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## Alcohol screening in North Denmark Region hospitals

*Frequency of screening and experiences of health professionals*

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# Alcohol screening in North Denmark Region hospitals: Frequency of screening and experiences of health professionals

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## Abstract

**Background:** Alcohol consumption is a risk factor for disease, disability and death. Approximately 20% of all hospital admissions are alcohol related. In Denmark, hospitalised patients undergo systematic health risk screenings to establish preventive initiatives if the screening detects a risk. The frequency and usability of alcohol screening and health professionals' experiences of the screening is unknown. **Aim:** To examine the frequency and usability of alcohol screening at North Denmark Region hospitals, as well as health professionals' experiences of screening for alcohol.

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**Methods:** This study consisted of an initial audit of 120 patient records from medical and surgical units at four hospitals assessing information on alcohol screening. This was followed by six focus-group interviews with health professionals ( $n = 20$ ) regarding their experiences of conducting alcohol screening. **Results:** Among overall health screenings, screening for alcohol and tobacco smoking was performed most frequently (81.8% and 85%). Alcohol screening scored the lowest percentage for usability (67.7%). Hospital-based alcohol screening was perceived ambiguously leading to a schism between standardised alcohol screening and the individual needs of the patient. Health professionals described different patient types, each with their perceived needs, and screening was associated with taboo and reluctance to engage in alcohol screening of some patient groups. **Conclusion:** This study revealed factors that influence health professionals working with hospital-based alcohol screening. The variation in and complexity of alcohol screening suggests that screening practice is an ambiguous task that needs continuous reflection and development to ensure that health professionals are prepared for the task.

### Keywords

alcohol use, hospital, quantitative methods, qualitative methods, screening

Alcohol consumption ranks among the top five risk factors for disease, disability and death worldwide (World Health Organization, 2014). In Denmark, the average annual alcohol intake is 11.4 litres of pure alcohol per Dane above 15 years of age (World Health Organization, 2014). Danes regularly engage in binge drinking (Sundhedsstyrelsen, 2011), and one in five adults are categorised as high-risk drinkers (Gottlieb Hansen et al., 2011). This increases the risk of injuries and diseases such as brain, liver, heart, and digestive-related disease, as well as various cancers (Jernigan, Monteiro, Room, & Saxena, 2000). Heavy alcohol use results in 28,000 hospital admissions, 10,000 admissions to emergency rooms and 72,000 outpatient visits per year (Juel, Sorensen, & Bronnum-Hansen, 2008). Dated research shows that approximately 20% of all patient admissions to medical and surgical hospital departments are alcohol related (Nielsen, Storgaard, Moesgaard, & Gluud, 1994). Despite this estimate, the majority of patients are not aware of the diseases that are caused by alcohol use (Becker & Tønnesen, 2012), and some Danes express confusion about the harmful effects of alcohol and tend to justify their use of alcohol based on assumed health benefits (Grønkjær,

Curtis, de Crespigny, & Delmar, 2011). This complexity is reinforced by the fact that national recommendations provide information about low-risk use based on alcohol amount, while the social drinking context and alcohol type play an important role in people's legitimisation of their alcohol use, rather than the amount (Grønkjær, Curtis, de Crespigny, & Delmar, 2013).

Research has shown that hospital-based brief intervention, e.g., alcohol screening and professional advice, reduces alcohol consumption and death rates (Bjerregaard, Gerke, Rubak, Host, & Wagner, 2011; Cobain et al., 2011; Holloway et al., 2007; Liu et al., 2011; McQueen, Howe, Allan, Mains, & Hardy, 2011). However, barriers to implementation of screening and intervention initiatives include taboo and lack of training and confidence among health professionals in conducting alcohol screenings and eventual interventions upon detection (Johnson, Jackson, Guillaume, Meier, & Goyder, 2011; Lock, Kaner, Lamont, & Bond, 2002). In 2010 it became mandatory that all hospitalised patients in Denmark should undergo systematic health risk screenings (involving alcohol use, nutrition, tobacco smoking and physical exercise). Hospital-based screening aims to provide patients with relevant intervention or to

establish preventive initiatives if the screening detects a risk (Institut for Kvalitet og Akkreditering i Sundhedsvæsenet, 2012). It is not known to what extent alcohol screening is conducted and whether the information collected during the screening is useful for clinicians in assessing whether the patient is at risk. Seeing that alcohol health promotion is a complex area and that alcohol screening of all hospitalised patients is a fairly new practice, it was considered relevant to examine this further. This study aimed to examine the frequency and usability of alcohol screening at North Denmark Region hospitals, as well as health professionals' experiences of screening for alcohol. The overall aim was to provide a better understanding of alcohol screening in North Denmark Region hospitals.

## Material and methods

This was a multi-method study that used both quantitative (Part I) and qualitative methods (Part II) (Creswell, 2015). The study was conducted in the North Denmark Region using data from three regional hospitals (Himmerland Hospital, North Denmark Regional Hospital – two sites: Thisted and Hjørring) and one University Hospital (Aalborg University Hospital).

### Part I

Part I was a descriptive study conducted as an audit of patient records ( $n = 120$ ). At each of the four hospitals, 30 records from medical and surgical departments were assessed. Patients were identified at random in the electronic patient administrative system. Data included information about the patients' self-reported health behaviour based on systematic health screenings that were conducted upon hospital admission and recorded in the electronic medical record. As per hospital protocol, all hospitalised patients must undergo a systematic health screening. This screening is generally carried out by a registered nurse. The systematic health screenings include information about alcohol use, nutrition, tobacco

smoking and physical exercise. The main focus of this study was alcohol use, yet we included information on the other health risk factors in the analysis for comparison.

In the alcohol screening, patients are asked about their weekly amount of alcohol intake (low-risk levels for alcohol use in Denmark are seven standard drinks – 12 grams of alcohol – for females and 14 for males per week with a maximum of five standard drinks on one occasion). In case the alcohol screening was not conducted or documented in the systematic health screening file, information about the patient's alcohol use was searched for in the medical record. Upon detection of screening, the usability of the screening was considered. In this study, usability refers to whether the information provided in the health screening was useful for clinicians (i.e., specific details on standard drinks per week, etc.). Data were collected consecutively among all medical and surgical patients in September 2013. The audit of the medical records was performed by the health coordinator from each of the participating hospitals. Data were analysed using SPSS Statistics (Version 19.00).

### Part II

Part II was a qualitative study that investigated health professionals' experiences of screening for alcohol. Data were generated via focus-group interviews with registered nurses and medical doctors from the four participating hospitals. A total of six focus groups were conducted ( $n = 20$ ): four groups with registered nurses (one group from each of the participating hospitals) and two groups of medical doctors (one from Himmerland Hospital and North Denmark Regional Hospital/Thisted) (Table 1). The groups were constructed comprising participants from the same profession to ensure homogeneity, yet from a variety of clinical specialties and varying experience to ensure heterogeneity (Barbour, 2005). Further details of the participants are not provided due to anonymity. The participants were recruited by a

**Table 1.** Sample of focus-group participants.

Group	Profession	Number	Hospital	Interview length
	Registered nurses	3	Himmerland Hospital	56.47 minutes
	Medical doctors	3	Himmerland Hospital	51.19 minutes
	Registered nurses	3	Regional Hospital/Thisted	55.23 minutes
	Medical doctors	2	Regional Hospital/Thisted	29.32 minutes
	Registered nurses	4	Regional Hospital/Hjørring	63.35 minutes
	Registered nurses	5	Aalborg University Hospital	60.39 minutes

health coordinator from each of the participating hospitals. We aimed for a group size of four to six participants in each group; however, we received apologies on the day of the scheduled interview leaving a smaller sample. Similarly, we aimed to conduct focus groups of medical doctors from each of the four hospitals, but it was not possible to recruit participants from Aalborg University Hospital and North Denmark Regional Hospital/Hjørring.

To ensure consistency in the focus-group interviews, we developed a semi-structured interview guide. The initial question asked in the focus groups was: “What are your experiences from conducting systematic alcohol screenings?” Data were electronically recorded and analysed using NVivo software. Thematic analysis was performed with the aim of developing themes that reflected the health professionals’ experiences of screening for alcohol. The thematic analysis was an iterative process that involved for steps: (1) familiarisation, (2) identification and coding themes, including within-case and cross-case comparisons, (3) categorisation and (4) interpretation. This involved reading and re-reading the data and coding data into themes including identification and comparison of similarities and differences across the data (Miles & Huberman, 1994).

### Ethical considerations

The study was approved by The North Denmark Region Committee on Health Research Ethics (approval number: 2008–58–0028). The study complied with the ethical principles of medical research described in the Declaration

**Table 2.** Demographic data ( $n = 120$ ).

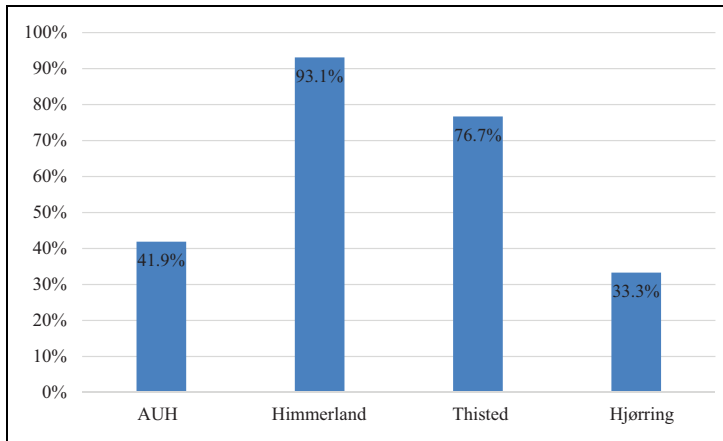
Characteristics	$n$ (%)	Median (SD)
Male	62 (51.7)	
Female	57 (47.5)	
Age (range 16–91 years)		65 (17.7)
Hospital		
Aalborg University Hospital	31	
Himmerland Hospital	29	
Regional Hospital/Thisted	30	
Regional Hospital/Hjørring	30	
Wards		
Respiratory Medicine	16 (13.3)	
Endocrinology	15 (12.5)	
Acute medicine	35 (29.2)	
General medical ward	18 (15.0)	
General surgical ward	36 (30.0)	

of Helsinki (World Medical Association, 2013). The ethical considerations in the qualitative study included anonymity, voluntary participation and informed consent. The names provided in the results section are pseudonyms.

## Results

### Part I

Records from 62 (51.7%) male patients and 57 (47.5%) female patients were included. Age ranged from 16 to 91 years (median 65 years). The majority of patients were admitted to general surgical wards (30%) and acute medicine (29.2%) (Table 2). Systematic health screenings were conducted in 73 (60.8%) of cases. The results reported in Figure 1 display a variety in health screenings between the four hospitals. Himmerland Hospital conducted health



**Figure 1.** The prevalence of systematic health screening (alcohol use, nutrition, tobacco smoking and physical exercise) among the four hospitals

Note. AUH = Aalborg University Hospital.

**Table 3.** Frequencies of health screening.

	Yes n (%)	No n (%)	Usability* n (%)
Alcohol use	99 (81.8)	21 (17.4)	67 (67.7)
Tobacco smoking	102 (85.0)	18 (15.0)	83 (80.6)
Nutrition	93 (77.5)	27 (22.5)	75 (79.8)
Physical exercise	61 (50.8)	59 (49.2)	52 (83.9)

\*Usability refers to whether the information provided in the health screening is useful for clinicians (i.e., specific details on standard drinks per week, etc.).

screenings in 93.1% of cases while North Denmark Regional Hospital/Hjørring conducted them in 33.3% of cases ( $p < 0.001$ , likelihood ratio chi-square test).

Table 3 shows the frequencies of screening for alcohol use, tobacco smoking, nutrition, and physical exercise. Among all hospitals, patients were screened for alcohol use in 81.8% of cases (information from health screenings and medical records). In comparison, 85.1% were screened for tobacco smoking, 77.7% for nutrition and 51.2% for physical exercise. For alcohol, the usability of the screening was 67.7%.

## Part II

From the analysis of focus-group data, three themes emerged: alcohol screening in hospitals

– an ambiguous task; people with alcohol abuse and those “tidy dressed”; and taboo and reluctance to deal with alcohol screening.

*Alcohol screening in hospitals – an ambiguous task.* Health professionals displayed varying experiences regarding conducting systematic alcohol screenings. Although some participants did not perceive health promotion as the core of their job, most considered screening to be relevant for treatment and care and perceived it to be an integrated and mandatory task. However, participants generally found it easier to ask patients questions about nutrition, tobacco smoking and physical exercise as opposed to alcohol. Alcohol screening was perceived ambiguously due to a perceived discrepancy between the mandatory screening and the patient’s situation, i.e., the systematic nature of the screening did not as such consider the complexity of a patient. Moreover, health professionals found screening to be a time-consuming procedure that added to their increasing workload and they lacked time to conduct a thorough and useable screening. Yet, they acknowledged that screening plays an important role in “planting a seed” (Kirsten, RN, FG3), that is, generating reflections among patients in order for them to consider or initiate changes aimed at a healthier lifestyle.

From their experiences, health professionals found that the screening procedure in itself could be an inhibiting factor for a useable outcome. One participant stated that screenings at times were conducted “for the sake of the conversation” (Signe, RN, FG6) indicating it was a mandatory task with questionable usability. This interpretation is supported by another participant who said: “All we have to do is to document [the screening] . . . that we have ticked the box because then it counts” (Kirsten, RN, FG3). This suggests a schism between the screening requirements of hospitalised patients and health professionals’ experiences of the practicality and usability of the screening. Thus, they questioned whether the information elicited would be useful in the patients’ course of hospitalisation. As opposed to this, they highlighted the importance of a good dialogue between patients and health professionals as an alternative to screening using the designated tool. This is illustrated in the following sequence (FG6):

Birte: For me it is actually better when I have the time to do it [screening] differently by not using the screening tool. I have this tool and it is for nutrition, smoking, physical activity, alcohol . . . and we’ll just go through it . . . it is seldom we have the time to collect a really thorough patient history and talk with the patient . . . but when we sit down and talk about their life and their everyday living and slowly we create a good contact to the patients, then I get the information by the “back door” without following the screening tool.

Astrid: Yes, yes, that is much better.

Birte: This is when we have the good talks . . . [ . . . ]

Dialogues with the patients were perceived as beneficial alternatives to the standardised screening tool that some expressed as “platitudes

in their clinical practice” (Astrid, RN, FG6) and which “seemed a bit artificial” (Louise, RN, FG3). On the contrary, conversations with the patients aimed at collecting the patient history, including any health behaviour related matters, were perceived to include the same segments as the standardised questions, but the spontaneity in the conversation made it easier to angle the questions depending on the patient concerned.

*People with alcohol abuse and those “tidy dressed”.* In discussing alcohol screening experiences, participants described different categories of patients. Particularly two categories appeared in the group discussions: people with alcohol abuse and those “tidy dressed”. The first category involved patients with obvious alcohol abuse, i.e., presenting with alcohol-related harm, withdrawal symptoms, etc. The latter were described as “well-functioning patients, with a good job, good social network and families” (Jakob, MD, FG4) and as “articulate and tidy dressed” (Signe, RN, FG6), thus including people whom health professionals suspected to be heavy alcohol users, yet showing no obvious signs of abuse. Health professionals claimed that it was easier to engage with the obvious alcohol abusers than with patients whose alcohol use, although at heavy levels, was invisible. This is elaborated on below (FG6):

Karen: [ . . . ] I actually think that those who have a normal everyday life with family and work . . . those who are not directly hospitalised due to alcohol . . . To me it is those . . . I get nervous with regards to how to and when screening them [ . . . ] “Well, do you drink alcohol below or above the recommended levels? Eh no I don’t”. And then of course you ask them how much they drink and I feel that I’m actually reluctant to deal with it . . . is it this

much or that much, well yes one or two [drinks] a day and then we slip through that question. This is the opposite of... those who are admitted because of their alcohol use. Those who have a really big alcohol intake. So, there are two groups.

Moderator: Yes?

Birte: There are several patient groups... It is actually those who live a normal life who...

Moderator: Yes?

Birte: ... who may have a really big [alcohol] problem.

In this case, Karen was nervous and challenged by screening patients who were living “normal lives”, i.e., people with families and jobs, but whom she suspected were drinking alcohol at heavy levels. In elaborating on these challenges, one participant expressed:

Jacob: [...] it is still not easy to talk to them about their alcohol use. I must admit... no matter the social [status]... those who have had a good job and a high position... it is even more difficult because they have more to lose... (MD, FG4)

This supports the differentiation between people with alcohol abuse and the “tidy dressed”. Participants perceived that the latter have “more to lose” based on the assumption that they, opposed to people with alcohol abuse, may have families, work life, etc. This distinction influenced health professionals’ perceptions of communicating with the patients and it was considered more “easy and natural” to talk to people with obvious alcohol abuse than to those with assumed high social status. From these distinctions, participants stressed that individual considerations were essential for hospital-based health promotion requiring services differentiated to the needs of patients.

*Taboo and reluctance to deal with alcohol screening.* The previous theme highlights reluctance to engage with the group of “invisible” heavy alcohol users and there seem to be barriers for asking questions about alcohol use:

Bente: [...] those who are most difficult for me to deal with are indeed those where I can’t see and that could be a taboo that I may possess, right. And that you have to cross some boundaries by talking to a completely normal man who may have been hospitalised because of a broken leg or because he has other complications of social character or whatever and ask about it [alcohol]... it is the most difficult for me. (RN, FG1)

Participants revealed that screening for alcohol use is influenced by the fact that heavy alcohol use is associated with taboo. This is supported by Erik (MD, FG2) who claimed that “it is associated with taboo to say in social gatherings that I have an alcohol problem as opposed to saying that I smoke”. As a result, health professionals consensually promoted the importance of being able to “read” the patient, as in, to define their perceived patient category. They explained that some patients need clear and direct communication, while others need communication with kid gloves in which “you almost talk in codes while moving around the topic and slowly peeling off the peel to get into the core” (Louise, RN, FG3). Reluctance to engage in alcohol screening was also explained by difficulties in deciding when alcohol use is defined as a drinking problem:

Britt: [...] well what is an alcohol problem? Because the drinking culture has changed over the past ten or fifteen years. For example, when I grew up it was almost looked down upon if we had beers in the house. Today it is almost



normal to have a beer or a glass of wine with dinner.

Louise: Yes.

Britt: So the whole [drinking] culture has changed.

Louise: Yes.

Britt: And when does it shift from . . . I mean to problem . . . from being heavy use [of alcohol] to being a problem in which one cannot stop [drinking]?

Health professionals expressed that it was difficult to define when alcohol use was “normal” or when “you do not talk about it out loud” (Erik, MD, FG2). The discussions on the existing alcohol culture as well as the experiences of taboo and reluctance to engage in alcohol screening also led to debates on health professionals’ own use of alcohol as a factor that influenced their alcohol screening practice. One participant expressed that health promotion activities seem to be complicated by the fact “that too many of us drink a bottle of red wine Friday evening” (Birgitte, RN, FG5). According to this and other participants, their own use of alcohol seemed to influence their work with alcohol screening. Some expressed that habits are difficult to change, but that their work with health screenings had forced them to view and review their own use of alcohol.

## Discussion

This study examined the frequency and usability of alcohol screening and health professionals’ experiences of the screening at North Denmark Region hospitals. The initial review of 120 medical records showed that among the overall systematic health screenings, alcohol screening was performed in 81.8% of the cases, while alcohol screening scored the lowest percentage (67.7%) for usability. This elaborates on a review showing that advice on alcohol use was provided less frequently than other health risk factors such as nutrition, tobacco smoking and physical exercise (Johnson et al., 2011). A

study showed a significant association between nurse-initiated counselling of patients with over-consumption of alcohol and self-rated qualifications (Willaing & Ladelund, 2005). Nurses seemed to avoid the issue of alcohol because of lack of knowledge about effective methods of intervention, which may explain the frequency of alcohol screening in hospitals. Nevertheless and consistent with other research (Lock et al., 2002), part II revealed that health professionals perceived alcohol screening as an integrated and mandatory part of their job. In addition, studies have shown that patients are positive about being asked about their use of alcohol (Aalto, Pekuri, & Seppä, 2002; Hutchings et al., 2006; Miller, Thomas, & Mallin, 2006). Yet, part I showed a variety among alcohol screenings in the four participating hospitals and the lowest level of usability. This may be explained by ambiguous perceptions of alcohol screening resulting in a schism between the standardised screening and attention towards the individual needs of the patient. Participants questioned the effect of screening as the standardised nature of the tool tended not to generate reflections among patients. In addition, participants expressed that they lacked time to conduct a thorough and useable screening. This is consistent with other studies showing that staff workloads might limit the extent to which practitioners are able to engage in screening (Babor, Higgins-Birdle, Dauser, Higgins, & Burlison, 2005; Desy & Perhats, 2008).

Previous research has shown that hospital-based brief intervention, e.g., alcohol screening and professional advice, reduces alcohol consumption and death rates (Bjerregaard et al., 2011; Cobain et al., 2011; Holloway et al., 2007; Liu et al., 2011; McQueen et al., 2011). However, the evidence has been critiqued as studies are conducted under ideal circumstances. Thus, it is unlikely that results can be replicated in everyday clinical settings (Gottlieb Hansen, Søgård Nielsen, & Becker, 2014) and the outcome of brief intervention in one clinical setting may not be extrapolated to

other settings (Beich, Gannik, Saelan, & Thorssen, 2007; Heather, 2010). Health professionals in part II considered it easier to screen patients for nutrition, tobacco smoking and physical exercise than for alcohol use. Even though alcohol screening is mandatory for all hospitalised patients (Institut for Kvalitet og Akkreditering i Sundhedsvæsenet, 2012), it was perceived as an ambiguous task predominantly aimed at documentation with questionable usability. This may explain the discrepancy between studies conducted under ideal circumstances and their application to “real life” clinical settings. Thus, the combined quantitative and qualitative findings suggest that alcohol screening in hospitals is influenced by inhibiting factors in conducting a useable screening. In addition, Heather (2004) suggested that brief intervention should be tailor-made to meet the needs of individual patients rather than being standardised across all groups. Thus, it may be relevant to consider whether screening initiatives based on “one size fits all” are advisable as they may not consider the complexity and multifaceted nature of the individual’s needs. Nevertheless, this study reports the perceptions of the health professionals. Although patients have reported positive attitudes to alcohol screening (Hutchings et al., 2006; Miller et al., 2006), it is recommended that future research should include patients’ perceptions for a more comprehensive understanding of hospital-based alcohol screening.

From their experiences, health professionals described different two overall patient types: patients “tidy dressed” with suspected alcohol abuse, and people with obvious alcohol abuse. From the perspectives of Erving Goffman (1959), people with alcohol abuse may be stigmatised and discredited due to their visible alcohol use, while patients with suspected alcohol abuse seemed “protected” by health professionals or tried themselves to hide this stigma, perhaps in order to retain their identity (Goffman, 1959). Studies have shown that patients experience embarrassment or unease while discussing alcohol use with health professionals

(Beich, Gannik, & Malterud, 2002; Johnson et al., 2011; Lock et al., 2002), while others have shown positive attitudes toward screening (Hutchings et al., 2006; Miller et al., 2006) and discussing drinking (Aalto et al., 2002). One study showed that nurses seemed to avoid the issue of alcohol (Willaing & Ladelund, 2005). This may explain health professionals’ experiences of feeling nervous about confronting patients’ suspected heavy use of alcohol. Health professionals seemingly allowed this passing as patients assumedly had more to lose. The reluctance to engage in alcohol screening among patients with assumed high social status is consistent with a systematic review that found that detection rates for drinkers at risk were as low as one in three, possibly due to a reluctance to ask patients about their drinking unless there were clear signs of risky drinking behaviour (Johnson et al., 2011). Thus, the disclosure of the perceived patient types has provided insight into stereotypical perceptions and practical challenges that seem to influence health professionals’ choices to conducting alcohol screening.

Our study showed that alcohol screening is influenced by heavy alcohol use being associated with taboo. Moreover, health professionals found it difficult to identify and articulate the line between alcohol use as a normal part of culture and as a real health problem. Hospital-based alcohol screening aims to reach people with alcohol dependency as well as people with potentially risky alcohol use. Based on the variation in screening practices found in the initial quantitative study and the various experiences from the qualitative study, our findings add to the discussion raised by Gottlieb Hansen et al. (2014) of whether heavy alcohol users with risky alcohol use but not (yet) with developed health problems are the right target group.

The qualitative part of this study suggested that tendencies in alcohol culture and the health professionals’ own use of alcohol may influence hospital-based health promotion. Alcohol is an accepted and expected part of social life in Danish culture (Grønkjær et al., 2011), and

recent research has shown that the proportion of physicians with risky use of alcohol was 19%. Among physicians with risky use, only one in four recognised this as problematic (Sørensen, Pedersen, Bruun, Christensen, & Vedsted, 2015). Another study showed that among nurses, 8.2% had consumed five drinks or more on the latest weekday, which is 2.8 times as many compared to the general Danish female population (Friis, Ekholm, & Hundrup, 2005). Thus, the prevalence of alcohol use and cultural norms for drinking are obviously present among health professionals (just as with the general population) in their everyday lives outside the hospital setting, which may to some extent influence the frequency of alcohol screening and other health promotion initiatives further. This accentuates the need for overall preventive measures to reduce alcohol-related disability, morbidity and mortality in a culture in which alcohol is a pivotal element.

Our study showed that alcohol screening is an ambiguous task with variation in frequency and usability. This knowledge is considered relevant for professionals working within clinical health promotion with regards to teaching, learning and professional development. Particularly in Denmark and other countries where binge drinking is similarly widespread (World Health Organization, 2014) it is important to address perceptions of taboo and stereotypical views about certain types of patients. It is also relevant to continuously assess the circumstances for screening, including the screening tools used in a hospital setting, as the current systematic nature of screening use does not seem to consider the complexity and multifaceted nature of the individual patient's needs.

### *Limitations*

This was a multi-method study that used both quantitative and qualitative data to examine the frequency and experiences of hospital-based alcohol screening. The quantitative part was initially designed as a register-based study combining electronic medical records with

electronic health screenings. This was, however, not possible due to limitations in the hospital registries and instead we designed the audit of medical records. Although consisting of a smaller sample, this has provided a snapshot of hospital-based alcohol screening. In the qualitative part, we aimed for five to six participants in each focus group to allow for rich group discussions. Despite their consent, several health professionals had to send their apologies on the day of the interview, which may reflect the time constraints in everyday clinical practice. Nevertheless, the participating health professionals shared their experiences and provided insight into alcohol screening in North Denmark Region hospitals. Although not generalisable to other settings, we have elaborated on other national and international studies indicating that our findings may be transferable.

The use of both quantitative and qualitative data in this multi-method study was aimed at providing a better understanding of alcohol screening in North Denmark Region hospitals. Instead, we could have chosen a convergent mixed-methods research design with the purpose of integrating the data to a larger extent, for example, by comparing or validating the results of the two studies (Creswell, 2015). However, seeing that alcohol health promotion is a complex area and that alcohol screening of all hospitalised patients is a fairly new practice, it was considered relevant to initially examine screening practice from a broader perspective. Future research could consider comparison or validation of the actual screening and health professionals' views on the screening. It is also relevant to examine the patients' perspectives of the screening procedure including their perceptions of the questions posed in the screening. In this study, usability referred to whether the information provided in the health screening was useful for clinicians. From a different perspective, usability could be perceived as the patients' beliefs about their alcohol use, which may be just as useful for a clinician than the number of drinks consumed. This is supported by other research (Grønkjær et al., 2013)

suggesting that the perceived legitimate alcohol consumption levels are associated with the specific drinking context and drinking companions rather than the actual number of standard drinks consumed.

In conclusion, we found that the frequency of systematic health screenings varied between the four hospitals. Among the overall screenings, alcohol and tobacco screening were performed most frequently, but alcohol screening scored the lowest percentage for usability. Alcohol screening was perceived ambiguously leading to a schism between the standardised alcohol screening and the individual needs of the patient. Taboo and reluctance to engage with some patient groups created challenges for conducting the screening. The variation in and complexity of alcohol screening suggests that screening practice is an ambiguous task that needs continuous reflection and development to ensure that health professionals are prepared for the task.

### Ethical approval

The study was approved by The North Denmark Region Committee on Health Research Ethics (approval number: 2008–58–0028). The study complied with the ethical principles of medical research described in the Helsinki Declaration. The ethical considerations in the qualitative study included anonymity, voluntary participation and informed consent.

### Acknowledgements

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### Declaration of conflicting interests

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