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# Addressing safety for patients in need of specialized home healthcare - an interview study with multidisciplinary teams and clinical managers



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**Title**

Addressing safety for patients in need of specialized home healthcare - an interview study with multidisciplinary teams and clinical managers

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## ABSTRACT

**Objective** Home healthcare is the fastest growing arena in the healthcare system but patient safety research in this context is limited. The aim was to explore patient safety in specialized home healthcare from multidisciplinary teams' and clinical managers' perspective.

**Design** An explorative qualitative study.

**Setting** Healthcare professionals and clinical managers were recruited from three specialized home healthcare organizations in Sweden.

**Methods** Nine focus group interviews with multidisciplinary teams and six individual interviews with clinical managers were conducted, in total 51 participants. The data were transcribed verbatim and analyzed using qualitative content analysis.

**Results** Patient safety was inherent in the palliative care ideology and shaped a common mind-set between members in the multidisciplinary team and clinical managers, which grounded their decision on performance of care. The multiple guidelines and quality assessments, aimed to promote patient safety from a macro-perspective, constrained the professionals' freedom to adapt to challenges and provide safe care based on the shared care ideology. Safety work was characterized by co-creation of care in a challenging care environment; a striving to be up to date in the information flow and maintaining high competence levels in emerging complexity. Engineering patient safety was a continuous work at all levels of the system whilst keeping the patient's perspective in mind.

**Conclusion** Patient safety in home healthcare is dependent on adaptability at the management level; the professionals' ability to adapt to the varying conditions and on patients being capable of adjusting their homes and behaviours to reduce safety risks. A strong culture related to a patient's value as a person where patients' and families' active participation and preferences guides the decisions, could be both a facilitator and a barrier to patient safety, depending on which value is given highest priority.

**Strengths and limitations of this study**

- Trustworthiness have been strengthened by; research triangulation; setting triangulation and participant triangulation.
- We have less number of participants than expected in each focus group due to the high workload.
- The selection of settings, situated in the same urban area of Sweden, may limit the extent to which our findings may be transferred to rural settings or other regions.

## BACKGROUND

Patient safety is a requirement in all healthcare organizations regardless of where care is provided. Still, every year, people worldwide are harmed or even die while receiving healthcare. For example, approximately 98,000 hospitalized patients in the US die as a result of patient safety failures each year and one in ten suffers harm. [1] Similar results were found in Sweden, with 8.6% of hospital patients suffering a preventable adverse event. [2]

Healthcare is becoming more complex and provision of care in people's homes is increasing, both globally [1] and in Sweden, [3] driven by medical and technical advances, economic pressures, demographic factors, and patient preferences. [4] However, most patient safety research is conducted in hospital settings, while home healthcare is largely unexplored. [5] Thus, evidence from hospital-based research has also been applied to home healthcare. In recent years, this has been criticized based on the knowledge that patient safety is largely context-dependent. [6 7] The few existing home healthcare-specific studies on patient safety, mainly conducted in Canada, have highlighted unique safety issues and the occurrence of adverse events. The specific patient safety challenges in home healthcare include fragmentation of care, care providers working in isolation and inadequate communication between different care providers. [8 9] Studies of adverse events in home healthcare have shown a wide variation in the estimations, with 13% in Canada [10-12] and 37.7% in Sweden. [13] The types of adverse events were similar in both countries – falls, healthcare-associated infections, pressure ulcers – and most were considered to be preventable.

With a few exceptions, e.g., healthcare-associated infections, the patient safety research is increasingly based on the premise that harm is mainly the result of poorly designed systems. [14] As a system approach encompasses the organization's context, processes and structures, which can have a sustainable influence on promoting safe care [5 15] there is a need to study patient safety in home healthcare in a European setting.

To address the gap in research on home healthcare, the overall aim of this study was to explore patient safety in specialized home healthcare from the perspectives of multidisciplinary teams and clinical managers.

## METHODS

### *Design*

This qualitative study, based on semi-structured interviews with multidisciplinary professionals and clinical managers, is part of a larger study on patient safety in home healthcare settings. [16]

### *Setting*

Healthcare professionals and clinical managers were recruited from three specialized home healthcare organizations in one regional healthcare authority in Sweden. Home healthcare in Sweden is defined as healthcare that is administered in a patient's home or the equivalent, and that is consistent over time, [17] but does not encompass home care organizations with unlicensed staff administering social care.

The three studied units are tax-funded and cover a limited geographical area. They were selected to capture socio-demographic differences in, e.g., country of birth and income. Each unit consisted of ambulatory multidisciplinary teams, including four to six physicians, 20-30 registered nurses (RNs) and one of each of the associated healthcare staff: physiotherapist, occupational therapist, dietitian and social worker. One unit had a few assistant nurses. The RNs and physicians were available 24 hours a day. Each unit employed one head of department and one or two first-line manager ("clinical managers"). The units provided long- or short-term round-the-clock advanced care and treatment to patients with complex diseases and symptoms.

All units had in the last years expanded from providing traditional palliative home healthcare to providing specialized home healthcare to patients with all kinds of diagnoses, based on changes in national regulations. [18] Many of the healthcare professionals had experience in practicing care under the palliative care ideology. The cornerstones in the care ideology can be summarized as nearness, wholeness, knowledge, and empathy. The approach should

further be based on continuity, good communication and support provided in accordance with patients and relatives' wishes, in so far as possible. [19]

***Data collection***

Nine focus group interviews with multidisciplinary professionals and seven individual interviews with clinical managers were conducted between December 2013 and May 2014, including in total 51 participants (Table 1). The interview method was inspired by Kvale and Brinkmann. [20] A convenience sampling approach was used to capture a variety of perspectives on patient safety. The heads of department approved performance of the study at their respective units.

All interviews took place at the workplace at the start or end of a work shift. Focus group interviews included 4-6 professionals and lasted 60-90 minutes. Individual interviews lasted 30-60 minutes. The interviews were audio-recorded and the researcher took notes.

The interviews were conducted by the first and last researcher (ML and ME). A semi-structured interview guide was developed and tested in a pilot interview, after which minor revisions were made. The interview guide consisted of open-ended questions, such as "Tell me what patient safety means to you" and "Tell me about your experiences of what helps or hinders patient safety in your daily work." In addition to questions on patient safety, the clinical management interviews also included general questions on work organization. Both verbal and non-verbal probing techniques were used to increase clarity.

**Table 1. Overview of the interviews**

| **Focus group** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
|---|---|---|---|---|---|---|---|---|---|
| Profession (n) | RN (4) Allied health staff (1) | RN (3) Allied health staff (1) | RN (5) | Allied health staff (4) | Physician (5) | Allied health staff (4) | Physician (5) | RN (4) assistant nurse (2) | RN (4) assistant nurse (1) |
| Number code | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 |
| **Individual** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | | |
| Profession (n) | Head of department (1) | Head of department (1) | Head of department (1) | First-line manager (2) | First-line manager (1) | First-line manager (1) | Physician (1) | | |
| Number code | I1 | I2 | I3 | I4 | I5 | I6 | I7 | | |

***Data analysis***

The data were transcribed verbatim and analysed using qualitative content analysis with an inductive approach. [21 22] The transcripts were read through several times by the first (ML) and last (ME) researchers, to get a sense of the data. All three researchers (ML, MF, ME) were then involved in analysis, going from a concrete to a more abstract level. This included identification of meaning units, which were condensed, coded, and sorted into 19 subcategories based on differences and similarities. The subcategories were compared, sorted, interpreted and abstracted into one main theme and four categories. All authors discussed the codes, categories and themes in relation to the transcripts until consensus was reached.

## RESULTS

The results include one main theme *Keeping patients safe – a never-ending effort at all levels,* constituting the latent content of four categories.

***Keeping patients safe – a never-ending effort at all levels***

Keeping patients safe was a continuous effort throughout the system. The palliative care ideology formed a common mind-set upon which both clinical managers and professional teams based their care decisions. Patient safety is an inherent part of the palliative care ideology, not a goal in itself.

Patient safety was described as related to a patient's value as a person. Prevention of psychological harm, such as violated autonomy or respect, had the same priority as prevention of physical harm. This view influenced risk management, in that a patient's preferences outweighed risks detected in the home care environment.

The varying work environment, with "patient rooms" of various standards distributed over a large area, was a health and safety risk for both patients and professionals. Arranging meetings with sufficient time to build trustful relationships enabled co-creation of care based on each patient's or family's wishes. This also allowed for including patients and families in active participation according to their abilities. Each team member contributed with their competence.

> *We've asked our patients how they perceive the care and we get certain value-based words…like security and participation… I think it's good for patient safety, to get*

*patients and family involved. It… I can't imagine anything better than them knowing what they are putting in their mouth and what pills they are taking. They know who to call when they don't recognize the medication or… They ask us if we've sanitized our hands, if we're wearing aprons and so on… That…it's an aspect of culture, safety culture, both as regards care…here at the unit, and we take it along to our patients, since that's our work environment, so the patients become part of the safety culture, and they should feel that they…that it's their…I mean, it is their care (F8).*

***Co-creating safety in the mess on the floor***

The teams were united by their care ideology and the strong belief that establishing and maintaining sustainable, trusting relationships was the core of patient safety work. The care ideology was realized through respect for patients' and relatives' values, wishes and lifestyle. The team ensured that there was time for conversation, to listen and take patients' and relatives' knowledge, feelings and thoughts into account in their planning and performance of care. By focusing on what mattered *for* the patient and relatives rather than what the matter was *with* the patient, the teams could respect the patient's values. Based on the ideology, the professionals felt that a patient's wish to stay at home should be fulfilled. To manage this, several actions were taken, such as the delegation of medication administration to unlicensed staff in the home help services, as they could visit the patient several times a day. In some cases, the professionals found themselves caught between the value of preventing a patient from potential harm and the value of respecting the patient's autonomy, especially for people with cognitive impairments who were living alone. Each such case was a balancing act to help the patients stay at home without too much risk to his/her safety.

A prioritized goal to ensure wellbeing was to maintain a home-like atmosphere, though the home was also a place for care. It was a dilemma to provide care in line with aseptic guidelines in a home environment with narrow, unhygienic spaces, lack of clean areas for wound dressing or when pets interfered with the patient during caregiving.

*Sometimes we get care-related injuries, infections in ports and so on. Some patients want to touch things and help us when we are working and cleaning and switching things, when it can be harmful. And that's not optimal, and when we don't have a work area I have to… maybe the only work area we have is the lid on the box that we put on the bed where the patient has urinated and defecated and which was last*

*made…the linen was changed maybe seven months ago, literally… Meanwhile, the dog or cat shows up and starts licking and you have to… You're literally sitting like this (like a hook) (F8).*

***Striving to be up to date in the information flow***

The joint electronic health record (EHR) system implemented among all publicly funded care providers – both in- and outpatient care – in the region, facilitated information transfer between caregivers. However, shortcomings (e.g., lack of user-friendly software design or a system for reminders and alerts) in the system and inconsistent documentation routines made the information fragmented and easily lost. As the EHR was not accessible during home visits, all essential information had to be reviewed beforehand. Anything that team members wanted to report was noted on paper and documented in the EHR when they came back from home visits. As a workaround for the lack of overview in the EHR, a digital list of tasks for each home visit was used. Nurses updated this "to-do list" manually and used it as their primary tool for organizing their day. The tool, intended to make information accessible, also created a risk that the EHR was not read as carefully as the to-do list.

Information related to medication management was identified as the area that generated the most essential information problems. The teams found it difficult to be up-to-date with generic drugs, which were rapidly replaced as prices changed. For patients, this could lead to the intake of double doses, due to interpreting similar medications as different. Such errors were not easily discovered and created a sense of lacking control for professionals and unnecessary suffering for patients and relatives.

*Then they (the pharmacy) can switch medications that have suddenly become cheaper, so the name is different… Sometimes they'll get a double dose. So, there's a lot of responsibility on us to check that and I think…sometimes we don't have the time… Right, because it's hard, since one person will place pills in the box the day before and another will hand it out the next day. And then…it's hard to know what's in it… (F9).*

Both the managers and teams felt that written information needed to be supplemented with verbal communication both when transferred within their own organization and across institutional borders. Unstructured small talk in the hallways and lunch room, as well as team

meetings with a set structure for information transfer, enabled creating a common view of the patients' and relatives' needs and giving reminders about potential risks. Information exchange with other care providers involved in a patient's care was described as equally important, but harder to facilitate. This kind of information exchange with unlicensed staff was mostly conducted through notes in patient homes.

The coordinator at each unit was perceived as an effective barrier to information misses and tended to be at the centre of communication. The coordinator was the team's access to the EHR during home visits and a "detective" to find current information and prescriptions from other caregivers.

***Maintaining high competence levels in emerging complexity***

The broad spectra of diagnoses and rapid development of treatments and related technical devices that patients received during periods of hospitalization made it hard for the teams to stay informed and updated. The managers were worried that the level of competence and quality of care was threatened as the units expanded and new staff was introduced. Management strived to counteract this by scheduling new staff to work alongside experienced staff. Management also organized continuous training at the unit when new medical technology or new policies were introduced.

The team meetings were important for improving patient safety by sharing experiences and learning from each other. The clinical managers tried to create a proactive, learning perspective by highlighting safety issues. These meetings were also essential for getting to know each other, and each other's specific competences, across professional borders. Thus, the team members knew who to turn to when facing a problem in a patient home and they felt comfortable calling each other for advice. This contributed to "a common knowledge base" that was broader than each individual's knowledge. This reduced feeling of vulnerability during the home visits conducted alone, when rapid decisions had to be made.

> *…We're all alone out there, we really are…The chart system and medication lists and so on can't be accessed there… (F3)…All those assessments that you feel quite alone in making, you can be unsure… That's probably the most important aspect of the team, being based on parts and adding them all on top of each other. Then you usually get some kind of bigger picture regarding the patient (F1) …you get an enormous strength in the team actually, so if you've been thinking about something there'll be someone…who*

*has another view and then you can get a bigger picture, which is very helpful. One plus one is three (F5).*

***Engaging in patient safety at different levels of the system***

The quality of care of the home healthcare organizations was evaluated through regular use of about 40 quality indicators, tailored to national and county level demands. The organizations depend on reimbursement, which is based on these indicators. Both team members and managers felt that the quality indicators poorly reflected quality improvement or patient safety in their daily work. The managers had been invited by the county council to participate in the selection of quality indicators, but felt that their perspectives had little impact.

*We are presented with statistics now every quarter for the existing system, and we shake our heads every time and we don't feel our work is reflected in the numbers they show us from the system we already have. So, can we possibly understand a change? No, it won't happen. Not that way (I2).*

The professionals described that patients were overwhelmed by the number of quality indicators, as some were collected biweekly for all patients, regardless of diagnosis. As most of the indicators were general and not adapted to specific patient groups, both managers and teams perceived that little freedom was left to introduce additional measures targeting each individual patient's needs. In cases where the assessments were useful for the patient's care, the teams needed to register the data twice, as the quality indicator registries were not compatible with the EHR.

*And maybe that works really well in the manufacturing industry…but when it's more about what the level of quality is, well, that's hard to measure…we're always filling those things out. It takes time and it steals time from patient contact and safety. We mustn't forget that when we add administrative burdens, they take time from time spent on patient safety (F5).*

Both managers and teams described the incident reporting system as an ongoing patient safety effort, for learning about and communicating patient safety issues. The team members described a dilemma in reporting events where colleagues were involved, as they did not want to implicate anyone. Managers prioritized analyses of adverse events and risks. The

communication back to the professionals, intended to improve patient safety, usually consisted of new guidelines. The team members described them as complicated multi-step guidelines and felt it was difficult to stay up-to-date. Trade-offs were common, as the guidelines sometimes contradicted each other and did not fit all the possible situations in patient homes. The clinical managers were aware that trade-offs were inevitable and gave the professionals a high degree of freedom to make decisions to promote patient safety.

> *We keep getting guideline after guideline…and you can't know all those guidelines and study them all the time… And I guess that's a way to safeguard and say, well…to protect themselves. But it's no use if we don't have time to read them all in a sensible way. You read through them once and then…well, there you are with piles of guidelines on paper (F9).*
>
> *A full structure, you need that, and you need a few checklists… But things come up every day…and because these are unexpected events, you have to deviate. People deviate every day (I5).*

## DISCUSSION

The main results of this explorative study show that engineering safety in specialized home healthcare is a continuous effort at all levels of the system, while keeping the patient perspective in mind. The well-established palliative care ideology in the studied context shaped a common mind-set between members in the multidisciplinary team and clinical managers, which seemed useful for prioritizing goals. Shared values, attitudes, beliefs, behaviours, and practices are features of a workplace culture. [23] In healthcare, a recent review across a variety of settings showed a consistent association between workplace culture and patient outcomes. However, most of the included studies were cross-sectional, using a wide range of different definitions and measurements of culture, environment, and patient outcomes, and most studies were conducted in hospital settings. [24] Safety culture in home healthcare has not yet been widely explored. [25] In the current study, the palliative care ideology fostered shared values and practices across the professional teams, promoting patient safety by giving the patient's goals and autonomy priority in decisions about care. This care ideology is truly in line with a person-centred perspective, which has been on the political agenda for years, but is still poorly implemented in Sweden. [26] In most healthcare environments, there were difficulties associated with involving patients as equal partners in care, due to lack of private rooms or communication, time pressures, a traditional work

structure, and professionals' attitudes, for example. [27] By contrast, in the home healthcare environment, patients were in charge of self-care activities around the clock, with assistance from healthcare professionals who carried out treatment that patients couldn't perform themselves. However, the shared values that guided the professionals in their safety work also implied risks. For example, hygiene guidelines did not mesh with the home healthcare environment or patients' preferences and behaviours. Professionals in this study perceived a dilemma in contradicting a patient's will, i.e., going against the ideology, even when patient safety was in danger. A strong ideology could therefore be both a facilitator and a barrier to patient safety, depending on which value was given highest priority.

At the macro-level of the healthcare system, patient safety risks are rarely weighed against ideological values. There is a widely accepted view that care at home is safer than institutional care, due to the risk of infections at hospital. In reality, the work environment in home healthcare is highly unstable, as it is not designed to reduce medical errors and equipment problems or assist infection control. Thus, safe home healthcare is highly dependent on professionals' ability to adapt to the varying conditions and on patients being informed and capable of adjusting their homes and behaviours to reduce safety risks. This study exemplifies how professionals, by building trusting relationships with patients and their families, promoted a care environment in concert with each patient's specific preferences and needs. This is in similar with other studies showing that the relationship with health providers is central for older people feeling supported and cared for at home, and that a tense relation implied a risk of patient harm. [28] It is also in line with resilient healthcare, which is defined by its ability to adapt to unpredictable, unstable environments and remain intact and functional despite threats to care performance [29] at the sharp end, i.e., the point where the patient meets healthcare. Resilience at the sharp end also depends on adaptability at the management level. As shown in another study, at this level of the system, adaptations involve rapid reorganization of work as a response to disturbances, and providing sufficient supplies and freedom for professionals to prioritize, adapt, and take time to provide the care that a patient needs. [30]

At the macro-level, the steering mechanisms to promote quality and safety were built around a large number of mandatory quality assessments. These were combined with economic reimbursements or fines, depending on the degree of observance. At both the micro- and meso-levels of the system, these assessments were perceived as stealing valuable time from

'real' quality improvement work. The quality indicators were sparsely used in the daily work as they rarely fit patients' specific needs, and did not align with coordinating effective, safe, and comprehensive home healthcare. [4] Incident reporting is another measure for improving safety that has been used with great success in other high-risk organizations (e.g., nuclear, railway and car industry). [31] Even if there is limited evidence on how incident reporting actually contributes to safety in healthcare, [32] it is a globally accepted method. A common management reaction to incident reports was to produce new guidelines, although it is well-known that trade-offs are commonplace in daily work. [30 33] Strategies and behaviours to work around problematic practical processes have been shown to either promote or hinder patient safety. [34] McDonald et al [35] found that managers believed that adherence to standardized processes promoted patient safety, which contrasts with the findings in this study, where the clinician managers were aware that the teams made trade-offs to promote patient safety. Standardizations assume causality, that care is predictable, and that adverse events can be prevented through rules and guidelines. [36] As the complexity in healthcare systems increases, the usefulness of the incident reporting system in improving patient safety is disputed. The criticism concerns its use for counting incidents instead of effective analysis leading to meaningful changes and organizational learning. [37] To substantially improve patient safety in home healthcare, we need to develop reliable and valuable methods that enable studying the dynamic complexity of the system at different levels. [38] The guidelines and quality assessments, aimed to promote patient safety from a macro-perspective, constrained the professionals' freedom to adapt to challenges and provide safe care based on the shared care ideology. This indicates that if standardization is to be used as a tool to promote patient safety, it must be aligned with a culture based on patient values and goals, where calculated risks are taken into account.

***Conclusion***

The dynamic and complex conditions under which home healthcare operate are fundamentally different from hospital care. Patient safety in the home healthcare is grounded in close team collaboration and a care ideology that support patient autonomy, competence and relatedness as active partner in care. Thus, providing care included weighing risks against patients' preferences and will. Professional adaptations and patient behaviours and preferences set the limits for safety. Standardization and quality assessments introduced for improvement of care must therefore take into consideration the professional ethos that puts patient values at the centre of care.

**List of abbreviations**

| | |
|---|---|
| EHR | Electronic health record |
| RN | Registered nurse |

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**Competing interests** None declared

**Contributors** ML and ME designed and conducted the study. All authors jointly contributed with their expertise in methodology, patient safety and home healthcare. All authors were part of the analysis process, drafted the manuscript and agreed to the final version of the manuscript before submission.

**Ethics approval** This study was approved by the Regional Ethical Review Committee in Sweden, Stockholm (DNr: 2012/1384:31).

**Data sharing statement**

Supplementary and raw data available upon request.

**Patient and Public Involvement statement**

Patients were not involved in this study.

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# Exploring patient safety in Swedish specialized home healthcare - an interview study with multidisciplinary teams and clinical managers

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**Title**

Exploring patient safety in Swedish specialized home healthcare - an interview study with multidisciplinary teams and clinical managers

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## ABSTRACT

**Objective** Home healthcare is the fastest growing arena in the healthcare system but patient safety research in this context is limited. The aim was to explore patient safety in Swedish specialized home healthcare from multidisciplinary teams' and clinical managers' perspectives.

**Design** An explorative qualitative study.

**Setting** Multidisciplinary teams' and clinical managers were recruited from three specialized home healthcare organizations in Sweden.

**Methods** Nine focus group interviews with multidisciplinary teams and six individual interviews with clinical managers were conducted, in total 51 participants. The data were transcribed verbatim and analyzed using qualitative content analysis.

**Results** Patient safety was inherent in the well-established care ideology which shaped a common mind-set between members in the multidisciplinary teams and clinical managers. This patient safety culture was challenged by the emerging complexity in which priority had to be given to standardised guidelines, quality assessments and management of information in maladapted communication systems and demands for required competence and skills. The multiple guidelines and quality assessments that aimed to promote patient safety from a macro-perspective, constrained the freedom, on a meso- and micro-level, to adapt to challenges based on the care ideology.

**Conclusion** Patient safety in home healthcare is dependent on adaptability at the management level; the team members' ability to adapt to the varying conditions and on patients being capable of adjusting their homes and behaviours to reduce safety risks. A strong culture related to a patient's value as a person where patients' and families' active participation and preferences guides the decisions, could be both a facilitator and a barrier to patient safety, depending on which value is given highest priority.

**Strengths and limitations of this study**

- Trustworthiness have been strengthened by research triangulation, setting triangulation, and participant triangulation.
- We have lower numbers of participants than expected in each focus group due to the high workload.
- The selection of settings, situated in the same urban area of Sweden, may limit the extent to which our findings can be transferred to rural settings or other regions.

## BACKGROUND

Healthcare is becoming more complex and provision of care in people's homes is increasing, both globally [1] and in Sweden, [2] driven by medical and technical advances, economic pressures, demographic factors, and patient preferences. [3] However, most patient safety research is conducted in hospital settings, while home healthcare is largely unexplored. [4] Thus, evidence from hospital-based research has also been applied to home healthcare. In recent years, this has been criticized based on the knowledge that patient safety is largely context-dependent. [5 6]

The few existing home healthcare-specific studies on patient safety, have highlighted unique safety issues and the occurrence of adverse events. The specific patient safety challenges in home healthcare include fragmentation of care, care providers working in isolation and inadequate communication between different care providers [7 8] A recent interview study found that the perspectives of patients and their carers on patient safety contributed to safe home healthcare and were equally important as those of healthcare professionals for improving patient safety. [5] Studies of adverse events in home healthcare have shown a wide variation in the estimations, with 13% in Canada [9-11] and 37.7% in Sweden. [12] The types of adverse events were similar in both countries – falls, healthcare-associated infections, pressure ulcers – and most were considered to be preventable.

With a few exceptions, e.g., healthcare-associated infections, the patient safety research is increasingly based on the premise that harm is mainly the result of poorly designed systems. [13] As a system safety approach encompasses the organization's context, processes and structures, which can have a sustainable influence on promoting safe care [4 14] there is a need to study patient safety in the home healthcare setting.

Hence, the overall aim of this study was to explore how patient safety is described and addressed in specialized home healthcare from the perspectives of multidisciplinary teams and clinical managers.

## METHODS

### *Design*

This qualitative study, based on semi-structured interviews with multidisciplinary professionals and clinical managers, is part of a larger study on patient safety in home healthcare settings. [8]

### *Setting*

Multidisciplinary teams and clinical managers were recruited from three specialized home healthcare organizations in one regional healthcare authority in Sweden. Home healthcare in Sweden is defined as healthcare that is administered in a patient's home or the equivalent, and that is consistent over time, [15] but does not encompass home care organizations with unlicensed staff administering social care.

The three studied units are tax-funded and cover a limited geographical area. They were selected to capture socio-demographic differences in, e.g., country of birth and income. Each unit consisted of ambulatory multidisciplinary teams, including four to six physicians, 20-30 registered nurses (RNs) and one of each of the allied healthcare staff: physiotherapist, occupational therapist, dietitian and social worker. One unit had a few assistant nurses. The RNs and physicians were available 24 hours a day. Each unit employed one head of department and one or two first-line manager ("clinical managers"). The units provided long- or short-term round-the-clock advanced care and treatment to patients with complex diseases and symptoms.

All units had in the last years expanded from providing traditional palliative home healthcare to patients with a cancer diagnosis to providing specialized home healthcare to patients with all kinds of diagnoses, based on changes in national regulations. [16] The palliative care ideology in this study is referred to as 'the care ideology' on the basis that it was applied to all patients regardless of diagnosis. The cornerstones in the care ideology, can be summarized as nearness, wholeness, knowledge, and empathy. The approach should further be based on

continuity, good communication and support provided in accordance with patients and relatives' wishes, in so far as possible. [17]

***Data collection***

Nine focus group interviews with team members and seven individual interviews with clinical managers were conducted between December 2013 and May 2014, including in total 51 participants (Table 1). The interview method was inspired by Kvale and Brinkmann. [18] All team members were invited to participate in a focus group interview. The groups were deliberately composed so that the participants would feel comfortable discussing issues relevant to their discipline and to capture a variety of perspectives on patient safety. The heads of department approved performance of the study at their respective units.

All interviews took place at the workplace at the start or end of a work shift. Focus group interviews included 4-6 team members and lasted 60-90 minutes. Individual interviews lasted 30-60 minutes. The interviews were audio-recorded and the researcher took notes.

The interviews were conducted by the first and last researcher (ML and ME). A semi-structured interview guide was developed and tested in a pilot interview, after which minor revisions were made. The interview guide consisted of open-ended questions, such as "Tell me what patient safety means to you" and "Tell me about your experiences of what helps or hinders patient safety in your daily work." In addition to questions on patient safety, the clinical management interviews also included general questions on work organization. Both verbal and non-verbal probing techniques were used to increase clarity.

**Table 1. Overview of the interviews**

| | Unit A | Unit B | Unit C |
|---|---|---|---|
| **Focus group interviews** | RNs (4 women) and Allied health staff (1 woman) | RNs (5 women) | Allied health staff (4 women) |
| | RNs (3 women) and Allied health staff (1 woman) | Allied health staff (4 women) | Physicians (3 men and 2 women) |
| | | Physicians (3 men and 2 women) | RNs (4 women) and Assistant nurses (2 women) |

| | | | |
|---|---|---|---|
| | | | RNs (4 women) and Assistant nurse (1 woman) |
| **Individual interviews** | Head of department (1 man) | Head of department (1 man) | Head of department (1 man) |
| | First-line manager (1 man) | 2 First-line managers (2 women) | First-line manager (1 woman) |
| | | | Physician (1 woman) |
| **Total** | 11 (9 women, 2 men) | 17 (13 women, 4 men) | 23 (19 women, 4 men) |

Registered nurse=RN

### *Data analysis*

The data were transcribed verbatim and analysed using qualitative content analysis with an inductive approach. [19 20] The transcripts were read through several times by all researchers, to get a sense of the data. All three researchers were involved in analysis, going from a concrete to a more abstract level. This included identification of meaning units, which were condensed, coded, and sorted into 19 subcategories based on differences and similarities. The subcategories were compared, sorted, interpreted and abstracted into one main theme and four categories. All researchers discussed the codes, categories and themes in relation to the transcripts until consensus was reached. The researchers ML and ME are registered nurses, MF is a social worker. All researchers have clinical experience from different settings. This manuscript does not contain personal medical information about an identifiable person.

## RESULTS

The results include one main theme *Keeping patients safe – a never-ending effort at all levels,* constituting the latent content of four categories: 1) Co-creating safety between patients and multidisciplinary teams in the mess on the floor; 2) Using complementary communication paths – an asset and a risk for patient safety; 3) High competence level and learning across disciplines – requirements for patient safety; 4) Macro-level system for patient safety not in alignment with meso- and micro-level goals. In general, there was a high level of consistency between respondents' opinions in the interviews, regardless of unit, clinical manager, or team members, unless otherwise stated.

### *Keeping patients safe – a never-ending effort at all levels*

The established care ideology formed a mind-set common to both multidisciplinary teams (micro-level) and clinical managers (meso-level) on how to provide patient safety. Patient safety was described by both multidisciplinary teams and clinical managers as related to a patient's value as a person. Prevention of psychological harm, such as violated autonomy or integrity, had the same priority as prevention of physical harm. This view influenced risk management, in that a patient's preferences outweighed risks detected in the home care environment. The care ideology was challenged by the emerging complexity in which priority had to be given to standardised guidelines, quality assessments, management of information flow in maladapted communication systems, and demands for certain competencies and skills. Patient safety was an inherent part of the care ideology, not a goal in itself, and not always in agreement with the regional county council (macro-level) directives.

> *I think it's good for patient safety, to get patients and family involved. It… I can't imagine anything better than them knowing what they are putting in their mouth and what pills they are taking. They know who to call when they don't recognize the medication or… They ask us if we've sanitized our hands, if we're wearing aprons and so on… That…it's an aspect of culture, safety culture, both as regards care…here at the unit, and we take it along to our patients, since that's our work environment, so the patients become part of the safety culture, and they should feel that they…that it's their…I mean, it is their care (RN, unit C).*

***Co-creating safety between patients and multidisciplinary teams in the mess on the floor***

The multidisciplinary teams were united by their care ideology and the strong belief that establishing and maintaining sustainable, trusting relationships was the core of patient safety work. The multidisciplinary teams showed respect for patients' and relatives' values, wishes, and lifestyle through ensuring that there was time for conversation, to listen and take patients' and relatives' knowledge, feelings and thoughts into account in their planning and performance of care. By focusing on what mattered *for* the patient and relatives rather than what the matter was *with* the patient, the multidisciplinary teams could respect the patient's values. To fulfil the patient's wish to stay at home, the multidisciplinary teams undertook several actions that might entail a patient safety risk. An example of such an action was to delegate the medication administration to unlicensed staff in social care, as they could visit the patient several times a day. In some cases, the team members found themselves caught between the value of preventing a patient from potential harm and the value of respecting the

patient's autonomy, especially for people with cognitive impairments who were living alone. Each such case was a balancing act to help the patients stay at home without too much risk to his/her safety.

The varied work environment, with "patient rooms" of various standards distributed over a large area, was a health and safety risk for both patients and professionals. A prioritized goal to ensure wellbeing was to maintain a home-like atmosphere, though the home was also a place for care. It was a dilemma to provide care in line with aseptic guidelines in a home environment with narrow, unhygienic spaces, lack of clean areas for wound dressing or when pets interfered with the patient during caregiving. Arranging meetings with sufficient time to build trustful relationships enabled co-creation of care based on each patient's or family's wishes. This also allowed for including patients and families in active participation in accordance with their abilities. Each team member contributed with their competence.

> *Sometimes we get care-related injuries, infections in ports and so on. Some patients want to touch things and help us when we are working and cleaning and switching things, when it can be harmful. And that's not optimal, and when we don't have a work area I have to… maybe the only work area we have is the lid on the box that we put on the bed where the patient has urinated and defecated and which was last made…the linen was changed maybe seven months ago, literally… Meanwhile, the dog or cat shows up and starts licking and you have to… You're literally sitting like this (like a hook) (RN, unit C).*

**Using complementary communication paths – an asset and a risk for patient safety**

Both the clinical managers and multidisciplinary teams felt that written information needed to be supplemented with verbal communication both when transferred within their own organization and across institutional borders. Unstructured small talk in the hallways and lunch room, as well as team meetings with a set structure for information transfer, enabled creating a common view of the patients' and relatives' needs and giving reminders about potential risks. Information exchange with other care providers involved in a patient's care was described as equally important, but harder to facilitate. This kind of information exchange with unlicensed staff was mostly conducted through notes in patient homes.

The coordinator at each unit was perceived as an effective barrier to information misses and tended to be at the centre of communication. The coordinator was the team's access to the

EHR during home visits and a "detective" to find current information and prescriptions from other caregivers.

> *When it's that complicated, the meetings are great, when we have them. People meet and check in with each other. It's really good; you have your computer to hand and can look at the parameters, so to speak, that we are discussing. So that's the best thing, you know, when we can communicate (first-line manager, unit A).*

The joint electronic health record (EHR) system implemented among all publicly funded care providers – both in- and outpatient care – in the region, facilitated information transfer between caregivers. However, shortcomings (e.g., lack of user-friendly software design or a system for reminders and alerts) in the system and inconsistent documentation routines made the information fragmented and easily lost. As the EHR was not accessible during home visits, all essential information had to be reviewed beforehand. Team members noted everything that they wanted to report on paper and documented in the EHR when they came back from home visits. To compensate for the lack of overview in the EHR, a digital list of tasks for each home visit was used. Nurses updated this "to-do list" manually and used it as their primary tool for organizing their day. The tool, intended to make information accessible, also created a risk that the EHR was not read as carefully as the to-do list.

Information related to medication management was identified as the area that generated the highest risk for information misses. The team members found it difficult to be up-to-date with generic drugs, which were rapidly replaced as prices changed. For patients, this could lead to the intake of double doses, due to interpreting similar medications as different. Such errors were not easily discovered and created a sense of lacking control for team members and unnecessary suffering for patients and relatives.

**High competence level and learning across disciplines – requirements for patient safety**

The team meetings were important for improving patient safety by sharing experiences and learning from each other. The clinical managers tried to create a proactive, learning environment by highlighting safety issues. These meetings were also essential for getting to know each other, and each other's specific competences, across disciplinary borders. Thus, the team members knew who to turn to when facing a problem in a patient home and they felt comfortable calling each other for advice. This contributed to "a complementary knowledge

base" that was broader than each individual's knowledge. This reduced feeling of vulnerability during the home visits conducted alone, when rapid decisions had to be made.

> *…We're all alone out there, we really are…The chart system and medication lists and so on can't be accessed there… (RN, unit B)…All those assessments that you feel quite alone in making, you can be unsure… That's probably the most important aspect of the team, being based on parts and adding them all on top of each other. Then you usually get some kind of bigger picture regarding the patient (RN, unit A) …You get an enormous strength in the team actually, so if you've been thinking about something there'll be someone…who has another view and then you can get a bigger picture, which is very helpful. One plus one is three (physician, unit B).*

The broad spectra of diagnoses and rapid development of treatments and related technical devices that patients received during periods of hospitalization made it hard for the multidisciplinary teams to stay informed and updated. The clinical managers were worried that the level of competence and quality of care was threatened as the units expanded and new staff was introduced. Clinical managers strived to counteract this by scheduling new staff to work alongside experienced staff and organized training when new medical technology or new policies were introduced. The multidisciplinary teams, in turn, felt that the training lagged behind the rapid implementation of new technology.

**Macro-level system for patient safety not in alignment with meso- and micro-level goals**

The quality of care of the home healthcare organizations was evaluated through regular use of about 40 quality indicators, tailored to the county level demands. The organizations depend on reimbursement, which is based on these indicators. Both the multidisciplinary teams and clinical managers felt that the quality indicators poorly reflected quality improvement or patient safety in their daily work. The clinical managers had been invited by the county council to participate in the selection of quality indicators, but felt that their perspectives had little impact.

> *We are presented with statistics now every quarter for the existing system, and we shake our heads every time and we don't feel our work is reflected in the numbers they show us from the system we already have. So, can we possibly understand a change? No, it won't happen. Not that way (head of department, unit A).*

The multidisciplinary teams described that patients were overwhelmed by the number of quality indicators, as some were collected biweekly for all patients, regardless of diagnosis. As most of the indicators were general and not adapted to specific patient groups, both managers and teams perceived that little freedom was left to introduce additional measures targeting each individual patient's needs. In cases where the assessments were useful for the patient's care, the teams needed to register the data twice, as the quality indicator registries were not compatible with the EHR.

Both clinical managers and the multidisciplinary teams described the incident reporting system as an ongoing patient safety effort, for learning about and communicating patient safety issues. The team members described a dilemma in reporting events where colleagues were involved, as they did not want to implicate anyone. Managers prioritized analyses of adverse events and risks. The communication back to the team members, intended to improve patient safety, usually consisted of new guidelines. The team members described them as complicated multi-step guidelines and felt it was difficult to stay up-to-date. Trade-offs were common, as the guidelines sometimes contradicted each other and did not fit all the possible situations in patient homes. The clinical managers were aware that trade-offs were inevitable and gave the professionals a high degree of freedom to make decisions to promote patient safety.

## DISCUSSION

The main results of this explorative study show that patient safety in specialized home healthcare is a continuous effort at all levels of the system, while keeping the patient perspective in mind. The well-established care ideology in the studied context shaped a common mind-set between members in the multidisciplinary teams and clinical managers, which seemed to form a patient safety culture. Shared values, attitudes, beliefs, behaviours, and practices are features of a workplace culture. [21] In healthcare, a recent review across a variety of settings showed a consistent association between workplace culture and patient outcomes. However, most of the included studies were cross-sectional, using a wide range of different definitions and measurements of culture, environment, and patient outcomes, and most studies were conducted in hospital settings. [22] Safety culture in home healthcare has not yet been widely explored. [23] In the current study, the care ideology fostered shared values and practices across the multidisciplinary teams, promoting patient safety by giving the patient's

goals and autonomy priority in decisions about care. Such a person-centred perspective, has been on the political agenda for years, but is still poorly implemented in Sweden. [24] In most healthcare environments, there have been difficulties associated with involving patients as equal partners in care, due to lack of private rooms or communication, time pressures, a traditional work structure, and professionals' attitudes, for example. [25] By contrast in this study, in the home healthcare environment, patients were in charge of self-care activities around the clock, with assistance from team members who carried out treatment that patients couldn't perform themselves. However, the shared values that guided the team members in their safety work also implied risks. For example, hygiene guidelines did not mesh with the home healthcare environment or patients' preferences and behaviours. The Multidisciplinary teams in this study perceived a dilemma in contradicting a patient's will, i.e., going against the ideology, even when patient safety was in danger. A strong ideology could therefore be both a facilitator and a barrier to patient safety, depending on which value was given highest priority.

There is a widely accepted view that care at home is safer than institutional care, including to the risk of infections at hospital. [26] In this study, the work environment in home healthcare was highly unstable, as it is not designed to reduce medical errors and equipment problems or assist infection control. Thus, safe home healthcare is highly dependent on team members ability to adapt to the varying conditions and on patients being informed and capable of adjusting their homes and behaviours to reduce safety risks. This study exemplifies how the multidisciplinary teams, by building trusting relationships with patients and their relatives, promoted a care environment in concert with each patient's specific preferences and needs. This is in line with other studies showing that the relationship with health providers is central for older people feeling supported and cared for at home, and that a tense relation implied a risk of patient harm. [27] It is also in line with resilient healthcare, which is defined by its ability to adapt to unpredictable, unstable environments and remain intact and functional despite threats to care performance [28] at the sharp end, i.e., the point where the patient meets healthcare. Resilience at the sharp end also depends on adaptability at the management level. As shown in another study, at this level of the system, adaptations involve rapid reorganization of work as a response to disturbances, providing sufficient supplies and freedom for professionals to prioritize, adapt and take time to provide the care that patient needs. [29]

In the current study, at the macro-level, the steering mechanisms to promote quality and safety were built around a large number of mandatory quality assessments. These were combined with economic reimbursements or fines, depending on the degree of observance. At both the micro- and meso-levels of the system, these assessments were perceived as stealing valuable time from 'real' quality improvement work from there's point of view. The quality indicators were sparsely used in the daily work as they rarely fit patients' specific needs, and did not align with coordinating effective, safe, and comprehensive home healthcare. [3] Incident reporting is another measure for improving safety that has been used with great success in other high-risk organizations (e.g., nuclear, railway and car industry). [30] Even if there is limited evidence on how incident reporting actually contributes to safety in healthcare, [31] it is a globally accepted method. A common clinical management reaction to incident reports was to produce new guidelines, although it is well-known that trade-offs are commonplace in daily work. [29 32] Strategies and behaviours to work around problematic practical processes have been shown to either promote or hinder patient safety. [33] McDonald et al [34] found that managers believed that adherence to standardized processes promoted patient safety, which contrasts with the findings in this study, where the clinician managers were aware that the multidisciplinary teams made trade-offs to promote patient safety. Standardizations assume causality, that care is predictable, and that adverse events can be prevented through rules and guidelines. [35] As the complexity in healthcare systems increases, the usefulness of the incident reporting system in improving patient safety is disputed. The criticism concerns its use for counting incidents instead of effective analysis leading to meaningful changes and organizational learning. [36] To substantially improve patient safety in home healthcare, we need to develop reliable and valuable methods that enable studying the dynamic complexity of the system at different levels. [37] The guidelines and quality assessments, aimed to promote patient safety from a macro-perspective, constrained the team members freedom to adapt to challenges and provide safe care based on the shared care ideology. This indicates that if standardization is to be used as a tool to promote patient safety, it must be aligned with a culture based on patient values and goals, where calculated risks are taken into account.

This research has some limitations to consider. The selection of settings, situated in the same urban area of Sweden, may limit the extent to which our findings can be transferred to rural settings or other regions. The number of participants was lower than expected in some focus groups, due to the high workload, which may have limited the dynamics of the discussions. However, a strength of the study is that all professions in the multidisciplinary teams from

different settings were represented, and the interviews were characterized by rich variations and deep descriptions of patient safety in specialized home healthcare. [38] To further broaden the understanding of patient safety in home healthcare, patients, and their relatives could be involved. To make us aware of biases and preconceptions, we adopted a self-critical attitude and constantly reflected on our own thoughts and mind-sets, so as to strengthen the trustworthiness of data. [20 38] To reduce bias, we used research triangulation in all analyses and interpretations of data. [38] Finally, interpretation of the results should be made with the delay between data collection and publication kept in mind.

***Conclusion***

The dynamic and complex conditions under which home healthcare operate are fundamentally different from hospital care. Patient safety in the home healthcare is grounded in close multidisciplinary team collaboration based on a care ideology enhancing co-creation of care through patient autonomy, competence and relatedness. Thus, providing care included weighing risks against patients' preferences and will. Standardization and quality assessments introduced for improvement of care are contrasted against team members adaptations and patient behaviours and preferences, that set the limits for safety.

**List of abbreviations**

| | |
|---|---|
| EHR | Electronic health record |
| RN | Registered nurse |

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**Competing interests** None declared

**Contributors** ML and ME designed and conducted the study. All authors (ML, MF, ME) jointly contributed with their expertise in methodology, patient safety and home healthcare. All authors were part of the analysis process, drafted the manuscript and agreed to the final version of the manuscript before submission.

**Ethics approval** This study was approved by the Regional Ethical Review Committee in Sweden, Stockholm (DNr: 2012/1384:31).

**Data sharing statement**

Supplementary and raw data available upon request.

**Patient and Public Involvement statement**

Patients were not involved in this study.

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# Standards for Reporting Qualitative Research (SRQR)*

http://www.equator-network.org/reporting-guidelines/srqr/

| | Page/line no(s). |
|---|---|
| **Title and abstract** | |
| **Title** - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended | Page 1, line 2 |
| **Abstract** - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions | Page 2 |
| **Introduction** | |
| **Problem formulation** - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement | Page 3, line 85 |
| **Purpose or research question** - Purpose of the study and specific objectives or questions | Page 4, line 102 |
| **Methods** | |
| **Qualitative approach and research paradigm** - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale** | Page 3, line 107 |
| **Researcher characteristics and reflexivity** - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability | Page 6, line 170<br>Page 14, line 426 |
| **Context** - Setting/site and salient contextual factors; rationale** | Page 4, line 112 |
| **Sampling strategy** - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale** | Page 5, line 141 |
| **Ethical issues pertaining to human subjects** - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues | Page 14, line 457 and page 6, line 171 |
| **Data collection methods** - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale** | Page 5, line 138 |

| | |
|---|---|
| **Data collection instruments and technologies** - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study | Page 5, line 151 |
| **Units of study** - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results) | Page 4, line 119 and Page 5, table 1 |
| **Data processing** - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts | Page 5, line 147 and Page 6, line 162 |
| **Data analysis** - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale** | Page 6, line 162 |
| **Techniques to enhance trustworthiness** - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale** | Page 14, line 426 |

**Results/findings**

| | |
|---|---|
| **Synthesis and interpretation** - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory | Page 6, line 175 |
| **Links to empirical data** - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings | Page 7, line 197. Page 8, line 233. Page 9, line 256. Page 10 line 290 and 317. |

**Discussion**

| | |
|---|---|
| **Integration with prior work, implications, transferability, and contribution(s) to the field -** Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field | Page 11, line 343 |
| **Limitations** - Trustworthiness and limitations of findings | Page 13, line 418 |

**Other**

| | |
|---|---|
| **Conflicts of interest** - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed | Page 14, line 450 |
| **Funding** - Sources of funding and other support; role of funders in data collection, interpretation, and reporting | Page 14, line 445 |

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

**Reference:**

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014 DOI: 10.1097/ACM.0000000000000388

**Title**

Exploring patient safety in Swedish specialized home healthcare - an interview study with multidisciplinary teams and clinical managers

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## ABSTRACT

**Objective** Home healthcare is the fastest growing arena in the healthcare system but patient safety research in this context is limited. The aim was to explore patient safety in Swedish specialized home healthcare from multidisciplinary teams' and clinical managers' perspectives.

**Design** An explorative qualitative study.

**Setting** Multidisciplinary teams' and clinical managers were recruited from three specialized home healthcare organizations in Sweden.

**Methods** Nine focus group interviews with multidisciplinary teams and six individual interviews with clinical managers were conducted, in total 51 participants. The data were transcribed verbatim and analyzed using qualitative content analysis.

**Results** Patient safety was inherent in the well-established care ideology which shaped a common mind-set between members in the multidisciplinary teams and clinical managers. This patient safety culture was challenged by the emerging complexity in which priority had to be given to standardised guidelines, quality assessments and management of information in maladapted communication systems and demands for required competence and skills. The multiple guidelines and quality assessments that aimed to promote patient safety from a macro-perspective, constrained the freedom, on a meso- and micro-level, to adapt to challenges based on the care ideology.

**Conclusion** Patient safety in home healthcare is dependent on adaptability at the management level; the team members' ability to adapt to the varying conditions and on patients being capable of adjusting their homes and behaviours to reduce safety risks. A strong culture related to a patient's value as a person where patients' and families' active participation and preferences guides the decisions, could be both a facilitator and a barrier to patient safety, depending on which value is given highest priority.

**Strengths and limitations of this study**

- Trustworthiness have been strengthened by research triangulation, setting triangulation, and participant triangulation.
- We have lower numbers of participants than expected in each focus group due to the high workload.
- The selection of settings, situated in the same urban area of Sweden, may limit the extent to which our findings can be transferred to rural settings or other regions.

## BACKGROUND

Healthcare is becoming more complex and provision of care in people's homes is increasing, both globally [1] and in Sweden, [2] driven by medical and technical advances, economic pressures, demographic factors, and patient preferences. [3] However, most patient safety research is conducted in hospital settings, while home healthcare is largely unexplored. [4] Thus, evidence from hospital-based research has also been applied to home healthcare. In recent years, this has been criticized based on the knowledge that patient safety is largely context-dependent. [5 6]

The few existing home healthcare-specific studies on patient safety, have highlighted unique safety issues and the occurrence of adverse events. The specific patient safety challenges in home healthcare include fragmentation of care, care providers working in isolation and inadequate communication between different care providers [7 8] A recent interview study found that the perspectives of patients and their carers on patient safety contributed to safe home healthcare and were equally important as those of healthcare professionals for improving patient safety. [5] Studies of adverse events in home healthcare have shown a wide variation in the estimations, with 13% in Canada [9-11] and 37.7% in Sweden. [12] The types of adverse events were similar in both countries – falls, healthcare-associated infections, pressure ulcers – and most were considered to be preventable.

With a few exceptions, e.g., healthcare-associated infections, the patient safety research is increasingly based on the premise that harm is mainly the result of poorly designed systems. [13] As a system safety approach encompasses the organization's context, processes and structures, which can have a sustainable influence on promoting safe care [4 14] there is a need to study patient safety in the home healthcare setting.

Hence, the overall aim of this study was to explore how patient safety is described and addressed in specialized home healthcare from the perspectives of multidisciplinary teams and clinical managers.

## METHODS

### *Design*

This qualitative study, based on semi-structured interviews with multidisciplinary professionals and clinical managers, is part of a larger study on patient safety in home healthcare settings. [8]

### *Setting*

Multidisciplinary teams and clinical managers were recruited from three specialized home healthcare organizations in one regional healthcare authority in Sweden. Home healthcare in Sweden is defined as healthcare that is administered in a patient's home or the equivalent, and that is consistent over time, [15] but does not encompass home care organizations with unlicensed staff administering social care.

The three studied units are tax-funded and cover a limited geographical area. They were selected to capture socio-demographic differences in, e.g., country of birth and income. Each unit consisted of ambulatory multidisciplinary teams, including four to six physicians, 20-30 registered nurses (RNs) and one of each of the allied healthcare staff: physiotherapist, occupational therapist, dietitian and social worker. One unit had a few assistant nurses. The RNs and physicians were available 24 hours a day. Each unit employed one head of department and one or two first-line manager ("clinical managers"). The units provided long- or short-term round-the-clock advanced care and treatment to patients with complex diseases and symptoms.

All units had in the last years expanded from providing traditional palliative home healthcare to patients with a cancer diagnosis to providing specialized home healthcare to patients with all kinds of diagnoses, based on changes in national regulations. [16] The palliative care ideology in this study is referred to as 'the care ideology' on the basis that it was applied to all patients regardless of diagnosis. The cornerstones in the care ideology, can be summarized as nearness, wholeness, knowledge, and empathy. The approach should further be based on

continuity, good communication and support provided in accordance with patients and relatives' wishes, in so far as possible. [17]

***Data collection***

Nine focus group interviews with team members and seven individual interviews with clinical managers were conducted between December 2013 and May 2014, including in total 51 participants (Table 1). The interview method was inspired by Kvale and Brinkmann. [18] All team members were invited to participate in a focus group interview. The groups were deliberately composed so that the participants would feel comfortable discussing issues relevant to their discipline and to capture a variety of perspectives on patient safety. The heads of department approved performance of the study at their respective units.

All interviews took place at the workplace at the start or end of a work shift. Focus group interviews included 4-6 team members and lasted 60-90 minutes. Individual interviews lasted 30-60 minutes. The interviews were audio-recorded and the researcher took notes.

The interviews were conducted by the first and last researcher (ML and ME). A semi-structured interview guide was developed and tested in a pilot interview, after which minor revisions were made. The interview guide consisted of open-ended questions, such as "Tell me what patient safety means to you" and "Tell me about your experiences of what helps or hinders patient safety in your daily work." In addition to questions on patient safety, the clinical management interviews also included general questions on work organization. Both verbal and non-verbal probing techniques were used to increase clarity.

**Table 1. Overview of the interviews**

| | Unit A | Unit B | Unit C |
|---|---|---|---|
| **Focus group interviews** | RNs (4 women) and Allied health staff (1 woman) | RNs (5 women) | Allied health staff (4 women) |
| | RNs (3 women) and Allied health staff (1 woman) | Allied health staff (4 women) | Physicians (3 men and 2 women) |
| | | Physicians (3 men and 2 women) | RNs (4 women) and Assistant nurses (2 women) |

| | | | |
|---|---|---|---|
| | | | RNs (4 women) and Assistant nurse (1 woman) |
| **Individual interviews** | Head of department (1 man) | Head of department (1 man) | Head of department (1 man) |
| | First-line manager (1 man) | 2 First-line managers (2 women) | First-line manager (1 woman) |
| | | | Physician (1 woman) |
| **Total** | 11 (9 women, 2 men) | 17 (13 women, 4 men) | 23 (19 women, 4 men) |

Registered nurse=RN

***Data analysis***

The data were transcribed verbatim and analysed using qualitative content analysis with an inductive approach. [19 20] The transcripts were read through several times by all researchers, to get a sense of the data. All three researchers were involved in analysis, going from a concrete to a more abstract level. This included identification of meaning units, which were condensed, coded, and sorted into 19 subcategories based on differences and similarities. The subcategories were compared, sorted, interpreted and abstracted into one main theme and four categories. All researchers discussed the codes, categories and themes in relation to the transcripts until consensus was reached. The researchers ML and ME are registered nurses, MF is a social worker. All researchers have clinical experience from different settings. This manuscript does not contain personal medical information about an identifiable person

**RESULTS**

The results include one main theme *Keeping patients safe – a never-ending effort at all levels,* constituting the latent content of four categories: 1) Co-creating safety between patients and multidisciplinary teams in the mess on the floor; 2) Using complementary communication paths – an asset and a risk for patient safety; 3) High competence level and learning across disciplines – requirements for patient safety; 4) Macro-level system for patient safety not in alignment with meso- and micro-level goals. In general, there was a high level of consistency between respondents' opinions in the interviews, regardless of unit, clinical manager, or team members, unless otherwise stated.

***Keeping patients safe – a never-ending effort at all levels***

The established care ideology formed a mind-set common to both multidisciplinary teams (micro-level) and clinical managers (meso-level) on how to provide patient safety. Patient safety was described by both multidisciplinary teams and clinical managers as related to a patient's value as a person. Prevention of psychological harm, such as violated autonomy or integrity, had the same priority as prevention of physical harm. This view influenced risk management, in that a patient's preferences outweighed risks detected in the home care environment. The care ideology was challenged by the emerging complexity in which priority had to be given to standardised guidelines, quality assessments, management of information flow in maladapted communication systems, and demands for certain competencies and skills. Patient safety was an inherent part of the care ideology, not a goal in itself, and not always in agreement with the regional county council (macro-level) directives.

> *I think it's good for patient safety, to get patients and family involved. It… I can't imagine anything better than them knowing what they are putting in their mouth and what pills they are taking. They know who to call when they don't recognize the medication or… They ask us if we've sanitized our hands, if we're wearing aprons and so on… That…it's an aspect of culture, safety culture, both as regards care…here at the unit, and we take it along to our patients, since that's our work environment, so the patients become part of the safety culture, and they should feel that they…that it's their…I mean, it is their care (RN, unit C).*

***Co-creating safety between patients and multidisciplinary teams in the mess on the floor***

The multidisciplinary teams were united by their care ideology and the strong belief that establishing and maintaining sustainable, trusting relationships was the core of patient safety work. The multidisciplinary teams showed respect for patients' and relatives' values, wishes, and lifestyle through ensuring that there was time for conversation, to listen and take patients' and relatives' knowledge, feelings and thoughts into account in their planning and performance of care. By focusing on what mattered *for* the patient and relatives rather than what the matter was *with* the patient, the multidisciplinary teams could respect the patient's values. To fulfil the patient's wish to stay at home, the multidisciplinary teams undertook several actions that might entail a patient safety risk. An example of such an action was to delegate the medication administration to unlicensed staff in social care, as they could visit the patient several times a day. In some cases, the team members found themselves caught between the value of preventing a patient from potential harm and the value of respecting the

patient's autonomy, especially for people with cognitive impairments who were living alone. Each such case was a balancing act to help the patients stay at home without too much risk to his/her safety.

The varied work environment, with "patient rooms" of various standards distributed over a large area, was a health and safety risk for both patients and professionals. A prioritized goal to ensure wellbeing was to maintain a home-like atmosphere, though the home was also a place for care. It was a dilemma to provide care in line with aseptic guidelines in a home environment with narrow, unhygienic spaces, lack of clean areas for wound dressing or when pets interfered with the patient during caregiving. Arranging meetings with sufficient time to build trustful relationships enabled co-creation of care based on each patient's or family's wishes. This also allowed for including patients and families in active participation in accordance with their abilities. Each team member contributed with their competence.

> *Sometimes we get care-related injuries, infections in ports and so on. Some patients want to touch things and help us when we are working and cleaning and switching things, when it can be harmful. And that's not optimal, and when we don't have a work area I have to… maybe the only work area we have is the lid on the box that we put on the bed where the patient has urinated and defecated and which was last made…the linen was changed maybe seven months ago, literally… Meanwhile, the dog or cat shows up and starts licking and you have to… You're literally sitting like this (like a hook) (RN, unit C).*

**Using complementary communication paths – an asset and a risk for patient safety**

Both the clinical managers and multidisciplinary teams felt that written information needed to be supplemented with verbal communication both when transferred within their own organization and across institutional borders. Unstructured small talk in the hallways and lunch room, as well as team meetings with a set structure for information transfer, enabled creating a common view of the patients' and relatives' needs and giving reminders about potential risks. Information exchange with other care providers involved in a patient's care was described as equally important, but harder to facilitate. This kind of information exchange with unlicensed staff was mostly conducted through notes in patient homes.

The coordinator at each unit was perceived as an effective barrier to information misses and tended to be at the centre of communication. The coordinator was the team's access to the

EHR during home visits and a "detective" to find current information and prescriptions from other caregivers.

> *When it's that complicated, the meetings are great, when we have them. People meet and check in with each other. It's really good; you have your computer to hand and can look at the parameters, so to speak, that we are discussing. So that's the best thing, you know, when we can communicate (first-line manager, unit A).*

The joint electronic health record (EHR) system implemented among all publicly funded care providers – both in- and outpatient care – in the region, facilitated information transfer between caregivers. However, shortcomings (e.g., lack of user-friendly software design or a system for reminders and alerts) in the system and inconsistent documentation routines made the information fragmented and easily lost. As the EHR was not accessible during home visits, all essential information had to be reviewed beforehand. Team members noted everything that they wanted to report on paper and documented in the EHR when they came back from home visits. To compensate for the lack of overview in the EHR, a digital list of tasks for each home visit was used. Nurses updated this "to-do list" manually and used it as their primary tool for organizing their day. The tool, intended to make information accessible, also created a risk that the EHR was not read as carefully as the to-do list.

Information related to medication management was identified as the area that generated the highest risk for information misses. The team members found it difficult to be up-to-date with generic drugs, which were rapidly replaced as prices changed. For patients, this could lead to the intake of double doses, due to interpreting similar medications as different. Such errors were not easily discovered and created a sense of lacking control for team members and unnecessary suffering for patients and relatives.

**High competence level and learning across disciplines – requirements for patient safety**

The team meetings were important for improving patient safety by sharing experiences and learning from each other. The clinical managers tried to create a proactive, learning environment by highlighting safety issues. These meetings were also essential for getting to know each other, and each other's specific competences, across disciplinary borders. Thus, the team members knew who to turn to when facing a problem in a patient home and they felt comfortable calling each other for advice. This contributed to "a complementary knowledge

base" that was broader than each individual's knowledge. This reduced feeling of vulnerability during the home visits conducted alone, when rapid decisions had to be made.

> *…We're all alone out there, we really are…The chart system and medication lists and so on can't be accessed there… (RN, unit B)…All those assessments that you feel quite alone in making, you can be unsure… That's probably the most important aspect of the team, being based on parts and adding them all on top of each other. Then you usually get some kind of bigger picture regarding the patient (RN, unit A) …You get an enormous strength in the team actually, so if you've been thinking about something there'll be someone…who has another view and then you can get a bigger picture, which is very helpful. One plus one is three (physician, unit B).*

The broad spectra of diagnoses and rapid development of treatments and related technical devices that patients received during periods of hospitalization made it hard for the multidisciplinary teams to stay informed and updated. The clinical managers were worried that the level of competence and quality of care was threatened as the units expanded and new staff was introduced. Clinical managers strived to counteract this by scheduling new staff to work alongside experienced staff and organized training when new medical technology or new policies were introduced. The multidisciplinary teams, in turn, felt that the training lagged behind the rapid implementation of new technology.

**Macro-level system for patient safety not in alignment with meso- and micro-level goals**

The quality of care of the home healthcare organizations was evaluated through regular use of about 40 quality indicators, tailored to the county level demands. The organizations depend on reimbursement, which is based on these indicators. Both the multidisciplinary teams and clinical managers felt that the quality indicators poorly reflected quality improvement or patient safety in their daily work. The clinical managers had been invited by the county council to participate in the selection of quality indicators, but felt that their perspectives had little impact.

> *We are presented with statistics now every quarter for the existing system, and we shake our heads every time and we don't feel our work is reflected in the numbers they show us from the system we already have. So, can we possibly understand a change? No, it won't happen. Not that way (head of department, unit A).*

The multidisciplinary teams described that patients were overwhelmed by the number of quality indicators, as some were collected biweekly for all patients, regardless of diagnosis. As most of the indicators were general and not adapted to specific patient groups, both managers and teams perceived that little freedom was left to introduce additional measures targeting each individual patient's needs. In cases where the assessments were useful for the patient's care, the teams needed to register the data twice, as the quality indicator registries were not compatible with the EHR.

Both clinical managers and the multidisciplinary teams described the incident reporting system as an ongoing patient safety effort, for learning about and communicating patient safety issues. The team members described a dilemma in reporting events where colleagues were involved, as they did not want to implicate anyone. Managers prioritized analyses of adverse events and risks. The communication back to the team members, intended to improve patient safety, usually consisted of new guidelines. The team members described them as complicated multi-step guidelines and felt it was difficult to stay up-to-date. Trade-offs were common, as the guidelines sometimes contradicted each other and did not fit all the possible situations in patient homes. The clinical managers were aware that trade-offs were inevitable and gave the professionals a high degree of freedom to make decisions to promote patient safety.

## DISCUSSION

The main results of this explorative study show that patient safety in specialized home healthcare is a continuous effort at all levels of the system, while keeping the patient perspective in mind. The well-established care ideology in the studied context shaped a common mind-set between members in the multidisciplinary teams and clinical managers, which seemed to form a patient safety culture. Shared values, attitudes, beliefs, behaviours, and practices are features of a workplace culture. [21] In healthcare, a recent review across a variety of settings showed a consistent association between workplace culture and patient outcomes. However, most of the included studies were cross-sectional, using a wide range of different definitions and measurements of culture, environment, and patient outcomes, and most studies were conducted in hospital settings. [22] Safety culture in home healthcare has not yet been widely explored. [23] In the current study, the care ideology fostered shared values and practices across the multidisciplinary teams, promoting patient safety by giving the patient's

goals and autonomy priority in decisions about care. Such a person-centred perspective, has been on the political agenda for years, but is still poorly implemented in Sweden. [24] In most healthcare environments, there have been difficulties associated with involving patients as equal partners in care, due to lack of private rooms or communication, time pressures, a traditional work structure, and professionals' attitudes, for example. [25] By contrast in this study, in the home healthcare environment, patients were in charge of self-care activities around the clock, with assistance from team members who carried out treatment that patients couldn't perform themselves. However, the shared values that guided the team members in their safety work also implied risks. For example, hygiene guidelines did not mesh with the home healthcare environment or patients' preferences and behaviours. The Multidisciplinary teams in this study perceived a dilemma in contradicting a patient's will, i.e., going against the ideology, even when patient safety was in danger. A strong ideology could therefore be both a facilitator and a barrier to patient safety, depending on which value was given highest priority.

There is a widely accepted view that care at home is safer than institutional care, including to the risk of infections at hospital. [26] In this study, the work environment in home healthcare was highly unstable, as it is not designed to reduce medical errors and equipment problems or assist infection control. Thus, safe home healthcare is highly dependent on team members ability to adapt to the varying conditions and on patients being informed and capable of adjusting their homes and behaviours to reduce safety risks. This study exemplifies how the multidisciplinary teams, by building trusting relationships with patients and their relatives, promoted a care environment in concert with each patient's specific preferences and needs. This is in line with other studies showing that the relationship with health providers is central for older people feeling supported and cared for at home, and that a tense relation implied a risk of patient harm. [27] It is also in line with resilient healthcare, which is defined by its ability to adapt to unpredictable, unstable environments and remain intact and functional despite threats to care performance [28] at the sharp end, i.e., the point where the patient meets healthcare. Resilience at the sharp end also depends on adaptability at the management level. As shown in another study, at this level of the system, adaptations involve rapid reorganization of work as a response to disturbances, providing sufficient supplies and freedom for professionals to prioritize, adapt and take time to provide the care that patient needs. [29]

In the current study, at the macro-level, the steering mechanisms to promote quality and safety were built around a large number of mandatory quality assessments. These were combined with economic reimbursements or fines, depending on the degree of observance. At both the micro- and meso-levels of the system, these assessments were perceived as stealing valuable time from 'real' quality improvement work from there's point of view. The quality indicators were sparsely used in the daily work as they rarely fit patients' specific needs, and did not align with coordinating effective, safe, and comprehensive home healthcare. [3] Incident reporting is another measure for improving safety that has been used with great success in other high-risk organizations (e.g., nuclear, railway and car industry). [30] Even if there is limited evidence on how incident reporting actually contributes to safety in healthcare, [31] it is a globally accepted method. A common clinical management reaction to incident reports was to produce new guidelines, although it is well-known that trade-offs are commonplace in daily work. [29 32] Strategies and behaviours to work around problematic practical processes have been shown to either promote or hinder patient safety. [33] McDonald et al [34] found that managers believed that adherence to standardized processes promoted patient safety, which contrasts with the findings in this study, where the clinician managers were aware that the multidisciplinary teams made trade-offs to promote patient safety. Standardizations assume causality, that care is predictable, and that adverse events can be prevented through rules and guidelines. [35] As the complexity in healthcare systems increases, the usefulness of the incident reporting system in improving patient safety is disputed. The criticism concerns its use for counting incidents instead of effective analysis leading to meaningful changes and organizational learning. [36] To substantially improve patient safety in home healthcare, we need to develop reliable and valuable methods that enable studying the dynamic complexity of the system at different levels. [37] The guidelines and quality assessments, aimed to promote patient safety from a macro-perspective, constrained the team members freedom to adapt to challenges and provide safe care based on the shared care ideology. This indicates that if standardization is to be used as a tool to promote patient safety, it must be aligned with a culture based on patient values and goals, where calculated risks are taken into account.

This research has some limitations to consider. The selection of settings, situated in the same urban area of Sweden, may limit the extent to which our findings can be transferred to rural settings or other regions. The number of participants was lower than expected in some focus groups, due to the high workload, which may have limited the dynamics of the discussions. However, a strength of the study is that all professions in the multidisciplinary teams from

different settings were represented, and the interviews were characterized by rich variations and deep descriptions of patient safety in specialized home healthcare. [38] To further broaden the understanding of patient safety in home healthcare, patients, and their relatives could be involved. To make us aware of biases and preconceptions, we adopted a self-critical attitude and constantly reflected on our own thoughts and mind-sets, so as to strengthen the trustworthiness of data. [20 38] To reduce bias, we used research triangulation in all analyses and interpretations of data. [38] Finally, interpretation of the results should be made with the delay between data collection and publication kept in mind.

***Conclusion***

The dynamic and complex conditions under which home healthcare operate are fundamentally different from hospital care. Patient safety in the home healthcare is grounded in close multidisciplinary team collaboration based on a care ideology enhancing co-creation of care through patient autonomy, competence and relatedness. Thus, providing care included weighing risks against patients' preferences and will. Standardization and quality assessments introduced for improvement of care are contrasted against team members adaptations and patient behaviours and preferences, that set the limits for safety.

**List of abbreviations**

| | |
|---|---|
| EHR | Electronic health record |
| RN | Registered nurse |

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**Competing interests** None declared

**Contributors** ML and ME designed and conducted the study. All authors (ML, MF, ME) jointly contributed with their expertise in methodology, patient safety and home healthcare. All authors were part of the analysis process, drafted the manuscript and agreed to the final version of the manuscript before submission.

**Ethics approval** This study was approved by the Regional Ethical Review Committee in Sweden, Stockholm (DNr: 2012/1384:31).

**Data sharing statement**

Supplementary and raw data available upon request.

**Patient and Public Involvement statement**

Patients were not involved in this study.

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# Exploring patient safety in Swedish specialized home healthcare - an interview study with multidisciplinary teams and clinical managers

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**Title**

# Exploring patient safety in Swedish specialized home healthcare - an interview study with multidisciplinary teams and clinical managers

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**ABSTRACT**

**Objective** Home healthcare is the fastest growing arena in the healthcare system but patient safety research in this context is limited. The aim was to explore patient safety in Swedish specialized home healthcare from multidisciplinary teams' and clinical managers' perspectives.

**Design** An explorative qualitative study.

**Setting** Multidisciplinary teams' and clinical managers were recruited from three specialized home healthcare organizations in Sweden.

**Methods** Nine focus group interviews with multidisciplinary teams and six individual interviews with clinical managers were conducted, in total 51 participants. The data were transcribed verbatim and analyzed using qualitative content analysis.

**Results** Patient safety was inherent in the well-established care ideology which shaped a common mind-set between members in the multidisciplinary teams and clinical managers. This patient safety culture was challenged by the emerging complexity in which priority had to be given to standardised guidelines, quality assessments and management of information in maladapted communication systems and demands for required competence and skills. The multiple guidelines and quality assessments that aimed to promote patient safety from a macro-perspective, constrained the freedom, on a meso- and micro-level, to adapt to challenges based on the care ideology.

**Conclusion** Patient safety in home healthcare is dependent on adaptability at the management level; the team members' ability to adapt to the varying conditions and on patients being capable of adjusting their homes and behaviours to reduce safety risks. A strong culture related to a patient's value as a person where patients' and families' active participation and preferences guides the decisions, could be both a facilitator and a barrier to patient safety, depending on which value is given highest priority.

**Strengths and limitations of this study**

- Trustworthiness have been strengthened by research triangulation, setting triangulation, and participant triangulation.
- We have lower numbers of participants than expected in each focus group due to the high workload.
- The selection of settings, situated in the same urban area of Sweden, may limit the extent to which our findings can be transferred to rural settings or other regions.

## BACKGROUND

Healthcare is becoming more complex and provision of care in people's homes is increasing, both globally [1] and in Sweden, [2] driven by medical and technical advances, economic pressures, demographic factors, and patient preferences. [3] However, most patient safety research is conducted in hospital settings, while home healthcare is largely unexplored. [4] Thus, evidence from hospital-based research has also been applied to home healthcare. In recent years, this has been criticized based on the knowledge that patient safety is largely context-dependent. [5 6]

The few existing home healthcare-specific studies on patient safety, have highlighted unique safety issues and the occurrence of adverse events. The specific patient safety challenges in home healthcare include fragmentation of care, care providers working in isolation and inadequate communication between different care providers [7 8] A recent interview study found that the perspectives of patients and their carers on patient safety contributed to safe home healthcare and were equally important as those of healthcare professionals for improving patient safety. [5] Studies of adverse events in home healthcare have shown a wide variation in the estimations, with 13% in Canada [9-11] and 37.7% in Sweden. [12] The types of adverse events were similar in both countries – falls, healthcare-associated infections, pressure ulcers – and most were considered to be preventable. I en intervjustudie framkom det att patienter och närståendes perspektiv på patientsäkerhet bidrar till säker vård lika mycket som vårdpersonalens (Jones 2016).

With a few exceptions, e.g., healthcare-associated infections, the patient safety research is increasingly based on the premise that harm is mainly the result of poorly designed systems. [13] As a system safety approach encompasses the organization's context, processes and structures, which can have a sustainable influence on promoting safe care [4 14] there is a need to study patient safety in the home healthcare setting.

Hence, the overall aim of this study was to explore how patient safety is described and addressed in specialized home healthcare from the perspectives of multidisciplinary teams and clinical managers.

## METHODS

### *Design*

This qualitative study, based on semi-structured interviews with multidisciplinary professionals and clinical managers, is part of a larger study on patient safety in home healthcare settings. [8]

### *Setting*

Multidisciplinary teams and clinical managers were recruited from three specialized home healthcare organizations in one regional healthcare authority in Sweden. Home healthcare in Sweden is defined as healthcare that is administered in a patient's home or the equivalent, and that is consistent over time, [15] but does not encompass home care organizations with unlicensed staff administering social care.

The three studied units are tax-funded and cover a limited geographical area. They were selected to capture socio-demographic differences in, e.g., country of birth and income. Each unit consisted of ambulatory multidisciplinary teams, including four to six physicians, 20-30 registered nurses (RNs) and one of each of the allied healthcare staff: physiotherapist, occupational therapist, dietitian and social worker. One unit had a few assistant nurses. The RNs and physicians were available 24 hours a day. Each unit employed one head of department and one or two first-line manager ("clinical managers"). The units provided long- or short-term round-the-clock advanced care and treatment to patients with complex diseases and symptoms.

All units had in the last years expanded from providing traditional palliative home healthcare to patients with a cancer diagnosis to providing specialized home healthcare to patients with all kinds of diagnoses, based on changes in national regulations. [16] The palliative care ideology in this study is referred to as 'the care ideology' on the basis that it was applied to all patients regardless of diagnosis. The cornerstones in the care ideology, can be summarized as nearness, wholeness, knowledge, and empathy. The approach should further be based on continuity, good communication and support provided in accordance with patients and relatives' wishes, in so far as possible. [17]

***Data collection***

Nine focus group interviews with team members and seven individual interviews with clinical managers were conducted between December 2013 and May 2014, including in total 51 participants (Table 1). The interview method was inspired by Kvale and Brinkmann. [18] All team members were invited to participate in a focus group interview. The groups were deliberately composed so that the participants would feel comfortable discussing issues relevant to their discipline and to capture a variety of perspectives on patient safety. The heads of department approved performance of the study at their respective units.

All interviews took place at the workplace at the start or end of a work shift. Focus group interviews included 4-6 team members and lasted 60-90 minutes. Individual interviews lasted 30-60 minutes. The interviews were audio-recorded and the researcher took notes.

The interviews were conducted by the first and last researcher (ML and ME). A semi-structured interview guide was developed and tested in a pilot interview, after which minor revisions were made. The interview guide consisted of open-ended questions, such as "Tell me what patient safety means to you" and "Tell me about your experiences of what helps or hinders patient safety in your daily work." In addition to questions on patient safety, the clinical management interviews also included general questions on work organization. Both verbal and non-verbal probing techniques were used to increase clarity.

**Table 1. Overview of the interviews**

| | Unit A | Unit B | Unit C |
|---|---|---|---|
| **Focus group interviews** | RNs (4 women) and Allied health staff (1 woman) | RNs (5 women) | Allied health staff (4 women) |
| | RNs (3 women) and Allied health staff (1 woman) | Allied health staff (4 women) | Physicians (3 men and 2 women) |
| | | Physicians (3 men and 2 women) | RNs (4 women) and Assistant nurses (2 women) |
| | | | RNs (4 women) and Assistant nurse (1 woman) |
| **Individual interviews** | Head of department (1 man) | Head of department (1 man) | Head of department (1 man) |
| | First-line manager (1 man) | 2 First-line managers (2 women) | First-line manager (1 woman) |
| | | | Physician (1 woman) |
| **Total** | 11 (9 women, 2 men) | 17 (13 women, 4 men) | 23 (19 women, 4 men) |

Registered nurse=RN

### *Data analysis*

The data were transcribed verbatim and analysed using qualitative content analysis with an inductive approach. [19 20] The transcripts were read through several times by all researchers, to get a sense of the data. All three researchers were involved in analysis, going from a concrete to a more abstract level. This included identification of meaning units, which were condensed, coded, and sorted into 19 subcategories based on differences and similarities. The subcategories were compared, sorted, interpreted and abstracted into one main theme and four categories. All researchers discussed the codes, categories and themes in relation to the transcripts until consensus was reached. The researchers ML and ME are registered nurses, MF is a social worker. All researchers have clinical experience from different settings. This manuscript does not contain personal medical information about an identifiable person.

### Patient and Public Involvement statement

Patients were not involved in this study.

## RESULTS

The results include one main theme *Keeping patients safe – a never-ending effort at all levels,* constituting the latent content of four categories: 1) Co-creating safety between patients and multidisciplinary teams in the mess on the floor; 2) Using complementary communication paths – an asset and a risk for patient safety; 3) High competence level and learning across disciplines – requirements for patient safety; 4) Macro-level system for patient safety not in alignment with meso- and micro-level goals. In general, there was a high level of consistency between respondents' opinions in the interviews, regardless of unit, clinical manager, or team members, unless otherwise stated.

### *Keeping patients safe – a never-ending effort at all levels*

The established care ideology formed a mind-set common to both multidisciplinary teams (micro-level) and clinical managers (meso-level) on how to provide patient safety. Patient safety was described by both multidisciplinary teams and clinical managers as related to a patient's value as a person. Prevention of psychological harm, such as violated autonomy or integrity, had the same priority as prevention of physical harm. This view influenced risk management, in that a patient's preferences outweighed risks detected in the home care environment. The care ideology was challenged by the emerging complexity in which priority had to be given to standardised guidelines, quality assessments, management of information flow in maladapted communication systems, and demands for certain competencies and skills. Patient safety was an inherent part of the care ideology, not a goal in itself, and not always in agreement with the regional county council (macro-level) directives.

> *I think it's good for patient safety, to get patients and family involved. It… I can't imagine anything better than them knowing what they are putting in their mouth and what pills they are taking. They know who to call when they don't recognize the medication or… They ask us if we've sanitized our hands, if we're wearing aprons and so on… That…it's an aspect of culture, safety culture, both as regards care…here at the unit, and we take it along to our patients, since that's our work environment, so the patients become part of*

*the safety culture, and they should feel that they…that it's their…I mean, it is their care (RN, unit C).*

***Co-creating safety between patients and multidisciplinary teams in the mess on the floor***

The multidisciplinary teams were united by their care ideology and the strong belief that establishing and maintaining sustainable, trusting relationships was the core of patient safety work. The multidisciplinary teams showed respect for patients' and relatives' values, wishes, and lifestyle through ensuring that there was time for conversation, to listen and take patients' and relatives' knowledge, feelings and thoughts into account in their planning and performance of care. By focusing on what mattered *for* the patient and relatives rather than what the matter was *with* the patient, the multidisciplinary teams could respect the patient's values. To fulfil the patient's wish to stay at home, the multidisciplinary teams undertook several actions that might entail a patient safety risk. An example of such an action was to delegate the medication administration to unlicensed staff in social care, as they could visit the patient several times a day. In some cases, the team members found themselves caught between the value of preventing a patient from potential harm and the value of respecting the patient's autonomy, especially for people with cognitive impairments who were living alone. Each such case was a balancing act to help the patients stay at home without too much risk to his/her safety.

The varied work environment, with "patient rooms" of various standards distributed over a large area, was a health and safety risk for both patients and professionals. A prioritized goal to ensure wellbeing was to maintain a home-like atmosphere, though the home was also a place for care. It was a dilemma to provide care in line with aseptic guidelines in a home environment with narrow, unhygienic spaces, lack of clean areas for wound dressing or when pets interfered with the patient during caregiving. Arranging meetings with sufficient time to build trustful relationships enabled co-creation of care based on each patient's or family's wishes. This also allowed for including patients and families in active participation in accordance with their abilities. Each team member contributed with their competence.

*Sometimes we get care-related injuries, infections in ports and so on. Some patients want to touch things and help us when we are working and cleaning and switching things,*

*when it can be harmful. And that's not optimal, and when we don't have a work area I have to… maybe the only work area we have is the lid on the box that we put on the bed where the patient has urinated and defecated and which was last made…the linen was changed maybe seven months ago, literally… Meanwhile, the dog or cat shows up and starts licking and you have to… You're literally sitting like this (like a hook) (RN, unit C).*

**Using complementary communication paths – an asset and a risk for patient safety**

Both the clinical managers and multidisciplinary teams felt that written information needed to be supplemented with verbal communication both when transferred within their own organization and across institutional borders. Unstructured small talk in the hallways and lunch room, as well as team meetings with a set structure for information transfer, enabled creating a common view of the patients' and relatives' needs and giving reminders about potential risks. Information exchange with other care providers involved in a patient's care was described as equally important, but harder to facilitate. This kind of information exchange with unlicensed staff was mostly conducted through notes in patient homes.

The coordinator at each unit was perceived as an effective barrier to information misses and tended to be at the centre of communication. The coordinator was the team's access to the electronic health record (EHR) during home visits and a "detective" to find current information and prescriptions from other caregivers.

*When it's that complicated, the meetings are great, when we have them. People meet and check in with each other. It's really good; you have your computer to hand and can look at the parameters, so to speak, that we are discussing. So that's the best thing, you know, when we can communicate (first-line manager, unit A).*

The joint EHR system implemented among all publicly funded care providers – both in- and outpatient care – in the region, facilitated information transfer between caregivers. However, shortcomings (e.g., lack of user-friendly software design or a system for reminders and alerts) in the system and inconsistent documentation routines made the information fragmented and easily lost. As the EHR was not accessible during home visits, all essential information had to be reviewed beforehand. Team members noted everything that they wanted to report on paper and documented in the EHR when they came back from home visits. To compensate for the lack of overview in the EHR, a digital list of tasks for each home visit was used. Nurses updated this "to-

do list" manually and used it as their primary tool for organizing their day. The tool, intended to make information accessible, also created a risk that the EHR was not read as carefully as the to-do list.

Information related to medication management was identified as the area that generated the highest risk for information misses. The team members found it difficult to be up-to-date with generic drugs, which were rapidly replaced as prices changed. For patients, this could lead to the intake of double doses, due to interpreting similar medications as different. Such errors were not easily discovered and created a sense of lacking control for team members and unnecessary suffering for patients and relatives.

**High competence level and learning across disciplines – requirements for patient safety**

The team meetings were important for improving patient safety by sharing experiences and learning from each other. The clinical managers tried to create a proactive, learning environment by highlighting safety issues. These meetings were also essential for getting to know each other, and each other's specific competences, across disciplinary borders. Thus, the team members knew who to turn to when facing a problem in a patient home and they felt comfortable calling each other for advice. This contributed to "a complementary knowledge base" that was broader than each individual's knowledge. This reduced feeling of vulnerability during the home visits conducted alone, when rapid decisions had to be made.

> *…We're all alone out there, we really are…The chart system and medication lists and so on can't be accessed there… (RN, unit B)…All those assessments that you feel quite alone in making, you can be unsure… That's probably the most important aspect of the team, being based on parts and adding them all on top of each other. Then you usually get some kind of bigger picture regarding the patient (RN, unit A) …You get an enormous strength in the team actually, so if you've been thinking about something there'll be someone…who has another view and then you can get a bigger picture, which is very helpful. One plus one is three (physician, unit B).*

The broad spectra of diagnoses and rapid development of treatments and related technical devices that patients received during periods of hospitalization made it hard for the multidisciplinary teams to stay informed and updated. The clinical managers were worried that the level of competence and quality of care was threatened as the units expanded and new staff was introduced. Clinical managers strived to counteract this by scheduling new staff to work alongside experienced staff and organized training when new medical technology or new policies were introduced. The multidisciplinary teams, in turn, felt that the training lagged behind the rapid implementation of new technology.

**Macro-level system for patient safety not in alignment with meso- and micro-level goals**

The quality of care of the home healthcare organizations was evaluated through regular use of about 40 quality indicators, tailored to the county level demands. The organizations depend on reimbursement, which is based on these indicators. Both the multidisciplinary teams and clinical managers felt that the quality indicators poorly reflected quality improvement or patient safety in their daily work. The clinical managers had been invited by the county council to participate in the selection of quality indicators, but felt that their perspectives had little impact.

> *We are presented with statistics now every quarter for the existing system, and we shake our heads every time and we don't feel our work is reflected in the numbers they show us from the system we already have. So, can we possibly understand a change? No, it won't happen. Not that way (head of department, unit A).*

The multidisciplinary teams described that patients were overwhelmed by the number of quality indicators, as some were collected biweekly for all patients, regardless of diagnosis. As most of the indicators were general and not adapted to specific patient groups, both managers and teams perceived that little freedom was left to introduce additional measures targeting each individual patient's needs. In cases where the assessments were useful for the patient's care, the teams needed to register the data twice, as the quality indicator registries were not compatible with the EHR.

Both clinical managers and the multidisciplinary teams described the incident reporting system as an ongoing patient safety effort, for learning about and communicating patient safety issues. The

team members described a dilemma in reporting events where colleagues were involved, as they did not want to implicate anyone. Managers prioritized analyses of adverse events and risks. The communication back to the team members, intended to improve patient safety, usually consisted of new guidelines. The team members described them as complicated multi-step guidelines and felt it was difficult to stay up-to-date. Trade-offs were common, as the guidelines sometimes contradicted each other and did not fit all the possible situations in patient homes. The clinical managers were aware that trade-offs were inevitable and gave the professionals a high degree of freedom to make decisions to promote patient safety.

## DISCUSSION

The main results of this explorative study show that patient safety in specialized home healthcare is a continuous effort at all levels of the system, while keeping the patient perspective in mind. The well-established care ideology in the studied context shaped a common mind-set between members in the multidisciplinary teams and clinical managers, which seemed to form a patient safety culture. Shared values, attitudes, beliefs, behaviours, and practices are features of a workplace culture. [21] In healthcare, a recent review across a variety of settings showed a consistent association between workplace culture and patient outcomes. However, most of the included studies were cross-sectional, using a wide range of different definitions and measurements of culture, environment, and patient outcomes, and most studies were conducted in hospital settings. [22] Safety culture in home healthcare has not yet been widely explored. [23] In the current study, the care ideology fostered shared values and practices across the multidisciplinary teams, promoting patient safety by giving the patient's goals and autonomy priority in decisions about care. Such a person-centred perspective, has been on the political agenda for years, but is still poorly implemented in Sweden. [24] In most healthcare environments, there have been difficulties associated with involving patients as equal partners in care, due to lack of private rooms or communication, time pressures, a traditional work structure, and professionals' attitudes, for example. [25] By contrast in this study, in the home healthcare environment, patients were in charge of self-care activities around the clock, with assistance from team members who carried out treatment that patients couldn't perform themselves. However, the shared values that guided the team members in their safety work also implied risks. For example, hygiene guidelines did not mesh with the home healthcare environment or patients' preferences and

behaviours. The Multidisciplinary teams in this study perceived a dilemma in contradicting a patient's will, i.e., going against the ideology, even when patient safety was in danger. A strong ideology could therefore be both a facilitator and a barrier to patient safety, depending on which value was given highest priority.

There is a widely accepted view that care at home is safer than institutional care, including to the risk of infections at hospital. [26] In this study, the work environment in home healthcare was highly unstable, as it is not designed to reduce medical errors and equipment problems or assist infection control. Thus, safe home healthcare is highly dependent on team members ability to adapt to the varying conditions and on patients being informed and capable of adjusting their homes and behaviours to reduce safety risks. This study exemplifies how the multidisciplinary teams, by building trusting relationships with patients and their relatives, promoted a care environment in concert with each patient's specific preferences and needs. This is in line with other studies showing that the relationship with health providers is central for older people feeling supported and cared for at home, and that a tense relation implied a risk of patient harm. [27] It is also in line with resilient healthcare, which is defined by its ability to adapt to unpredictable, unstable environments and remain intact and functional despite threats to care performance [28] at the sharp end, i.e., the point where the patient meets healthcare. Resilience at the sharp end also depends on adaptability at the management level. As shown in another study, at this level of the system, adaptations involve rapid reorganization of work as a response to disturbances, providing sufficient supplies and freedom for professionals to prioritize, adapt and take time to provide the care that patient needs. [29]

In the current study, at the macro-level, the steering mechanisms to promote quality and safety were built around a large number of mandatory quality assessments. These were combined with economic reimbursements or fines, depending on the degree of observance. At both the micro- and meso-levels of the system, these assessments were perceived as stealing valuable time from 'real' quality improvement work from their point of view. The quality indicators were sparsely used in the daily work as they rarely fit patients' specific needs, and did not align with coordinating effective, safe, and comprehensive home healthcare. [3] Incident reporting is another measure for improving safety that has been used with great success in other high-risk

organizations (e.g., nuclear, railway and car industry). [30] Even if there is limited evidence on how incident reporting actually contributes to safety in healthcare, [31] it is a globally accepted method. A common clinical management reaction to incident reports was to produce new guidelines, although it is well-known that trade-offs are commonplace in daily work. [29 32] Strategies and behaviours to work around problematic practical processes have been shown to either promote or hinder patient safety. [33] McDonald et al [34] found that managers believed that adherence to standardized processes promoted patient safety, which contrasts with the findings in this study, where the clinical managers were aware that the multidisciplinary teams made trade-offs to promote patient safety. Standardizations assume causality, that care is predictable, and that adverse events can be prevented through rules and guidelines. [35] As the complexity in healthcare systems increases, the usefulness of the incident reporting system in improving patient safety is disputed. The criticism concerns its use for counting incidents instead of effective analysis leading to meaningful changes and organizational learning. [36] To substantially improve patient safety in home healthcare, we need to develop reliable and valuable methods that enable studying the dynamic complexity of the system at different levels. [37] The guidelines and quality assessments, aimed to promote patient safety from a macro-perspective, constrained the team members freedom to adapt to challenges and provide safe care based on the shared care ideology. This indicates that if standardization is to be used as a tool to promote patient safety, it must be aligned with a culture based on patient values and goals, where calculated risks are taken into account.

### *Strengths and limitations*

This research has some limitations to consider. The selection of settings, situated in the same urban area of Sweden, may limit the extent to which our findings can be transferred to rural settings or other regions. The number of participants was lower than expected in some focus groups, due to the high workload, which may have limited the dynamics of the discussions. However, a strength of the study is that all professions in the multidisciplinary teams from different settings were represented, and the interviews were characterized by rich variations and deep descriptions of patient safety in specialized home healthcare. [38] To further broaden the understanding of patient safety in home healthcare, patients, and their relatives could be involved. To make us aware of our preconceptions, we adopted a self-critical attitude and constantly

reflected on our own thoughts and mind-sets, so as to strengthen the trustworthiness of data. [20 38] To further address trustworthiness, we used research triangulation in all analyses and interpretations of data, as the researchers' interpretative repertoires may vary depending on background and preunderstanding. [38] Finally, interpretation of the results should be made with the delay between data collection and publication kept in mind.

***Conclusion***

The dynamic and complex conditions under which home healthcare operate are fundamentally different from hospital care. Patient safety in the home healthcare is grounded in close multidisciplinary team collaboration based on a care ideology enhancing co-creation of care through patient autonomy, competence and relatedness. Thus, providing care included weighing risks against patients' preferences and will. Standardization and quality assessments introduced for improvement of care are contrasted against team members adaptations and patient behaviours and preferences, that set the limits for safety.

**List of abbreviations**

| | |
|---|---|
| EHR | Electronic health record |
| RN | Registered nurse |

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**Competing interests** None declared

**Contributors** ML and ME designed and conducted the study. All authors (ML, MF, ME) jointly contributed with their expertise in methodology, patient safety and home healthcare. All authors were part of the analysis process, drafted the manuscript and agreed to the final version of the manuscript before submission.

**Ethics approval** This study was approved by the Regional Ethical Review Committee in Sweden, Stockholm (DNr: 2012/1384:31).

**Data sharing statement**

Supplementary and raw data available upon request.

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# Standards for Reporting Qualitative Research (SRQR)*

http://www.equator-network.org/reporting-guidelines/srqr/

| | Page/line no(s). |
|---|---|
| **Title and abstract** | |
| **Title** - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended | Page 1, line 2 |
| **Abstract** - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions | Page 2 |
| **Introduction** | |
| **Problem formulation** - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement | Page 3, line 85 |
| **Purpose or research question** - Purpose of the study and specific objectives or questions | Page 4, line 102 |
| **Methods** | |
| **Qualitative approach and research paradigm** - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale** | Page 3, line 107 |
| **Researcher characteristics and reflexivity** - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability | Page 6, line 170 Page 14, line 426 |
| **Context** - Setting/site and salient contextual factors; rationale** | Page 4, line 112 |
| **Sampling strategy** - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale** | Page 5, line 141 |
| **Ethical issues pertaining to human subjects** - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues | Page 14, line 457 and page 6, line 171 |
| **Data collection methods** - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale** | Page 5, line 138 |

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|---|---|
| **Data collection instruments and technologies** - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study | Page 5, line 151 |
| **Units of study** - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results) | Page 4, line 119 and Page 5, table 1 |
| **Data processing** - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts | Page 5, line 147 and Page 6, line 162 |
| **Data analysis** - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale** | Page 6, line 162 |
| **Techniques to enhance trustworthiness** - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale** | Page 14, line 426 |

**Results/findings**

| | |
|---|---|
| **Synthesis and interpretation** - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory | Page 6, line 175 |
| **Links to empirical data** - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings | Page 7, line 197. Page 8, line 233. Page 9, line 256. Page 10 line 290 and 317. |

**Discussion**

| | |
|---|---|
| **Integration with prior work, implications, transferability, and contribution(s) to the field -** Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field | Page 11, line 343 |
| **Limitations** - Trustworthiness and limitations of findings | Page 13, line 418 |

**Other**

| | |
|---|---|
| **Conflicts of interest** - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed | Page 14, line 450 |
| **Funding** - Sources of funding and other support; role of funders in data collection, interpretation, and reporting | Page 14, line 445 |

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

**Reference:**

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014 DOI: 10.1097/ACM.0000000000000388