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Promoters and barriers in hospital team communication. A focus group study

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Abstract

Purpose: Poor teamwork and communication in healthcare teams have been correlated to adverse events and higher patient morbidity and mortality. However, detailed insight into the link between team communication and medical error is still lacking. The objective of this study is to identify the common characteristics of team communication among multiprofessional teams at four Danish acute care university hospitals.

Method: Four focus group interviews with multiprofessional hospital teams ($N = 24$).

Results: Communication is particularly vulnerable during handover of patient information between shifts or units, when a team has to establish skills and roles during teamwork and when staff has to await and combine information from different chart systems. Established frameworks for communication, mutual knowledge, ease of speaking up, experience in getting the message through, and focus on teamwork and communication promote safe information exchange. Lack of standard assignments and procedures, a flat hierarchy that leaves responsibility unclear, different agendas for the treatment of the patient, interruptions, and multitasking, inhibit safe information exchange.

Conclusion: Power distance, team structure, and hospital organization influence team communication and vary between settings and national cultures. These factors must be accounted for before developing or adapting team communication interventions to improve patient safety.

Keywords: Healthcare services research, Team communication, Focus groups, Hospital, Culture, Patient safety

Introduction

Poor teamwork and communication (for definitions, see Table 1) between healthcare staff has been found to be correlated to adverse events and higher patient morbidity and mortality.[1–3] Especially handover of information during shifts or transfer,[4] different professional languages between staff groups[5] and a steep hierarchy that hinder free speech,[6] have been found to inhibit safe information exchange. Improving both electronic[7] and verbal team communication[8–10] are methods suggested to improve the quality of patient care. However, so far the results have been limited[11] and adverse events related to information exchange remain common, with little evidence of widespread improvement.[12] Further studies of the details of the link between interprofessional communication and medical error[13,14] have been called for in order to develop appropriate interventions.

The objective of this study is to identify the common characteristics of team communication among multiprofessional teams at four [Danish] acute care university hospitals.

Method

The focus group method is used in areas with limited previous knowledge and is well suited for research on group practice, interactions and norms. Like individual interviews, it is based on open-ended questions with minimal interruption by the facilitator. As opposed to individual interviews, it relies on the interaction and discussion among informants. As opposed to questionnaires or field observation, the facilitator can ask for clarification, elaboration, and inputs from other informants.[15]

We conducted four multiprofessional focus group interviews among clinical staff members from four Danish hospitals between November 2006 and September 2007. Interviews took place within day shifts and lasted 1.5–2 hours each.

The questions explored the main verbal multiprofessional team communication pathways concerning

Table 1:   Definitions of main terms.

Term	Definition
Asynchronous communication	Communication occurring at different times via another media (medical records, e-mail, and voicemail)
Communication	The activity of transmitting information[31]
Error	The failure of a planned action to be completed as intended or use of a wrong, inappropriate, or incorrect plan to achieve an aim[31]
Handover	The transference of patient information and responsibility between team members
Hierarchy	The organization of people at different ranks in an administrative body
Power distance	The extent to which the less powerful members of an organization expect and accept that power is distributed unevenly
Synchronous communication	Two-way communication with no time delay
Team	A group of two or more staff members
Verbal	Something expressed in spoken words

patient treatment, and factors supporting (promoters) and inhibiting these (barriers):

- In which situations do you exchange patient information?
- When does team communication function at its best?
- When does team communication work less well?
- In which situations do you experience loss of patient information?
- What are the consequences of this loss?
- Which teams do you work in?
- When does teamwork function at its best?
- When does teamwork not function well?
- How will you describe the hierarchy in your unit?
- What do you do when you are in doubt or see something unsafe?

This focus group interview protocol was developed after thorough review of the communication error, team training and focus group method literature, and a review of root cause analysis reports for descriptions of circumstances concerning severe patient safety incidents in six Danish hospitals.[3] Furthermore, the questions were based on a study of theories of appreciative inquiry[16] and critical incident technique.[17]

The method was iterative and inductive: each of the four interviews where part of a needs assessment–planning–testing–evaluation cycle[18] towards improved team communication. Each interview was based on the same protocol, but the facilitator used experiences from previous cycles of action to guide the questions and ask for elaboration.

Recruitment and sample

A convenience sample of four acute care hospitals representative for Denmark (different regions and both rural and non-rural areas) were included. The hospitals selected the departments, and the physician or nursing managers at the departments selected the informants who met the following criteria: no leadership assignments, employed for more than three months in the ward, exchanging clinical information about patients in their daily work, and engaged in multiprofessional teamwork. Each focus group consisted of at least a doctor, a nurse, and a nurse aid. The multiprofessional set-up was chosen to encourage system-level discussions in favour of discussions regarding particular individuals or staff groups. Each group consisted of both experienced and less experienced staff members. For each interview, between four and nine staff members were invited depending on the number of relevant staff groups in the respective settings. The participating departments were selected in order to establish traits of multiprofessional acute care somatic hospital staff. The interviews took place in private conference rooms outside the respective departments, to assure candour. Informants received written and verbal information about their interview, voluntary participation and anonymity of their statements, and signed informed consent forms. Danish law exempts this kind of descriptive research from ethical board approval. Data were handled in agreement with regulations of the Danish Data Protection Agency. The interviews were facilitated by LIR.

Data collection and analysis

The interviews were recorded and transcribed verbatim by LIR followed by assigning of codes, deletion of all information identifying staff members, units, or hospitals. LIR and MAM subsequently conducted individual data reduction (where the content of transcripts was arranged in tables to indicate relationships and patterns) and extraction of main findings. Hereafter the data were shared among

the research team before final categorization, extraction of conclusions, and translation from Danish to English.

Results

Twenty-three informants (see Table 2) from five different specialities, at four teaching hospitals, in three hospital regions in Denmark participated at their respective hospitals. None of the informants (except one resident in anaesthesiology) had received any training regarding team communication practices. Table 3 holds the excerpts regarding main communicative pathways, Table 4 holds excerpts regarding promoters of verbal communication and Table 5 holds excerpts regarding barriers to optimal verbal communication. In each table the right column holds the authors' interpretation of the quote(s).

Main communicative pathways
Informants described that even though asynchronous communication such as handwritten and electronic patient records (EPR), electronic medical records (EMR), and handwritten nursing charts account for an important part of the exchange of clinical information, the synchronous verbal communication between staff members is indispensable in team communication in hospitals. This has to do with the fine nuances that the written information cannot communicate. It is also a matter of urgency, as the majority of doctors in Danish hospitals still dictate their chart notes to tapes that are transcribed to paper charts by medical secretaries. This leaves the nurses waiting for new orders, unless they are communicated verbally. Further, the written

information is often immense and unstructured and staffs therefore have to rely on verbal peer-guidance and verbal orders. EMRs are common in the Danish healthcare system, but they are (still) too slow to handle hyper-acute standard or acute non-standard orders and the EMRs are not integrated with the health records. Further, university hospitals have a large flow of staff members on rotation (mainly internists, residents, and fellows) who rarely spend more than 12 months in the same department. This means that a substantial part of acute care teams consist of staff members, who have never worked together before.

These findings are reflected in the excerpts in Table 3, #1–5.

All together informants described the following verbal communicative structures as the most common:

1. Face-to-face communication:
   (a) Between two staff members:
       (i) Monoprofessional: Handover between shift or units, or supervision.
       (ii) Biprofessional: Handover between shift, units, during rounds, or supervision.
   (b) In teams of more than two staff members:
       (i) Monoprofessional teams: Patient conferences or handover between shifts.
       (ii) Multiprofessional: Surgery, deliveries, or (bedside) care for an acutely ill patient.
2. Non-face-to-face communication: Mono- or biprofessional telephone communication (typically supervision regarding patient transfer or verbal orders).

Table 2:   Individual focus group characteristics with regard to staff group, specialties, and gender.

	Group 1	Group 2	Group 3	Group 4	Total
Informants	4	8	9	3	24
Staff group					
Senior doctors (>10 years clinical experience)	1	1	1	0	3
Junior doctors (<10 years clinical experience)	0	2	3	1	6
Registered nurses	2	3	3	1	9
Nurse aids	1	1	1	1	4
Clerks	0	1	1	0	2
Specialty					
Internal medicine	4	0	0	3	7
Paediatrics	0	8	1	0	9
OBGYN	0	0	4	0	4
Anaesthesia	0	0	2	0	2
Surgical staff	0	0	2	0	2
Gender					
Female	3	6	8	3	20
Male	1	2	1	0	4

Table 3: Selected excerpts from four focus group interviews with multiprofessional hospital staff regarding main communicative pathways

#	Excerpts	Interpretation
1	'We have two separate chart systems. They should match but they do not always do that. There are observations and orders in the wrong place. I have the overview and [the doctor] goes to see the patients. We supply the [missing] information (Nurse, FGC20) It can take hours before we have the chart and we have shifts where we have no time to look into it (Nurse, FGC35) It is frustrating, because we put a lot of effort in writing the charts and they hold valuable information. And it can lead to adverse events when this information is lost. What I do is … I spend a lot of time finding the right nurse and then say: 'This is the plan' etc. To initiate a dialogue. In that way we try to make the ends meet (Physician, FGC34)	Written patient information account for an important part of the clinical information. However, most hospitals have separate chart systems for nurses and doctors and the written information is delayed. This makes verbal communication between staff members indispensable
2	We had a very sick patient in septic shock and he needed two different drugs. We had to give it [after verbal order] because it took two hours to enter it in the EMR since the drugs were not standard. And we couldn't wait for that (Physician, FGC68) If a patient needs an antibiotic then the standard administration time is set to 8 PM. But if it is 5 PM you need to call the doctor to make a single-dose verbal order to get the antibiotics going (Nurse, FGC79) They are very much routine [the drugs] given after verbal order in my opinion. Except if we have hyper-acute situations with severely ill children. But then you just have to go ahead and give it (Nurse, FGC391) I have tried giving a double dose of Furosemide. I probably misunderstood [the verbal order] (Nurse, FGC115) We had an adverse event where a medical lab-assistant called with a potassium-result. She said 5,2. We then treated the patient for hyperkalemia. But later it turned out that it was the other way round: it was 2,5. That it was too low (Nurse, FGC116)	Electronic medical records (EMRs) are now an integrated part of the Danish healthcare system. However, EMRs still cannot handle hyper-acute standard or acute non-standard orders. Verbal orders are necessary in these situations
3	Information is lost from one department to the other. Especially nursing information, because (…) it is so chaotic when it comes from a different ward. We don't have time to read that. A lot of information is lost in this way (Nurse, FGC33) I think a lot of information is lost between shifts. I had a patient who needed a stomach tube for feeding. And I told the nurse that the tube was for feeding and I wrote it in the chart. But the next day I met a colleague who said: 'I have removed the tube. There was no blood in it.'(…) That was very frustrating (Physician, FGC90) A doctor admits a patient and dumps the chart on my desk with 10 blood samples on top of it and then leaves. Then two hours later I find them and realize he ordered three antibiotics to start immediately. Why didn't he say so? (Nurse, FGC217)	Handover of patient information between departments, shifts, and staff members can lead to loss of information, patient safety incidents and delays

Continued

Table 3: *Continued*

#	Excerpts	Interpretation
4	*If a nurse calls you – I have tried this so many times – and just say: 'You have to come. The patient looks queasy' and then they have a hard time explaining it. Then I have to consider: Do I know this nurse. And [often] if I hear something so vague, then I can just as well go up there because then they are not in control of the situation* (Physician, FGC200) *When someone calls you for an emergent case at the delivery ward it's like: 'It's room 8, now!'. 'But, what is wrong with the child?' 'I don't know. They just told me to call you!'* (Physician, FGC537)	Phone calls pose a particular challenge to information exchange. Especially when communicating with team members one has not worked with before or during acute situations
5	*I went to a code today (…) and I started CPR (…) and then I asked out in the room – there were 15 people including three nurses looking on – if someone could get me an oxygen tube. But no one reacted. I should perhaps have said it again, but I was counting [compressions]. So when anaesthesia arrived [and took over] I ran myself to get the tube down the hallway* (Nurse, FGC56) *Sometime in the delivery ward if they have just delivered a sick baby, and things go fast and we arrive after the OBGYN has started CPR and the anaesthesiologists arrive simultaneously, then it can take us a few minutes to figure out who does what. That is not ideal. But that's reality* (Physician, FGC396–402)	Information exchange during acute teamwork in larger teams possesses a challenge especially when it comes to task sharing

EMR: electronic medical record; FGC: focus group code.

Informants described the following situations as particularly vulnerable:

1. Handing over critical, detailed, and comprehensive patient information between shifts or units either face-to-face or on the phone (Table 3, #3 & 4).
2. Establishing skills and roles during multiprofessional teamwork in larger acute care teams (Table 3, #5).
3. Dividing tasks and establishing a plan for communication and teamwork during teamwork – with particular focus on multiprofessional rounds (Table 3, # 5 and Table 5, #2).

Promoters of safe verbal communication

When asked 'When does team communication function at its best?' the informants could mention several promoters of safe verbal communication:

● *Frameworks:* The informants spontaneously mentioned the importance of established time to communicate, agreements on how to proceed, and confirmations of agreements after a task, for instance during problem solving in larger emergency teams (deliveries and codes) or before and after rounds (Table 4, #1 & 2).

● *Knowing each other:* The informants expressed appreciation of working with team members they knew beforehand, as this gave them an idea of their experience-level and skills. They explained this with the large turn over of especially rotating junior doctors, whose personality, experience and clinical skills other staff members had to decode in order to optimize teamwork (Table 3, # 2 & 4).

● *A flat hierarchy:* When asked about ease of speaking up between professional groups the informants expressed that the power distance in general is very low in Danish hospital departments: Nurses usually have ease of speaking up to doctors when in doubt or when having concerns. The hierarchy is not absent, though, but to a greater extent based on experience. This is particularly evident between the junior doctors and the experienced nurses: Given that the residents change work place over and over, they repeatedly and swiftly have to adjust to completely new team structures, lay-outs, devices, and logistics. In these situations they often rely on the more steady nurses' or nursing assistants' help,

Table 4:   Selected excerpts from four focus group interviews with multiprofessional hospital staff regarding promoters of safe information exchange.

#	Excerpts	Interpretation
1	*It is about having time to communicate verbally. Messages delivered on the run are often not interpreted as they were meant. It leads to misunderstandings if you don't have a forum for exchange of information* (Nurse assistant, FGC96) *Communication is essential. I mean, sometimes it is in the air, but then you realise the perception wasn't consistent [among the team members]. It is a learning process to get it right and we must keep on practicing how to say: 'I hear this and we divide the roles like this' so that everyone gets on the same page* (Physician FGC400) *It would be really great if those going on rounds together agreed upon: How to do this?' (…) and 'When is the round actually over?'* (Resident, FGC 1070, 1097) *Yes! 'Can we agree on doing this?' and 'I just ordered this' or 'I haven't ordered this' and 'Please, remember to order this'* (Nurse, FGC 1071)	Frameworks like sufficient time, confirmations, and feedbacks are important for reliable information exchange
2	*Except the last group of internists, then I know all the doctors. So, when I say something, then they know what I mean* (Nurse, FGC198) *The best grease is to know each other and each others competencies. (…) [If it is someone I don't know] then I can get my doubts about what I encounter when I arrive. Because I didn't get exact information [on the phone]. That's what happens when you work in the periphery [of the staff group] and with other departments* (Physician, FGC446)	Personal knowledge of the other team members makes their information easier to interpret
3	*If I forget something, then I know [the nurse] will say: 'Didn't we have an agreement?'* (Physician FGC65) *I think it is important to communicate with the nurse about her opinion on ending the treatment. I often turn to the nurses on their assessment* (Physician, FGC167) *Basically, if what you hear from the person in charge is correct, then you listen. But if what they are saying sounds wrong, then I am obliged to say: 'Hey, did you really mean that? Did you say 2000 mg?' hoping they will realize it wasn't completely right (…) However, it isn't easy. It takes a backbone to speak up* (Nurse FGC406) *Yes, they listen to what we say (chuckles). Especially the new residents. They can feel insecure* (Nurse, FGC 466) *If we have to take care of other things before we can go to the ward [to see a new patient], then the nurses have already observed something [when we arrive]. It is good to know what they think when we are examining a child. Do we need to admit [the child]? What to order? And what tests should be carried out? We couldn't work without their inputs. We help each other a lot* (resident, FGC467) *I have no problem saying to the doctors: 'Listen, I have my doubts here. Can you help me? I haven't tried this before'. Then we always get positive response and help. In that situation the doctors are amazing in taking care of the nurses* (Nurse, FGC471)	Staff express that there usually is a flat hierarchy between team members Nurses offer advice without invitation to speak when they hold knowledge or have more experience

Continued

Table 4:   *Continued*

#	Excerpts	Interpretation
4	*I think that sometimes the young residents are put in a dilemma, when we say: 'We would give this' or 'We usually do this'. You overwhelm them. Because in the end it is their responsibility. So I try not to do that* (Nurse FGC 1023) *It is both a question of personality and experience. I was in the ward for quite a while, so I went from being completely new to being in a position where I could say [to the nurses]: 'I know we could do that, but we wont because I want to do something else'. Now I dare take charge. But in the beginning I relied on [the nurses] to say: 'Shouldn't you call your senior resident now?' (…) It is a question of personality if you like someone else taking charge or not. I don't mind them helping me or that we help each other* (Resident, FGC 1025)	Knowing the way through the system can make a team member an authority – regardless of professional background

EMR: electronic medical record; FGC: focus group code.

who then become an even more valuable and indispensable resource for the residents (Table 4, #3 and Table 5, #1).

Barriers to safe verbal communication

The staff members were asked to identify situations where communication was challenging or less safe and identified the following:

- *Lack of standard assignments or procedures:* The informants expressed a tendency to confusion about 'who does what?' when procedures and policies are not in place or unknown. This was explained by a flat hierarchy between especially junior doctors and experienced nurses, which results in some tasks becoming 'no-ones-tasks' (e.g. informing patients of changes in treatment plans, sending referrals, etc). This induces a risk of tasks falling through the cracks. The informants expressed this as an important cause of delayed treatment (Table 5, #2).
- *Diverging agendas:* It seems that doctors and nurses understand each other well and to a large extend speak the same professional language. However, due to different professional backgrounds, the staff groups have diverging agendas regarding for instance care. This can result in talk of cross-purposes (for example 'Is the patient ready for discharge?') and can give rise to tension (Table 5, #3).
- *Interruptions or many similar tasks:* Informants described how a high workload, multitasking, and interruptions are common working conditions and how these situations often result

in loss of information or misunderstanding (Table 5, #4).

Discussion

In this study we used focus groups to identify the common characteristics of verbal communication in multiprofessional teams at four acute care hospitals, and the factors influencing them. The informants described the main verbal communicative pathways as face-to-face communication in mono-, bi-, or multiprofessional teams of two or more than two, and non-face-to-face communication, typically via telephone. This will not be surprising for anyone familiar with clinical hospital life. However, detailed descriptions of communication outside the OR are limited.[13]

The most challenging communicative situations described by the informants were awaiting and combining information from the different chart systems, handing over information, and responsibility between units and shifts as well as getting sufficient information through when calling someone, or establishing an acute care team during for instance rounds or acute care. These results confirm the previous findings of the causes of errors during handover.[1,4] However, the issues of establishing mutual agreement before and after the multiprofessional rounds are new. This can have to do with the mainly biprofessional doctor–nurse rounds in Danish healthcare settings.

Our results cannot confirm that communication errors are results of nurses being trained to 'paint the big picture' and doctors being trained to be concise, as previously suggested.[5] Instead, our data indicate that the two staff groups have differing

Table 5:   Selected excerpts from four focus group interviews with multiprofessional hospital staff regarding barriers to safe information exchange.

#	Excerpts	Interpretation
1	*There is a large degree of equalizing among the staff groups (…) However; sometimes you must be aware of not letting everyone do everything. For instance it is very frustrating if I refer someone to something and then they return [for at control visit] (…) after three months and you realize the referral landed somewhere in no mans land, because someone assumed the doctor handled the paperwork. That is very unsatisfying for the patients* (Resident, FGC475) *So the hierarchy becomes so flat, that confusion arises on who takes care of…?* (Interviewer, FGC480) *As a matter of fact, yes. There are actually tasks that are foolish to leave to the doctor. It is outrageous to make a doctor mail something. Talk about patient safety incidents!* (Resident, FGC 481) *I would like to hear inputs on this from other staff groups* (Interviewer, FGC 482) *The problem arises when you omit to communicate. If the doctor says: 'I'll write a referral'. Then I think to my self: 'Very well, then that's done'. And then later I might wonder: 'Was it actually send? Do I have to do it or did he do it? And when I look in the chart it just says: 'Referral written'. And if it is a busy day then I don't have time to check if the referral is send as well. And then you realise – perhaps the next day – that it wasn't. If the doctor just said: 'I'll write the referral. Will you handle the paperwork?' Then I would of course do it* (Nurse, FGC483) *To use a common headline then I guess it is that the staff groups have become more blurred on the basis of 'no tasks are finer than others what so ever'. And to prove that, everyone has to do everything'* (Physician, FGC 490) *The doctor who wants to order [something] himself, he can order away. And if he won't then we would love to help you (laughs)* (Nurse, FGC 491)	A flat hierarchy makes task sharing blurred and can result in patient safety incidents if the team does not agree on how to share tasks from case to case
2	*Sometimes the two worlds clash (…) because we have different agendas even though we have this flat structure. [As a nurse] I have to choose: Do I want to spend ten minutes weighing the patient – which is important – or do I want to spend ten minutes on communicating [with the doctors before their rounds]. There, our two worlds are different after all. But there are no established procedures on how to do things in this unit. It is very intuitive and we run it our own way* (Nurse, FGC531) *Some doctors say: 'Is the blood pressure okay? [If so] the patient is ready for discharge' But we have a different agenda which includes: Can the patient go to the bathroom and manage themselves at home? And sometimes I think the [doctors] lack a little understanding… that we talk on cross-purposes. I mean (to the doctor): You believe the patient can manage. And then you say to me: 'Oh, so you don't want to discharge? That costs so and so much'* (Nurse, FGC1044)	Even though the hierarchy is flat there are still different agendas between staff members. This can result in confusion, talk on cross-purposes and patient safety incidents where there are no guidelines for the teamwork
3	*In our unit (…) we get interrupted all the time. You have a lot on your plate and get more all the time and someone comes and interferes with what you are doing (…) There can be three people talking to you at the same time. That's how the days go by* (Nurse, FGC97)	Simultaneous tasks and interruptions challenge communication

EMR: electronic medical record; FGC: focus group code.

agendas, which the staff groups are aware of. In most instances, this is beneficial to the patient – as long as divergences are resolved, for instance after rounds. Techniques suitable for this purpose are pre- and postoperative debriefings.[19]

The informants described the main promoters of safe team communication as well-established frameworks (time, guidelines, and structures) for communication as important. This is previously described, and the use of communicative structures (like the 'SBAR' technique) to support team communication has been suggested.[5] Lack of knowledge of other team members' skills is a known risk factor from the surgical environment. Together with the perceived lack of standard assignments and procedures to establish 'who does what', and the perceived differing agendas for the treatment of the patient, this confirms a need for a tool to ensure communication and mutual agreement before a task. A method that has been successful in this situation, is a checklist-aided perioperative briefing procedure, which includes a brief presentation of team members and division of tasks.[20]

The perception of a flat hierarchy, which allows everyone to speak up, differs from previous findings. This probably has to do with both the national culture in Denmark and the organizational structure in Danish hospitals: Denmark is a fairly egalitarian society both economically and culturally. The Danish national culture is based on a social democratic welfare model and an ideal of economic redistribution.[21,22] The Danish universal health care system is 85% publicly financed. Hospital doctors are employed by the public hospitals and affiliated with a department – not with private clinics in the community.[23] Biprofessional nurse–doctor rounds are the norm and salaries are relatively uniform.

This differs from the descriptions of culture and organization in American hospitals, where a higher degree of private funding and the affiliation of independent private physicians and surgeons who tend to their own patients result in a more distinct hierarchical team structure. This team structure is considered an important source of miscommunication, because intimidation is thought to inhibit free speech.[6,24] Comparative studies of safety cultures in hospital environments are rare, but a recent publication supports our findings.[25] The cultural element in team communication is plausible as communication is influenced by context, environment, and culture.[22,26]

These and our results justify adaptation of interventions to improve team communication. A culture similar to the Danish is found throughout Scandinavia and in some European countries.[22]

Patient safety curriculum planners in these systems have to consider the above characteristics before implementing American-based patient safety solutions into their own hospitals.

Limitations

The multiprofessional focus group method was chosen to allow informants with different backgrounds and agendas to discuss team communication from a system-perspective, and allow the facilitator to ask for elaboration or clarification. Individual interviews could have resulted in focus on particular inadequacies of other (non-present) staff groups. By selecting multiprofessional focus groups, the focus was directed to the system and the organization. The study was preceded by a text analysis of a sample of root cause analyses, which served to generate questions to informants.[3] However, an observation of nurse–physician teamwork could have aided in confirming results and in providing additional insight.

The informants were picked by their unit leaders and not randomly. This model holds a risk of selection bias, as unit leaders might have selected more frank nurses, whom they knew would speak up during the interviews. This could give rise to an impression of a more flat hierarchy than in reality. However, the results were in agreement with results from other domains[22,26] and a large-scale simultaneous patient safety culture survey.[27] A bias that draws in the other direction is the multiprofessional set-up, which might have inhibited free speech and made some informants confirm opinion of others.[15]

We aimed at including a representative sample of professions and disciplines with varying degrees of experience from somatic acute care university hospitals in Denmark. Although the results might not be applicable to every unit and every hospital in the country, we found the statements consistent. As the interviews were to some extend inductive, we did not reach data saturation on all matters. However, the replies were consistent here as well.

As seen in Table 2, the unpredictable every-day clinical life prevented optimal composition of all four groups. This is probably not easy to prevent. The way to leave out the effect of too small and too large groups is to include more focus groups in a future study. Other authors have used even smaller samples[28,29], though, and our results are confirmed by the other sources mentioned above that points in the same direction.

There is a general risk of confirmation bias when interpreting interview statements. However, we aimed at limiting bias by letting two independent

researchers with differing pre-understandings of healthcare (an MD and a sociology master) review and extract trends.

Conclusion

The informants described the main promoters of safe team communication as well-established frameworks for communication, knowledge of other team members' skills and experience in combination with a flat hierarchy, which allows everyone to speak up.

Several detailed ready-made interventions have been published.[30–32] However, our results underscore the need for, first, adaptation based on feedback from participants, which is in line with the approach suggested by action research theories[33] and second, a pilot testing of the intervention as recommended for curriculum planning.[34] These factors should be considered when developing interventions to improve team communication and patient safety.[35]

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