher carried out 14 semi-structured interviews with nurses, doctors, and medical secretaries. The researcher asked a range of open-ended questions clustered around three major themes that had emerged from the field notes: (1) professional identity, (2) clinical guidelines, and (3) implementation. All interviews were recorded and transcribed verbatim. The interviews were held outside the department in a classroom where the informants had the opportunity to speak freely and without distractions (19).

The selection of respondents for interviewing was based on two inclusion criteria: (a) nurses, doctors, and medical secretaries that the researcher had followed during the field study in order to have an even deeper understanding of everyday practice, and (b) nurses that the researcher had not followed or nurses who were new in the department. The reason for including these nurses was to get a varied understanding and interpretation of everyday practice (Table 1).

As an observer and participant, the researcher also became part of the data (21). Participation in the department is seen as a learning process in which the researcher learns by asking for opinions, observing reactions of staff members, and incorporating cultural knowledge through participation in the community practice activities (8).

Ethical considerations
One theme among ethical considerations is the role of the nurse as an ethnographic researcher. According to Danish law, formal ethical approvals are not required for studies.

<table>
<thead>
<tr>
<th>Profession</th>
<th>Respondents followed by the researcher</th>
<th>Clinical experience, median (years)</th>
<th>Respondents interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical secretaries</td>
<td>4</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Doctors</td>
<td>3</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Nurses</td>
<td>27</td>
<td>7.5</td>
<td>11^a</td>
</tr>
</tbody>
</table>

Table 1. Health professionals included in the study.
^aOf the 11 nurses, three nurses did not participate in the observational study, but were included for interviews.
that do not involve biomedical issues, but gaining entry to the field can still be difficult. The researcher had to negotiate with the relevant gate keeper to gain access to the informants and the setting itself. Permission was given by the head nurse. This was followed by an informal visit with the practitioners to discuss any concerns regarding their involvement.

Ethical guidelines for nursing research (22) were adhered to by obtaining informed consent from the participants. The head nurse was responsible for finding and asking the participants if they were willing to participate in the fieldwork or/and in the interviews. They were all informed that it was voluntarily to participate and that they could withdraw from the project at any time. Subsequently, the researcher received a list of participants who had indicated that they wanted to participate in the interviews. Selection of participants for the interviews was based on the inclusion criteria. The researcher sent a letter to the participants to inform them about the interviews, describe the content, and state that the interview was anonymous, and that the participants could access the transcribed material if they wanted. They were also asked to confirm their participation by e-mail. All names were replaced by code names in the researcher’s notes.

Another ethical consideration applies to the researcher’s previous experience in the field. In this instance, the researcher (i.e. the first author) was a nurse with 20 years of nursing experience in a variety of cultural settings. The fact that the researcher knew the field as an “insider” could increase the access of the researcher which was important for assembling data and conducting analyses. Her position as an experienced nurse made the nurses in the emergency department invite her to participate in conversations, including many confidential discussions. Thus, positioning herself as a “nurse” rather than merely as a “researcher” gave access to physical spaces and conversations that would not have been possible otherwise. Conversely, too much familiarity can create taken-for-granted assumptions and “blindness” concerning what is really happening (19).

Data analysis

The data were analyzed twice, both times using conventional, thematic content analysis (23). The data from the field study were processed through multiple readings, open coding followed by focused coding and sorting of the material into themes (24). The researcher used an inductive approach, relying on participant observation as a way to understand the clinical practice in the emergency department. This meant that the researcher observed what occurred in practice, including the language used, actions, and movements in physical spaces, and adjusted the observations according to her “surprise” and focused her attention on these events. The concept of surprise in anthropology refers to the researcher’s observations of actions and events that contrast with his or her preconceived notions or previous experience in the field (25). The researcher wrote down in a logbook every day what was surprising and not surprising. Both surprising and not surprising actions were discussed along with the supervisor which challenged the blind spots that appeared during in the study. For example, the researcher saw many demobilized patients who lay in their beds despite expectations
based on experience that patients should be mobilized if possible. This discrepancy creates surprise and leads to increased attention from the researcher.

The results of the coding process were then used to generate the interview guide for the ethnographic interviews (Table 2).

After the interviews, a second content analysis was conducted, and themes and subthemes were identified (Table 3).

<table>
<thead>
<tr>
<th>Issue 1: professional identity</th>
<th>Issue 2: clinical guidelines</th>
<th>Issue 3: implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which of the clinical tasks you carry out do you consider as core tasks?</td>
<td>How often do you use research-based clinical guidelines? Which clinical guidelines do you use frequently?</td>
<td>In your opinion, which factors are important when implementing new initiatives in the department?</td>
</tr>
<tr>
<td>Do you feel incompetent in some situations?</td>
<td>In which situations do you use clinical guidelines?</td>
<td>Which changes do you consider as successful?</td>
</tr>
<tr>
<td>Which work situations imbue you with professional pride?</td>
<td>Where do you look for clinical guidelines?</td>
<td>What was not a success? Why do you think that is?</td>
</tr>
</tbody>
</table>

Table 2. Examples of questions from the interview guide.

<table>
<thead>
<tr>
<th>Meaning unit</th>
<th>Condensed meaning unit: description close to the text</th>
<th>Condensed meaning unit: interpretation of the underlying meaning</th>
<th>Subtheme</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>The practitioners move in and out of the central nursing office which is in the middle of the department. Most communication takes place here</td>
<td>The practitioners look to the central nursing office</td>
<td>By staying in the physical space, the practitioners gain access to information which can help them obtain an overview</td>
<td>Physical space</td>
<td>Securing a constant patient flow</td>
</tr>
<tr>
<td>Meaning unit</td>
<td>Condensed meaning unit: description close to the text</td>
<td>Condensed meaning unit: interpretation of the underlying meaning</td>
<td>Subtheme</td>
<td>Theme</td>
</tr>
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</tr>
<tr>
<td>The senior management enter the central nursing office and move directly to the electronic whiteboard</td>
<td>Morning meetings will be held in the central nursing office, at the electronic whiteboard, by the senior management</td>
<td>When the senior management prioritize entering the central nursing office and moving to the electronic whiteboard, they become models for the actions seen as important</td>
<td>Management</td>
<td></td>
</tr>
<tr>
<td>The senior management appreciate the nurses when moving the patients on in the system</td>
<td>Management acknowledge health professionals in the nursing office</td>
<td>Management praise the practitioners, teachers, the researchers, and others demonstrating that these actions are important and considered priorities</td>
<td>Management</td>
<td></td>
</tr>
<tr>
<td>Staff revolve around the new boards. The electronic whiteboard ensures that the physicians have an overview</td>
<td>All the health professionals prioritize getting into the electronic boards</td>
<td>The electronic board helps the practitioners obtain an overview</td>
<td>Electronic board</td>
<td></td>
</tr>
<tr>
<td>I must communicate through the electronic whiteboard</td>
<td>The nurse is aware that she needs to use the electronic whiteboard to orientate herself</td>
<td>The electronic whiteboard is a tool for all health professionals to obtain an overview of the flow of patients</td>
<td>Electronic board</td>
<td></td>
</tr>
<tr>
<td>Meaning unit</td>
<td>Condensed meaning unit: description close to the text</td>
<td>Condensed meaning unit: interpretation of the underlying meaning</td>
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<td>Theme</td>
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</tr>
<tr>
<td>Guidelines must be specific to the emergency unit</td>
<td>To be especially relevant in emergency departments</td>
<td>Guidelines must be experienced as specific to the emergency unit and ensure that the patient can move through the system</td>
<td>Guidelines</td>
<td></td>
</tr>
<tr>
<td>The main task in the emergency unit is to receive patients and move them on and this requires that beds are constantly available</td>
<td>Being able to receive all patients who are constantly coming through the department requiring available beds</td>
<td>Being able to ensure available beds means that nurses can maintain a constant flow of patients</td>
<td>Ensure available beds</td>
<td></td>
</tr>
<tr>
<td>Several times the nurse says out loud that she has lost track</td>
<td>Losing the overview of a situation is a negative signal to send in the emergency department; it is a cry for help</td>
<td>To maintain the overview of a situation is a competence in the emergency unit that affects whether you can ensure the flow of patients</td>
<td>Overview</td>
<td></td>
</tr>
<tr>
<td>We need to follow patients more; the overview is better than the previous whiteboard</td>
<td>The new electronic boards contain more information than the previous boards, making it harder to orientate ourselves, but once you have learned how to use it, the new boards provide a better overview</td>
<td>It is a special skill to maintain the overview of the electronic boards; a qualification that recognizes the value of all the health professionals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meaning unit</td>
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</tr>
<tr>
<td><strong>The nurse had been frustrated all day and felt academically and professionally challenged when she had not managed to do what she wanted</strong></td>
<td>Some actions are prioritized while some actions are deselected. It frustrated some of the nurses.</td>
<td>A dilemma arises between actions recognized by management and colleagues as important and the basic nursing actions that are deselected</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>It becomes an ethical dilemma for some nurses that they cannot provide the care that they really want to or have been trained for</strong></td>
<td>Some basic nursing actions are not prioritized in the emergency unit.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>The nurse was asked to send a patient on, rather than undertake nutritional screening. The tone was very sharp</strong></td>
<td>The nurse will be asked to re-prioritizing her choice of actions by other colleagues.</td>
<td>Colleagues are helping to control what actions should be prioritized in the emergency department.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>The nurse asks for help to order some blood tests but is rejected with the answer: “No, I will not. While you have been here, I have received three patients”</strong></td>
<td>The nurse is rejected by a colleague when she asks for help.</td>
<td>It seems that some actions are prioritized over others. When the nurse is engaged on the ward, it puts pressure on the other nurses by increasing the number of admittances they have to deal with</td>
<td></td>
<td>Pressure from colleagues</td>
</tr>
</tbody>
</table>

**Table 3.** Examples of meaning units, condensed meanings units, subthemes, and themes from content analysis of observations and interviews in the emergency unit.
The first author was not aware of the CHAT theory when doing the observations. Based on both thematic analyses, the researchers found patterns between the sub-themes and the theme flow culture. Some of the sub-themes were linked to other sub-themes and were included in the activity system analysis (11) because activity systems connect several components in the understanding of collective activity. An activity system analysis is an approach that attempts to understand the interactions among collective activities between practitioners, materiality, and their outcomes to resolve tensions that are generated by the activities. We analyzed each factor in the activity system and mapped out the source of tensions associated with each factor. The specific research question we addressed was: Which tensions arose, according to the practitioners, in the effort to achieve the object and outcome (securing available beds to attain a continuous patient flow)? Are these tensions interrelated? The result of an activity system analysis accounted for the fact that the subjects, the nurses, were part of a community that also included doctors and medical secretaries.

Activity analysis is often used to study inherent tension (contradictions) in the activity system (15). As the researcher was interested in how culture shapes nurses’ use of research-based knowledge, it was not appropriate to identify contradictions in the activity system as part of development. Instead, it was relevant to identify the leading activity serving as the driving force of the collective activity. Therefore, the model was used as a descriptive tool to understand what drives nurses’ prioritization of actions. The analysis was then discussed with a supervisor.

Results

Through this analysis, the concept of flow culture emerged. Flow culture is an analytical concept defined by the researcher and developed in this study through the analysis of empirical data from the emergency department, but also inspired by select theoretical concepts from CHAT.

The object: to ensure available beds for incoming patients

In 2007, a national change in emergency preparedness was instituted in Denmark (26), resulting in fewer emergency units being open 24 hours a day. Before 2007, patients were typically transferred or discharged in the morning, but since 2007, transfers and discharges occur throughout the day. This change has influenced the nurses’ prioritization of their actions:

“This is about the treatment and care of the patients. The changes in patient admittance in the past few years have had an impact. In the past, most patients were brought in in the afternoon. Now, we all constantly have to make an effort to get patients through the system more quickly. It requires other priorities than before (nurse 1 – field study).”

Although nurses articulated that they should draw attention to and define their priorities in relation to the care of their patients, the empirical data show that actions such as attending to personal hygiene, screening for pressure sores, and providing general information were given lower priority. The researcher learned that actions leading to the provision of an available bed for an incoming patient were prioritized
by the nurses. The data show that both doctors and medical secretaries also performed important tasks associated with providing beds, such as electronic registration and the development of treatment plans, among other tasks. Thus, all three professions were interdependent; the actions of one group of professionals alone did not result in securing a bed for the next patient; rather, the work process involved relationships among the three professional groups to complete the collective activity designed to ensure the object, namely the availability of a vacant bed for the next patient arriving in the department.

**Outcome: sustaining flow**

When the nurses managed to stay ahead of patient intake by having available beds ready, patient flow was maintained. Both doctors and medical secretaries described this flow as important for their work:

As a physician, I am very dependent on the nurse who is assigned to the patients that I have to examine. Patients come in a steady stream throughout the day, and it can be very clearly felt if the nurses in the unit lose track and the flow gets gridlocked (doctor 1 – interview).

The bed and the procedures required to provide a vacant bed were not only mediating tools for nurses to ensure available beds, but also a sign to other health professionals indicating that the nurses were skilled at maintaining an overview of the department and ensuring an uninterrupted flow of patients. This flow is understood as the movement of patients between wards and between the hospital and home. Doctors and secretaries expected that actions related to ensuring vacant beds would be prioritized to maintain the patient flow. As a result, this flow was an expected outcome which was shared and distributed among the health professionals.

**Community: overview**

The researcher observed how the mood changed and the tone became tense among the health professionals if there was no vacant bed for a new patient. This circumstance had a negative impact on the work of all three professional groups. The doctors were annoyed because they could not complete their patient assessments in the emergency department and return to their specialized departments for rounds. Medical secretaries became terse when they were unable to complete administrative procedures, such as admission and transfer. Most notably, the nurses experienced both physical and psychological pressure, the former related to the timely preparation of beds and the latter related to pressure from the other professionals and their nurse colleagues. These pressures were apparent in the emotionally laden reactions of the nurses. As one nurse reported: “I have to be ready, always be prepared, so that I can ensure that there is room for the next patient so the doctor can get started.”

Thus, both the researcher and the recently hired nurses learned how to focus their undivided attentions on the status of the patient flow—a process requiring the nurses to maintain an overview of all the tasks related to the flow.
Artefacts: electronic whiteboards, physical spaces, and language

Overview was achieved by remaining in the nursing office where the electronic whiteboards were located. The medical secretaries were located here along with the other professionals. This office was also visited by patients and relatives if they had questions. Everyone orientated themselves via the electronic whiteboards to keep track of the flow:

“The boards are important tools for us medical secretaries. Here, we can follow the patients in, around, and on their way out of the hospital” (Medical secretaries 2 – field study).

The boards were mediating tools to aid the health professionals think about and plan their everyday practices and thereby prioritize their actions. By viewing the boards, the nurses could also obtain a picture of how the patient flow was handled by the other teams. This information was also conveyed through meetings held twice a day by the head of the department in proximity to the electronic whiteboards:

“For me, it is important to attend the board meetings. This is where I get an idea of how it’s [flow] going for my colleagues in the other groups” (Nurse 3 – field study).

Connections were formed through meetings during the work process, and collective activities among doctors, nurses, medical secretaries, and the whiteboards ensured the achievement of the object. The boards became mediating tools for ensuring overview, and meetings near the boards became a sign of overview creation intended to ensure patient flow. Thus, the whiteboards became cultural tools in the emergency department.

The discourse that occurred during the whiteboard meetings most often involved where patients were going:

“Room 2 first bed is missing examination by the doctor, patient xx you can send home and … afterwards, four patients are going to other units/or we need to send more (patients) up because new patients are arriving” (field notes, 2011).

Much less frequently, the space around the board was used to discuss nursing issues such as pressure sores. To achieve the necessary patient flow, the boards were transformed through a special language which was useful for all health professionals. The transformation occurred in both directions so that, over time, the health professionals almost exclusively communicated about where patients were going when they participated in meetings near the whiteboards. Within the learning process connections were established between the boards and the health professionals and were transmitted over time to new arrivals, including the researcher. The results of this study suggest that the patient flow was mediated by language, the physical space, the whiteboard, the health professionals, and their relationships.

The possible actions and interactions within the activity system are, according to Engeström (11), affected by the division of labour as well as the implicit and explicit rules and regulations. This was also the case in the emergency department.
Division of labour: management and prioritization

Through the meetings and everyday practices, the researcher learned that hospital leadership explicitly recognized the health professionals who could maintain an overview, thereby ensuring that the patients passed quickly through the system. These health care professionals were explicitly praised and acknowledged by their leaders for actions resulting in patient transfers or discharges within a more limited timeframe than expected. Nurses prioritized actions that would ensure vacant beds for the incoming patients, and these actions were mediated by the hospital management. For example, the head manager’s priorities and actions—going directly to the whiteboards in the nursing office, talking in certain ways by the boards, and conveying implicit and explicit acknowledgements—taught the researcher and the other nurses how to recognize and prioritize actions that were considered professional in the context of the emergency department.

Actions that prioritized the availability of vacant beds to achieve patient flow were not only important for the individual. Mastering the actions promoting flow, maintaining an overview and prioritizing correctly created collective connections which made the doctors, nurses, and secretaries appear professional in the eyes of the hospital management and each other. In the emergency department, the nurses’ prioritization of actions was not random, but could be seen as culturally meaningful. The results also suggest that when the patient flow was prioritized, this was at the expense of a number of nursing procedures, guidelines, and screenings.

Rules: guidelines and flow stop

As in other hospitals in Denmark, the emergency department is required to meet quality standards incorporating the best available evidence for a variety of treatments and care. For instance, one standard requires that patients are screened for pressure sores on admittance. However, the researcher seldom observed nurses conducting these screenings. When asked about this, one nurse’s response was as follows:

“Why do we have to screen for pressure ulcers …? It is a guideline that is in contrast to acute treatment. If I have to prioritize spending at least 15 minutes on the screening, then 3–4 patients could have arrived. Patients I can’t receive … and who is going to do that? It will be my colleagues [who receive them], and it puts extra pressure on them (nurse 4 – field study).”

There is an apparent tension between an awareness of the screening obligations within the Danish quality system and the hospital strategy on the one hand and the actual experience of prioritizing actions in the emergency department on the other. In the nurse’s experience of everyday practice, it was meaningful to ensure vacant beds, thereby creating patient flow. Screening for pressure ulcers was perceived as a barrier to the collective achievement of patient flow. The screening protocol was seen as a flow stop:

“One of the new nurses was reprimanded by an experienced colleague as she went to screen a newly arrived patient for pressure ulcers. According to the quality standards, all newly arrived patients must be screened
within the first 24 hours. There are journal audits performed every month on pressure ulcer screening. I wonder why the experienced nurse instructed this nurse not to prioritize this action, but instead to send home the patient in room 10 …” (Field notes – 2011).”

A flow stop is an action that, despite its execution, has no influence on how quickly the patients move through the unit. Such an action becomes a flow stop because nurses spend time on it at the expense of maintaining an overview and securing vacant beds, thereby increasing the risk of losing patient flow.

Through their colleagues’ and the management’s implicit and explicit discursive and physical corrections and through the mediation of artefacts, the researcher and the other newcomers were taught not to prioritize these flow-stopping actions.

Figure 2. The flow culture model.
Leading activity

The nurses in the emergency department learned over time that the most useful actions were those that secured vacant beds, thus ensuring a constant patient flow. These priorities were instilled through movements in the physical space, implicit and explicit acknowledgements, and direct instruction from colleagues, management’s behaviour and mediating artefacts. The ability to ensure flow became a sign of the nurses’ professionalism among other health care professionals and management; therefore, professionalism became the nurses’ motive for giving priority to these actions. Being professional in a flow culture not only had a collective meaning, but also gained personal meaning for the nurse and her own experience of her professional identity through which these actions became the leading activity. The model of flow culture is illustrated in Fig. 2.

Discussion

This study set out to explore how the organizational culture in an emergency department shapes the behavior of nurses regarding the implementation of research evidence in daily practice. We applied CHAT which proposes that an activity system is the most appropriate unit of analysis (11). Thus, this theory provides an alternative perspective to much implementation science which typically explains the research–practice gap with reference to various individual health professional barriers and/or difficulties in the process of translating research evidence into more accessible terms to enable its use in clinical practice. CHAT asks some different questions and focuses on how things came to be as they are. CHAT also complements existing frameworks and models that address the context of implementation (5, 6, 7) by directing attention to the materiality and its importance through the mediation of artifacts and how artifacts are conferred contextual knowledge by the practitioners. This knowledge is significant in terms of facilitating or hindering implementation.

The results showed that patient flow and management of acute medical conditions assumed a high priority for the nurses in the hectic and crowded emergency department environment. We believe that the concept of flow culture provides an understanding of how the culture in this environment shapes the behaviour of the health care providers and influences the implementation processes. The empirical and analytical data suggest that nurses’ implementation or exclusion of evidence-based practices largely depends on whether they support the flow culture or not. The flow culture was mediated by artefacts where the objective of the nursing staff was primarily to secure free beds, thus achieving a flow of patients. In the flow culture, nurses prioritized actions guided by what Leontiev (14) calls the leading activity, namely the maintenance of a continuous patient flow. The need for ensuring vacant beds turned out to be a common object (15). The maintenance of patient flow was important to physicians who were concerned about returning promptly to their specialist wards. For the medical secretaries, the maintenance of the patient flow was equally important because flow stops delayed their work processes which ultimately increased their workload. Although flow cul-
ture originated in the context of the emergency department, the actions of both doctors and medical secretaries extended further into the hospital which indicates that the flow culture can be seen as part of a constellation of two or more activity systems that have a partially shared object (18).

The motive of a common object (15) was not clear in the data for all professions. The nurses’ motive for securing vacant beds was to be recognized as professionals within the emergency department. This recognition was of personal importance to each individual nurse and her experience of professional identity. This motive proved particularly true in situations where it was not possible to create a continuous flow of patients, and in such cases, some nurses were emotionally affected. Their feelings were affected by the other professionals, but also as a result of internal pressure. In the midst of competing motives, actions such as attending to the mobilization of the patients and the screening for pressure ulcers were given a lower priority. This way, the flow culture provides a framework for nursing care in the emergency department. This means that nursing skills such as having an overview to free up beds to secure flow gets much attention. However, the study suggests that the flow culture does not provide much room for more fundamental nursing tasks such as mobilizing the patients. When the object (goal) for nursing in the emergency department is both to secure the patient flow and to perform holistic care, this creates a contradiction that might have implications for the quality of patient care. Research has shown that work in emergency departments tends to be rapid, short, and featuring standardized encounters, with limited scope to provide individualized care. Holistic care is often under pressure from other demands in the emergency department (27). In line with such findings, we also observed that nursing care was largely standardized, rather than individualized or holistic. The flow culture concept underlines the fact that the implementation of evidence-based practices is greatly influenced by collective activity. Also, the field of implementation science do not pay much attention to the factors of physical space movement and the use of materiality, but our study shows that these factors are importance to either the enhancement or the impediment of the implementation. The findings thus lend credence to the suggestions made by other researchers (5, 7) that explanations to the research–practice gap should not be merely sought at the individual health care provider level or by investigating difficulties associated with the process of translating research-based knowledge into practice.

Limitations

Due to the fact that the ethnographic knowledge developed in this study depended on the position established by the researcher during his fieldwork, this knowledge will always be situated, positioned, and partial. Therefore, the fieldwork cannot fulfil the demand for reliability which is derived from reproducibility (28). However, the fieldwork provided opportunities to cross-check information and validate interpretations. The internal validity is strong due to the in-depth knowledge gained in the fieldwork and interviews. This approach gives rise to cohesiveness between scientific themes and the empirical reality (19). Similar work will be needed to determine the transferabili-
The strength of ethnographic field work lies in the way it is carried out. The researcher aimed to follow the field’s activities to obtain nuanced observations and thereby gain access to everyday life knowledge (29). Discussions between the two authors were used to improve the credibility of the study. Multiple readings and a continuous return to the field and the interviews served as a follow-up to previous observations and statements. The empirical themes and theoretical framework were discussed with a supervisor.

**Conclusion**

We found that a flow culture among nurses in an emergency department leads to a strong focus on securing vacant patient beds which affects the nurses’ use of research in everyday clinical practice. The concept of flow culture can enhance the understanding of how local culture works for or against the use of research and how research use may create patient flow stoppers that result in tensions. This study contributes to the implementation science literature on local culture and context, increasing our understanding of the priorities and actions in relation to the use of research evidence in clinical practice.

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