ORIGINAL ARTICLE

Barriers and facilitators for implementing a new screening tool in an emergency department: A qualitative study applying the Theoretical Domains Framework

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Aim. The aim was to identify the factors that were perceived as most important as facilitators or barriers to the introduction and intended use of a new tool in the emergency department among nurses and a geriatric team.

Background. A high incidence of functional decline after hospitalisation for acute medical illness has been shown in the oldest patients and those who are physically frail. In Denmark, more than 35% of older medical patients acutely admitted to the emergency department are readmitted within 90 days after discharge. A new screening tool for use in the emergency department aiming to identify patients at particularly high risk of functional decline and readmission was developed.

Design. Qualitative study based on semistructured interviews with nurses and a geriatric team in the emergency department and semistructured single interviews with their managers.

Methods. The Theoretical Domains Framework guided data collection and analysis. Content analysis was performed whereby new themes and themes already existing within each domain were described.

Results. Six predominant domains were identified: (1) professional role and identity; (2) beliefs about consequences; (3) goals; (4) knowledge; (5) optimism and (6) environmental context and resources. The content analysis identified three themes, each containing two subthemes. The themes were professional role and identity, beliefs about consequences and preconditions for a successful implementation.

Conclusions. Two different cultures were identified in the emergency department. These cultures applied to different professional roles and identity, different actions and sense making and identified how barriers and facilitators linked to the new screening tool were perceived.

Relevance for clinical practice. The results show that different cultures exist in the same local context and influence the perception of barriers and facilitators dif-

What does this paper contribute to the wider global community?

- Culture forms professional role and identity, actions and sense making and provides different ways to perceive barriers and facilitators linked to new screening tools.
- This emphasises the importance of understanding the local culture before any implementation strategy linked to screening tools is planned.
- As researchers, we have to understand how new tools makes sense in a cultural context before planning any implementation strategies.

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ferently. These cultures must be identified and addressed when implementation is planned.

Introduction

Admission to hospital imposes a risk of functional decline after hospitalisation for acute medical illness (Sager *et al.* 1996, Boyd *et al.* 2005); the oldest patients and those who are physically frail are at particularly high risk (Covinsky *et al.* 2003). Low functional baseline status is associated with further functional decline and increased mortality rates after acute illness and hospitalisation (Mudge *et al.* 2010). Functional decline may lead to functional limitations (Brown & Flood 2013) and unplanned readmission to hospital shortly after discharge (Lamdrum & Weinrich 2006), but establishing the root cause of emergency department (ED) hospitalisations soon after hospital discharge is difficult (Suffoletto *et al.* 2014). In line with other western countries, in Denmark more than 35% of older medical patients who are acutely admitted to the ED are readmitted within 90 days after discharge (Jencks *et al.* 2009, Bjorvatn 2013). Readmission of older frail medical patients affects not only the patient and their families but is also a strain on society because of the costs related to readmission (Kamp & Hvid 2012).

Screening tools aiming to identify older patients at risk of readmission have been developed to identify functional decline (Meldon *et al.* 2003, McCusker *et al.* 2007), but they have been shown to be suboptimal in predicting unplanned readmission in older hospitalised patients (Braes *et al.* 2010, Carpenter *et al.* 2015). The effectiveness of screening tools depends on features such as sensitivity, specificity and whether the tool actually predicts what it is supposed to measure (Streiner & Norman 2003). Their effectiveness is also influenced by their implementation (Durlak & DuPre 2008).

Implementation of screening tools in ED settings would make it possible to target older medical patients. However, studies have revealed that insufficient resources, lack of understanding about the distinction between screening and assessment tools and perceptions of the tools as superficial and poorly adapted to the local context may constitute barriers to successfully implementing screening tools (McCusker *et al.* 1999, Meldon *et al.* 2003). Studies have also identified barriers associated with implementation of new practices in ED settings, e.g. time pressure, competing demands, lack of resources and knowledge and perceived irrelevance of screening in this critical care environment (McCusker *et al.* 2007, Asomaning & Loftus 2014, Tavender *et al.* 2014). EDs are characterised by high levels of stress and unpredictability (Creswick *et al.* 2009), with a strong focus on patient flow (Popovich *et al.* 2012, Baker *et al.* 2013). A previous study by two of the authors of this study showed that a 'flow culture' among the staff in the ED may also provide an important barrier to the use of screening tools that do not support the flow of patients (Kirk & Nilsen 2015).

The aim of this study was to identify the factors that were perceived as most important to facilitate or hinder the introduction and intended use of a new screening tool in an ED among nurses and a geriatric team that undertakes geriatric assessments. The tool was developed to predict readmission and functional decline in older medical patients acutely admitted to an ED in Denmark. The study was based on interviews with the nurses, the geriatric team and their managers in the ED. We applied the Theoretical Domains Framework (TDF) (Michie 2005, Cane *et al.* 2012) to categorise the factors that affected the use of the new screening tool.

Methods

Study design

The study is a qualitative study. We used a barrier screening framework, semistructured individual and focus group interviews were performed and content analysis applied.

The study applied the TDF (Michie *et al.* 2011), which has been widely used to assess barriers and facilitators for implementation problems (Mazza *et al.* 2013, Murphy *et al.* 2014, Tavender *et al.* 2014, French *et al.* 2012) as well as professional and other health-related behaviours as a basis for the development of interventions (Cane *et al.* 2012). The TDF consists of 14 theoretical domains (groups of constructs from theories of behaviour change) (Table 1) and can be used to explore influencing factors and to design new interventions. Each of the 14 domains in the TDF is constructed on the basis of a synthesis of 128 constructs found in 33 behaviour change theories. The TDF provides

Table 1 The Theoretical Domains Framework (TDF) (Cane *et al.* 2012)

Domains	Examples of interview questions for focus groups according to the TDF
Knowledge	Have you heard about the screening tool?
Skills	Do you believe you have the skills to perform the screening?
Professional role and identity	How would the screening tool fit into your respective disciplines/professional skills?
Beliefs about capabilities	Would it be easy or difficult for you to perform the screening? Why?
Optimism	To what degree do you think the screening will be performed by you?
Beliefs about consequences	What are the advantages and disadvantages of performing the screening?
Memory, attention and decision processes	Are there any particular reasons to decide *not* to perform the screening?
Environmental context and resources	To what degree do resources and physical context influence your performance of the screening?
Social influences	To what extend are you influenced by *if* your colleagues perform the screening or not?
Emotion	Are there any emotional factors (e.g. stress) that can potentially influence if screening is done?
Behavioural regulation	Is there anything that could help you and your colleagues to focus on this screening task? (e.g. organisational or workflow procedures)
Goals	To what degree do you wish to perform the screening?

a method for theoretically assessing barriers and facilitators to implementation, as well as professional and other health-related behaviours, at an individual level. It is also useful for identification of suitable theories to further investigate behaviours (Michie *et al.* 2007, Francis *et al.* 2014). The TDF has been validated to confirm the optimal domain structure, content and labels (Cane *et al.* 2012).

Study setting

The study was conducted in Denmark, where the public healthcare system provides feeless, tax-paid treatment for primary medical care, hospitals and home-care services uniformly for all citizens.

The study was carried out in the medical section of the ED in a 750-bed Danish university hospital in 2013. The ED had 70 employees, primarily registered nurses and medical secretaries, and included 30 medical beds and 10 rooms for injuries. In 2013, approximately 53,000 patients came through the department. On average, 39% of the older (+65 years) patients in the medical ED were discharged within 24 hours (Hermansen *et al.* 2015). Physicians from different medical departments came to the ED on a daily basis to make clinical decisions for relevant patients, including treatment plans and plans for discharge or further admission to one of the speciality wards. The management in the ED consisted of a ward manager, a head nurse and a senior consultant.

General screening of patients was performed by nurses working in the ED and a geriatric team, which had previously worked in the geriatric department. Geriatric assessments have been found to increase patients' chance of survival and the opportunity to remain in their own home (Ellis *et al.* 2011), which suggests that the geriatric team

should handle the new screening. On the other hand, screening patients, e.g. for pressure ulcers or nutrition in the ED, is an integral part of the everyday tasks for the ED nurses. This suggests that the nurses should handle the new screening. The geriatric team attends to newly admitted older medical patients and patients in an outpatient clinic. They also supervise healthcare professionals in wards around the hospital and make home visits. At the time of the study, the team consisted of a nurse, two physiotherapist, a secretary and two senior consultants (one of whom was the team manager).

Participants and procedure

The geriatric team, with the exception of the team manager, participated in one focus group interview. The nurse was unable to participate on the day of the interview and was invited to an individual interview a few days later. Data from both interviews were analysed as a whole. Eight ED nurses participated in two focus group interviews (four in each group): seven female and one male. To ensure participation, the nurses were asked and selected for interviews by their ward manager and the interviews took place early on a morning shift. The inclusion criteria for the nurses were newly qualified or experienced, young or older and male or female.

To reveal expectations and perceived barriers and facilitators linked to the practitioners and the context, a qualitative approach using single and focus group interviews was chosen (Kvale og Brikmann 2009). These methods are suitable for producing in-depth data on a particular phenomenon or topic. Focus group interviews are particularly suitable to generate data on social groups' interaction, interpretations and norms (Halkier 2010). To ensure that

the nurses and the geriatric team felt free to talk we chose not to include their managers in the focus group interviews. Instead all five managers (head nurse, two ward managers, geriatric team manager and senior consultant manager) were interviewed separately. Before the interviews, the participants were informed of the confidentiality of their contribution that participation was voluntary and they could withdraw at any time during the interview. Due to the nurses' busy schedule it was difficult for them to participate in the interviews. Furthermore, for practical reasons the interviews were performed in the ED department at seven o'clock in the morning.

The screening tool

A screening tool was developed to predict readmission and functional decline in all older medical patients >65 years acutely admitted to the ED. The tool consisted of three validated elements: biomarkers (C-reactive protein and soluble urokinase-type plasminogen activator receptor) (Haupt *et al.* 2012); three questions examining (1) help at home, (2) how often the patient leave their home within a week and (3) whether the patients had been hospitalised within the last six months; and examination of habitual gait speed with a 4-m walking test. The biomarkers are a new element in addition to commonly used physical and social measures (McCusker *et al.* 1999, Meldon *et al.* 2003). If the patients' score indicates that they are at risk of readmission or functional decline, the municipality will be contacted and further supporting interventions will be initiated in their local context.

Data collection

The three focus group interviews and five semistructured interviews were conducted from June 2013–September 2013. The focus group interviews were facilitated by one researcher (HVP). They were conducted in an office in the ED and lasted between 1·5–2 hours. DS and JK functioned as observers, providing feedback to the facilitator and observing interactions in the focus groups. The individual interviews were held in the managers' offices and facilitated by DS and HP. The semistructured interview guide was developed by three researchers (JK, HVP and DS) based on the TDF. The interview questions were designed to explore the specific content of the domains from the TDF in relation to implementation barriers or facilitators in the ED (Table 1). The interviews were audiotaped and transcribed verbatim by DS. The transcripts of the interviews were assigned date and code numbers to allow tracking and development of the coding framework.

Data analysis

Data were analysed using an iterative and step-wise process. The TDF was used as a coding framework in the analysis. First, all researchers performed a deductive thematic analysis based on the 14 domains; they reviewed and open coded the transcripts of the first two interviews separately. Second, they discussed and agreed on the coding. This process created opportunities for clarifying and reaching a common understanding of the domains, and selecting meaning units belonging within each domain. When meaning units were relevant to more than one domain, they were cross-indexed. This process strengthened the credibility of the analysis and was used for the rest of the interviews. Third, the six most predominant domains of importance for implementation of the screening tools were identified. Domains were considered predominant if the themes related to the domain were mentioned frequently and were deemed to be of high importance by the participants (Table 2). In total, 789 meaning units were distributed across the 14 domains; 71% of these meaning units ($n = 559$) belonged to the 6 predominant domains.

Representative samples of quotations were identified to illustrate each predominant domain and translated from Danish to English. Each domain in the TDF represents a broad theoretical foundation, and to sharpen the empirical understanding for the data in the six predominant domains, we chose to conduct a conventional content analysis (Hsieh & Shannon 2005). In the content analyses meaning units within each of the six predominant domains were identified. New themes and themes already existing within each domain were described.

Table 2 Meaning units across the 14 domains

Domains	n (%)
Professional role	124 (15·7)
Environmental and resources	120 (15·2)
Beliefs about consequences	116 (14·7)
Optimism	98 (12·4)
Knowledge	60 (7·6)
Goal	58 (7·4)
Reinforcement	39 (4·9)
Social influence	38 (4·8)
Capabilities	29 (3·7)
Skills	27 (3·4)
Emotions	25 (3·2)
Behavioral regulation	24 (3·0)
Memory/attention	20 (2·5)
Intentions	11 (1·4)

Ethical considerations

The Helsinki Declaration was followed and before beginning the study, all the practitioners in the sample gave their consent to participate in the focus group and the interviews. The study was approved by the head of the department. According to Danish law, formal ethical approval is not required for studies not involving biomedical issues.

Results

We identified six predominant domains: (1) professional role and identity; (2) beliefs about consequences; (3) goals; (4) knowledge; (5) optimism and (6) environmental context and resources. Three themes emerged from the content analysis of fragments and statements within these six domains, each theme containing two subthemes. The themes were professional role and identity (expert culture and professional boundaries), beliefs about consequences (time and threat to professional identity) and preconditions for a successful implementation (meaning and making sense and leadership and resources).

Professional role and identity

Expert culture

The analysis revealed two different professional identities and roles at the ED: nurses and the geriatric team, respectively. Although they were taking care of the same older medical patients, their approach to the patients differed. The ED nurses perceived themselves as experts in observations of vital parameters and their main focus was acute treatment of all patients regardless of diseases and comorbidities. Although the ED nurses considered the new screening tool for readmission relevant to older medical patients in general, when asked directly, they did not believe it would benefit their daily work, and consequently they did not picture the tool as a part of their daily routines:

Well … there are so many things, which take time from something much more important in the acute situation. People must be able to breath and their cardio infarct must be taken care of. Things like that. (nurse)

Both the ED nurses and their managers acknowledged that it was very difficult to make ED nurses prioritise something they did not find of importance to their practice:

When it comes to both nutritional screening and such a screening test, the most difficult place for implementation would be an emergency department. It would be the most difficult place. (leader)

The geriatric team described how they were working closely together helping each other with different tasks during the day. The geriatric team collectively defined what constituted their professional identity and role, namely as geriatric experts with a comprehensive and thorough approach to older medical patients. They expressed a strong group identity and were very knowledgeable and respectful about each other's professional competences:

We are a highly specialised team, on equal terms with other specialised teams. (geriatric team)

When discussing the new tool, all members of the geriatric team were ambiguous about whether implementation of the tool would support their professional identity and expert role. On the one hand, they agreed that the tool would be too superficial for their use as experts and therefore would not support or add any value to their professional identity and expert role. On the other hand, they had a reputation within the organisation as loyal, dedicated and enthusiastic; in particular, they were enthusiastic in relation to new projects. From that perspective, implementation of the tool would support their professional identity and they expected the latter to influence their approach to the implementation in a positive manner:

If we are told to, we will do it. (geriatric team)

If the geriatric team agreed to perform the screening, it would support and consolidate their professional identity as loyal, dedicated and enthusiastic, which in return would facilitate implementation of the tool. However, they clearly expressed that they would only perform the tool as a part of a project, not as a daily routine from a long-term perspective.

Professional boundaries

Both groups had professional boundaries with regard to what their work should involve. The geriatric team and the ED nurses strongly emphasised which tasks they considered acceptable within their role from a professional perspective. These professional boundaries influenced their expectations on whether implementation of the screening tool would be successful or not. One nurse from the ED said:

The screening will always have less priority than our core features. Consequently, the screening will never be performed. (nurse)

Before this study, a risk assessment screening tool, the (Modified) Early Warning Score (MEWS) (Subbe *et al.* 2001), had previously successfully been implemented by the ED nurses. Implementation of other screening tools for detection of, e.g. nutritional problems and pressure ulcers,

had been attempted in the ED with little success. The ED nurses described how the tools did not belong within their daily practice and did not fit into their professional role, working with acute patients and maintaining the flow of patients. Consequently, they did not prioritise them. The managers were not only aware of this but also expressed their agreement. The managers were not optimistic about a successful implantation of the new screening tool among the ED nurses. The ED nurses considered the screening tool relevant to the geriatric team, who they knew already assessed functional level as part of their daily tasks:

The physiotherapists are here anyway. They are obvious candidates to perform the test. And you can be sure it will be done. (nurse)

The geriatric team regarded the tool as too simple and superficial to their roles as experts and thought it could be performed by a student after a little training. They believed the new screening tool would be waste of their competences and consequently of their time. Thereby, their expert role and professional identity became a barrier to successful implementation of the new tool.

The geriatric team considered the screening tool to be much more relevant for the ED nurses and their daily practice:

The most obvious would be if the nurses performed the screening. After all they are the ones who get patients out of bed. (geriatric team)

Neither the geriatric team nor the ED nurses considered the tool as part of their professional role. Both groups found the screening tool more relevant to the other group.

Beliefs about consequences

Time

The geriatric team knew from experience that each interaction with an older medical patient, no matter how small or simple it may seem, could potentially result in a number of new time-consuming tasks, e.g. helping the patient to the toilet, getting the patient something to eat or drink or calming down an anxious patient. These were tasks they felt they could not ignore as professionals. Therefore, no matter how simple and easy the tool may seem on paper, it included even more contact with patients and could potentially be a challenge in their daily work in relation to time:

It will be time consuming because we have to act on information from the patient. (geriatric team)

Time or rather lack of time became an important factor for the geriatric team's beliefs about the consequences of implementing the screening tool as part of their daily work. They expected the tasks imposed on them as a consequence of performing the tool would be time consuming, which would mean less time for their expert actions, such as other and more comprehensive geriatric assessments. From this perspective, lack of time created by the tool was perceived as a barrier to implementation. It was clearly stated that if they performed the screening, it would be a requirement that the manager would help them prioritise which tasks not to perform. The ED nurses did not consider time or lack of time a problem, simply because they did not expect to perform the screening.

Threat to professional identity

The geriatric team expressed a strong professional identity and took pride in what they were doing. They expected the tool would be very time consuming and not leave time for more important expert tasks, so the tool became a threat to their professional identity. Several members of the geriatric team worried that implementation of the tool would affect the pride and joy they took in their job, and consequently would make them want to quit working in the ED:

I am afraid the screening will take all my time. As I said, I will be distressed by doing nothing but screening when I am at work. If that was the case, I don't think it would be long before I found myself another job. (geriatric team)

The nurses in the ED did not give much thought to the consequences of implementing the screening tool. They were convinced that the tool would never be a priority in a busy ED and thus not implemented as part of their daily routines. Thus, the nurses did not see the screening as a threat to their professional identity.

Preconditions for successful implementation

To believe in successful implementation of the tool (the goal), informants from both groups put forward various conditions, specific to their respective professional roles and identity. These conditions related to environmental contexts and resources and beliefs about consequences. The preconditions arose from experiences, knowledge, habits, feelings and expectations, and related to whether the tool would make sense to them and to the organisational conditions that they regarded as mandatory before they could start believing in a successful implementation.

Meaning and making sense

Meaning and making sense of the tool appeared to be important in relation to implementation and were referred

to by all informants. In order for the tool to make sense, it had to be agreeable with their respective professional roles and identity. The ED nurses had experienced that other tools did not facilitate or improve communication with municipality healthcare. Improved communication was much wanted by the ED nurses and they were slightly more open to the idea of using the screening tool if it turned out to be useable for this purpose:

It would be great if the screening tool could act as a common language and be used for communication with the municipality health care. (nurse)

Also it was important for the ED nurses to make sense of the screening so that the municipality nurses actually used the results in caring for patients after discharge from hospital:

The screening must have some consequence in the municipality. Otherwise it does not make sense. (nurse)

The tool would make sense for the geriatric team if it provided them with new information about the patient, or if the screening tool could actually identify older medical patients at risk of readmission and functional decline. It was important, especially to the doctors in the geriatric team, that there was evidence of the predictive value of the tool.

Leadership

Leadership and resources were perceived as important organisational preconditions for a successful implementation. A number of specific conditions were agreed by the geriatric team, the ED nurses and their managers. Leadership was important. The tool had to be a priority from managers because implementation of the tool would mean less time for other tasks:

Our managers must take responsibility and demand the screening. They must decide which task not to prioritise. (nurse)

Resources

Because of the expectation of less time for other daily actions, it was suggested that more resources and more staff should be available. Several suggested that one key person, hired specifically for this job, should be responsible for the screening on a daily basis:

It will promote the implementation further if one person is available and takes on the responsibility for the implementation. (nurse)

The ED nurses had experienced that implementation of guidelines and screening tools often failed when they had to include them in their daily practice with the same resources; the screening tool for vital measurements was an exception; this was successfully implemented:

MEWS is implemented 100% because it is a screening that supports the nursing staff in acute treatment of the patients. (leader)

The nurses collectively agreed that MEWS was implemented in their daily practice because the screening supports acute treatment of the patients for both doctors and nurses and helps to maintain flow.

Discussion

This study applied the TDF to categorise barriers and facilitators for implementation of a new screening tool for older medical patients in a Danish ED. Three themes emerged from the content analysis of meaning units within six TDF domains: professional role and identity; beliefs about consequences and preconditions for a successful implementation.

The ED nurses and geriatric team highlighted several conditions for implementation that were linked to the environmental context and resources. These conditions were particularly related to resources, such as having more staff and key personnel, but they were also related to strong leadership. Previous studies have identified inadequate support from managers as a barrier to implementation of research (Fixsen *et al.* 2005) and management as an important facilitator for implementation (Greenhalgh *et al.* 2004). The implementation literature emphasises that it is important to create a positive climate for implementation (Nilsen 2010), e.g. by making sure that the managers demand and support the implementation. In our study, context was not only related to more resources but also to professional role and identity, which were identified as key barriers for implementation of the new tool. Tavender *et al.* (2014) and Alexander *et al.* (2014) highlight professional role and identity as factors influencing implementation. Cane *et al.* (2012) define professional role and identity as 'a coherent set of behaviours and displayed personal qualities of an individual in social or work setting'. The concept of context is widely recognised as an important factor for implementation (Kent & McCormack 2010) and numerous implementation studies highlight both context and culture as core concepts (McCormack *et al.* 2002, Rycroft-Malone *et al.* 2004, Cummings *et al.* 2007, Rycroft-Malone 2010, Stevens & Shojania 2011, Weiner *et al.* 2011, Aarons *et al.* 2012, Janssen *et al.* 2012, Gibson *et al.* 2015).

A few years before this study, the geriatric team was part of a geriatric department where the culture was based on a holistic patient perspective. This implied thorough and

sometimes time-consuming care and treatment of patients, including performing comprehensive screening tools. Treating patients from this perspective established a culture and identity among the practitioners, which was evident in our results in that the geriatric team considered themselves as experts on older medical patients. Scott-Findlay and Golden-Biddle (2005) showed that organisational culture affects practitioners' research use. The most valued activities are those happening within the context of the practitioners' responsibilities. For the geriatric team it means that screening tools that they do not perceive as comprehensive and as a support to their professional responsibilities were perceived as a barrier. This was apparent when they described how they also had a thorough approach in the ED and performed comprehensive screenings on a selected group of patients as they had always done. In that way, professional role and identity are linked to culture and the geriatric team represented an expert culture, which can be understood as learned cultural patterns of meaning and motives (Hasse 2011).

Loyally performing top-down tasks were something the geriatric team was known for in the organisation. When the geriatric team was positive towards implementing the new tool, it could be understood as a sign of their professional role and identity because it would mediate their reputation as a group performing together and being loyal to top-down decisions. This reputation becomes both a positive reward system influencing the geriatric team's behavior and thereby a facilitator for implementation of the tool (Michie 2005).

Much like the geriatric team, the ED nurses also considered themselves as experts, but this expertise related to acute treatments and maintaining the flow of patients in and out of the ED. Whether a screening tool would be implemented or not was strongly influenced by this expertise. This finding is consistent with studies highlighting EDs as a setting where the practitioners have to focus on patient flow (McClelland 2014, Nugus *et al.* 2014). In a previous study, we identified an ED flow culture, such that guidelines and screenings that did not support a continuous flow of patients were perceived as 'flow-stoppers' by the nurses in the ED; maintaining the flow became a sign of professionalism (Kirk & Nilsen 2016).

Within implementation science, it is often described that a specific context holds one culture, understood as what is shared among people, in this context (Parmelli *et al.* 2011). Thus, we expected to find just one culture in the ED, considering the fact that the geriatric team and the ED nurses worked in the same physical setting and took care of the same group of medical patients. Our results lead more

towards the anthropological criticism directed against the perceived culture as something that is shared among all people in a specific context in a harmonised approach (Hasse 2011). Within that background, the two perspectives of what constitutes professionalism, i.e. expert and flow culture, are an interesting result. The two professional cultures contrasted and our results suggest that the geriatric team and the ED nurses attached different meanings and sense to the new tool. This is important in relation to understanding the perceived barriers and facilitators concerning the implementation of the tool. When new routines are implemented, different factors either facilitate or create barriers to the routine (Murphy *et al.* 2014). Our results show that the influence of different factors depends on which practitioners perform the routine. These findings are supported by Yano (2008) who points out the importance of local knowledge, which is often considered marginal in comparison with objectified universal knowledge, but is an essential part of implementation processes.

We identified professional boundaries that were considered barriers to implementation of the screening tool. The screening tool challenged the two groups in different ways, but common for the ED nurses and the geriatric team was that the tool was not aligned with their respective culture and professional identity, meaning that they setup boundaries to secure their work practices. Santos and Eisenhardt (2005) suggest that boundaries serve an organisational purpose; demarcating power in decision making in specific fields of action ensures a sphere of influence. One way to understand these boundaries in our study is that the new tool created change and became a threat in everyday practices. Particularly the geriatric team imagined how the new tool could affect their relative power, their resources and identities. This is in line with other studies (e.g. Lawler & Bilson 2004) suggesting that practitioners in social work tend to resist change when the change is seen as a threat to their professional practice, status or identity. The ED nurses ensured a sphere of influence by autonomously including and excluding guidelines and screening tools depending on whether they secured flow or not.

We identified time as a barrier to implementation of the new screening tool. Insufficient time tends to be a common barrier to successful implementation (Ellen *et al.* 2013, Grant *et al.* 2013), but studies do not always provide an explanation for why this is the case. Much implementation barrier research implies that 'more time' will facilitate implementation, but this is not necessarily the case (Nilsen 2015). Our study shows that, even though the healthcare professionals talk about lack of time, it is rather spending time on tasks that do not support their professional role

than time as a resource in itself that is important to implementation. Spending time on a screening tool that the geriatric team perceived as superficial and manageable by anyone became a threat to their professional role and identity because it failed to signal a high level of expertise. The professional role and identity determined how the practitioners prioritise their time and cultural learning (Hasse 2011).

Strengths and limitations

The strengths of the study relate to the use of a validated theoretical framework, developed especially for assessment of barriers and facilitators for implementation. This approach provides an opportunity to choose theoretically informed implementation solutions (Rothman 2004). Other strengths of the study were the use of comprehensive deductive analysis based on the TDF in combination with content analysis (Hsieh & Shannon 2005). To prevent researcher bias, we used triangulating analysis whereby three researchers both independently and interdependently coded, analysed and discussed the results.

A number of limitations of the study must be considered. First, the number of participants in the focus group interviews was limited. We aimed for four interviews with the ED nurses, each with six to eight participants, but due to lack of time and illness only two interviews were setup, each with four participants. However, we did not find any discrepancies in the statements between the two groups.

The generalisability of our findings may be limited because of the special setting of this ED, which has an affiliated geriatric team. On the other hand, there is an international trend towards having geriatric teams affiliated to EDs and other departments (Ellis *et al*. 2011), thus suggesting that our study has a great deal of relevance. The study was conducted in Denmark and the transferability of the findings beyond the context of the Danish healthcare system will require adaption to the local context.

Trustworthiness is attempted by describing the data collection and analysis in details and thereby making our reflexive considerations visible. Credibility is obtained by using a validated theoretical screening tool to guide the data collection and the analysis. We used both focus group and single interviews for the data collection, and for the analysis we used researcher triangulations to secure the credibility. Some limitations may also relate to the methods used in the study. It is possible that the additional use of content analysis after the deductive approach provided too many details while, at the same time, we chose to focus

only on the six most predominant domains. By choosing only 6 out of 14 domains, it is possible that other facilitators or barriers of importance have been overlooked (Nilsen 2015).

Relevance to clinical practice

Although the geriatric team and the ED nurses were physically present in the same context, the study shows that the barriers were embedded in two different cultural practices. Brandi and Hasse (2010) point out that organisational culture is of great importance, not only as an influencing factor behind implementation but also as a learning context within which implementation has to be recognised and realised. Consequently, we need to discuss whether or in what form the new tool should be implemented. If the new tool is going to be implemented, different strategies to target the professional role and identity of the two groups must be developed, if the tool is going to have an impact for older medical patients in the ED.

In this study, we assessed barriers on an individual level, although we are aware that studying barriers on both individual and organisational levels increases the need to plan more tailored interventions (Wensing & Grol 2005) and context-oriented implementation strategies, which are considered a critical element in successful implementation (Damschröder *et al*. 2009). Our results clarify how culture is of importance for healthcare performance. Parmelli *et al*. (2011) identified that research efforts should focus on strengthening the evidence on the effectiveness of methods to change organisational culture to improve healthcare performance. One way to do this is by combining our analysis with a field study in the ED. The use of ethnography as a method to explain complexity is not the most frequently used method in implementation science, but it offers clinical practitioners, researchers and policy makers a way to understand practitioner's perceptions, beliefs, experiences and behaviour (Martin *et al*. 2013) and may facilitate a better understanding of, e.g. how professional role, sense making and culture become a limitation or a facilitator.

As researchers, we have learned that, even though the new screening tool was visible and well known, it is important to understand how the tool makes sense in a cultural practice (Hasse 2011) before planning an implementation strategy.

Conclusions

The results from the TDF and content analysis found not one but two different cultures in the ED. These

cultures form professional role and identity, actions and sense making, and provide different ways to perceive barriers and facilitators linked to the new screening tool, which emphasise the importance of understanding the local culture before any implementation strategy is planned. It is not self-evident that the same tool will suit all professions or groups in the same way.

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Data collection: JK, HP and DS; transcription of interviews: DS; data analysis: JK, HP and DS and manuscript preparation: JK and HP. All authors contributed with ideas to the paper and PN also acts as guarantor. All authors read and approved the final manuscript.

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Conflict of interests

All the authors declare that they have no competing interests.

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