

# BMJ Open Exploring patient safety in Swedish specialised home healthcare: an interview study with multidisciplinary teams and clinical managers

Marléne Lindblad,<sup>1,2</sup> Maria Flink,<sup>3,4</sup> Mirjam Ekstedt<sup>3,5</sup>

**To cite:** Lindblad M, Flink M, Ekstedt M. Exploring patient safety in Swedish specialised home healthcare: an interview study with multidisciplinary teams and clinical managers. *BMJ Open* 2018;**8**:e024068. doi:10.1136/bmjopen-2018-024068

► Prepublication history for this paper is available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2018-024068>).

Received 14 May 2018

Revised 10 October 2018

Accepted 15 October 2018



© Author(s) (or their employer(s)) 2018. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

<sup>1</sup>School of Engineering Sciences in Chemistry, Biotechnology and Health (CBH), Royal Institute of Technology, Stockholm, Sweden

<sup>2</sup>Department of Health Care Sciences, Ersta Sköndal Bräcke University College, Stockholm, Sweden

<sup>3</sup>Department of Learning, Informatics, Management and Ethics, Karolinska Institutet, Stockholm, Sweden

<sup>4</sup>Department of Social Work, Karolinska University Hospital, Stockholm, Sweden

<sup>5</sup>School of Health and Caring Sciences, Faculty of Health and Life Sciences, Linnaeus University, Kalmar, Sweden

## Correspondence to

Professor Mirjam Ekstedt; [mirjam.ekstedt@lnu.se](mailto:mirjam.ekstedt@lnu.se)

## 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 how patient safety in Swedish specialised home healthcare is described and addressed from multidisciplinary teams' and clinical managers' perspectives.

**Design** An explorative qualitative study.

**Setting** Multidisciplinary teams and clinical managers were recruited from three specialised home healthcare organisations 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 analysed using qualitative content analysis.

**Results** Patient safety was inherent in the well-established care ideology which shaped a common mindset 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-level 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 guide the decisions, could be both a facilitator and a barrier to patient safety, depending on which value is given highest priority.

## BACKGROUND

Healthcare is becoming more complex and provision of care in people's homes is increasing, both globally<sup>1</sup> and in Sweden,<sup>2</sup> driven by medical and technical advances, economic pressures, demographic factors,

## Strengths and limitations of this study

- Trustworthiness has 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.

and patient preferences.<sup>3</sup> However, most patient safety research is conducted in hospital settings, while home healthcare is largely unexplored.<sup>4</sup> Thus, evidence from hospital-based research has also been applied to home healthcare. In recent years, this has been criticised based on the knowledge that patient safety is largely context dependent.<sup>5,6</sup>

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.<sup>7,8</sup> 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.<sup>5</sup> Studies of adverse events in home healthcare have shown a wide variation in the estimations, with 13% in Canada<sup>9–11</sup> and 37.7% in Sweden.<sup>12</sup> The types of adverse events were similar in both countries—falls, healthcare-associated infections, pressure ulcers—and most were considered to be preventable.<sup>5</sup>

With a few exceptions, for example, healthcare-associated infections, the patient safety research is increasingly based on the premise

that harm is mainly the result of poorly designed systems.<sup>13</sup> As a system safety approach encompasses the organisation's context, processes and structures, which can have a sustainable influence on promoting safe care<sup>4 14</sup> 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 specialised home healthcare from the perspectives of multidisciplinary teams and clinical managers.

## METHODS

### Design

This qualitative study, based on semistructured interviews with multidisciplinary professionals and clinical managers, is part of a larger study on patient safety in home healthcare settings.<sup>8</sup>

### Setting

Multidisciplinary teams and clinical managers were recruited from three specialised home healthcare organisations 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,<sup>15</sup> but does not encompass home care organisations with the unlicensed staff administering social care.

The three studied units are tax funded and cover a limited geographical area. They were selected to capture sociodemographic differences in, for example, country of birth and income. Each unit consisted of ambulatory multidisciplinary teams, including 4–6 physicians, 20–30 registered nurses (RNs) and 1 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 the department and one or two first-line manager ('clinical managers'). The

units provided long-term 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 specialised home healthcare to patients with all kinds of diagnoses, based on changes in national regulations.<sup>16</sup> 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 summarised 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.<sup>17</sup>

### 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.<sup>18</sup> All team members were invited to participate in a focus group interview. The groups were deliberately composed of 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 the 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 min. Individual interviews lasted 30–60 min. The interviews were audio recorded and the researcher took notes.

The interviews were conducted by the first and last researcher (ML and ME). A semistructured interview guide was developed and tested in a pilot interview, after

**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)

RN, registered nurse.

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 organisation. Both verbal and non-verbal probing techniques were used to increase clarity.

### Data analysis

The data were transcribed verbatim and analysed using qualitative content analysis with an inductive approach.<sup>19 20</sup> 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 RNs, 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) Cocreating 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-level 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 mindset 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 the 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).

### Cocreating 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 the 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 prioritised goal to ensure well-being 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 cocreation 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 organisation and across institutional borders. Unstructured small talk in the hallways and lunchroom, 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 the 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 inpatient and outpatient care—in the region, facilitated information transfer between caregivers. However, shortcomings (eg, 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 organising 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 hospitalisation 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 organised

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-level and micro-level goals

The quality of care of the home healthcare organisations was evaluated through regular use of about 40 quality indicators, tailored to the county-level demands. The organisations 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 prioritised 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 multistep 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 specialised 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 mindset 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.<sup>21</sup> 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.<sup>22</sup> Safety culture in home healthcare has not yet been widely explored.<sup>23</sup> 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.<sup>24</sup> 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.<sup>25</sup> 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 a treatment that patients could not 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, that is, 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.<sup>26</sup> 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.<sup>27</sup> 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<sup>28</sup> at the sharp end, that is, 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 reorganisation of work as a response to disturbances, providing sufficient supplies and freedom for professionals to prioritise, adapt and take time to provide the care that patient needs.<sup>29</sup>

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-level and meso-level 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.<sup>3</sup> Incident reporting is another measure for improving safety that has been used with great success in other high-risk organisations (eg, nuclear, railway and car industry).<sup>30</sup> Even if there is limited evidence on how incident reporting actually contributes to safety in healthcare,<sup>31</sup> 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.<sup>29,32</sup> Strategies and behaviours to work around problematic practical processes have been shown to either promote or hinder patient safety.<sup>33</sup> McDonald *et al*<sup>34</sup> found that managers believed that adherence to standardised 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. Standardisations assume causality, that care is predictable and that adverse events can be prevented through rules and guidelines.<sup>35</sup> 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 organisational learning.<sup>36</sup> 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.<sup>37</sup> 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 standardisation 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 characterised by rich variations and deep descriptions of patient safety in specialised home healthcare.<sup>38</sup> 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 mindsets, so as to strengthen the trustworthiness of data.<sup>20,38</sup> 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.<sup>38</sup> 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 operates 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 cocreation of care through patient autonomy, competence and relatedness. Thus, providing care included weighing risks against patients' preferences and will. Standardisation 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.

**Acknowledgements** The authors thank the multidisciplinary team members and the clinical managers at the three specialised home healthcare units.

**Contributors** ML and ME designed and conducted the study. All authors (ML, MF and 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.

**Funding** Financial support was provided through Swedish Research Council for Health, Work and Welfare, FORTE (No 2013-2200; 2014-4948).

**Disclaimer** The funders have not been involved in any part of the study, in writing the manuscript or the decision to submit the manuscript for publication.

**Competing interests** None declared.

**Patient consent for publication** Not required.

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

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data sharing statement** Online supplementary and raw data available on request.

**Open access** This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which

permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

## REFERENCES

- World Health Organization [WHO]. *Patient safety: making health care safer*. Geneva: WHO, 2017.
- The National Board of Health and Welfare. *Vård och omsorg om äldre – Lägesrapport 2016*, 2016.
- Institute for Healthcare Improvement [IHI] and the National Patient Safety Foundation [NPSF]. *Patient safety in the home. Assessment, challenges and opportunities*, 2017.
- Yu A, Flott K, Chainani N, et al. *Patient Safety 2030*. London UK: NIHR Imperial Patient Safety Translation Research Centre, 2016.
- Jones S. Alternative perspectives of safety in home delivered health care: a sequential exploratory mixed method study. *J Adv Nurs* 2016;72:2536–46.
- Lamont T, Waring J. Safety lessons: shifting paradigms and new directions for patient safety research. *J Health Serv Res Policy* 2015;20(1 Suppl):1–8.
- Beer JM, McBride SE, Mitzner TL, et al. Understanding challenges in the front lines of home health care: a human-systems approach. *Appl Ergon* 2014;45:1687–99.
- Lindblad M, Flink M, Ekstedt M. Safe medication management in specialized home healthcare - an observational study. *BMC Health Serv Res* 2017;17:598.
- Canadian Patient Safety Institute [CPSI]. *Safety at home care a Pan-Canadian home care safety study*, 2013.
- Blais R, Sears NA, Doran D, et al. Assessing adverse events among home care clients in three Canadian provinces using chart review. *BMJ Qual Saf* 2013;22:989–97.
- Sears N, Baker GR, Barnsley J, et al. The incidence of adverse events among home care patients. *Int J Qual Health Care* 2013;25:16–28.
- Schildmeijer KGI, Unbeck M, Ekstedt M, et al. Adverse events in patients in home healthcare: a retrospective record review using trigger tool methodology. *BMJ Open* 2018;8:e019267.
- Reason J. Human error: models and management. *BMJ* 2000;320:768–70.
- National Patient Safety Foundation [NPSF]. *Free from harm. Accelerating patient safety improvement fifteen years after "To err is human"*, 2015.
- National Board of Health and Welfare. Term base. <http://termbank.socialstyrelsen.se> (accessed 26 Mar 2018).
- Swedish Parliament. *Act on system of choice (in Swe: Lag om Valfrihetssystem)*. Stockholm Sweden: The Swedish Parliament, 2008.
- Sweden's Regional Cancer Center [RCC]. *Nationellt vårdprogram Palliativ vård i livets slutskede*. Stockholm Sweden, 2016.
- Kvale S, Brinkmann S. *Den kvalitativa forskningsintervjun*. Sweden: Studentlitteratur AB, 2014.
- Elo S, Kyngäs H. The qualitative content analysis process. *J Adv Nurs* 2008;62:107–15.
- Graneheim UH, Lindgren BM, Lundman B. Methodological challenges in qualitative content analysis: A discussion paper. *Nurse Educ Today* 2017;56:29–34.
- The Health Foundation [TH]. *Research scan: does improving safety culture affect patient outcomes?* 2011.
- Braithwaite J, Herkes J, Ludlow K, et al. Association between organisational and workplace cultures, and patient outcomes: systematic review protocol. *BMJ Open* 2016;6:e013758.
- Gartshore E, Waring J, Timmons S. Patient safety culture in care homes for older people: a scoping review. *BMC Health Serv Res* 2017;17:752.
- Swedish Agency for Health Care Services Analysis. Swe: *Myndigheten för vård- och omsorgsanalys. Vården ur patienternas perspektiv – 65 år och äldre*. Sweden, 2017:132.
- Moore L, Britten N, Lydahl D, et al. Barriers and facilitators to the implementation of person-centred care in different healthcare contexts. *Scand J Caring Sci* 2017;31:662–73.
- Institute for Healthcare Improvement. *No place like home: advancing the safety of care in the home*. Boston, Massachusetts Institute for Healthcare Improvement, 2018. Available at [ihi.org](http://ihi.org)
- Gregory A, Mackintosh S, Kumar S, et al. Experiences of health care for older people who need support to live at home: a systematic review of the qualitative literature. *Geriatr Nurs* 2017;38:315–24.
- Wears RL, Hollnagel E JB. *The resilience of everyday clinical work*. Dorchester United Kingdom Ashgate, 2015.
- Ekstedt M, Cook R. The Stockholm Blizzard 2012. In: Wears R, Hollnagel E, Braithwaite J, eds. *The resilience of everyday clinical work*. Dorchester, UK: Ashgate, 2015.
- Aviation Safety Reporting System. ASRS program briefing. 2012 [http://asrs.arc.nasa.gov/docs/ASRS\\_ProgramBriefing2012.pdf](http://asrs.arc.nasa.gov/docs/ASRS_ProgramBriefing2012.pdf)
- Mitchell I, Schuster A, Smith K, et al. Patient safety incident reporting: a qualitative study of thoughts and perceptions of experts 15 years after 'To Err is Human'. *BMJ Qual Saf* 2016;25:92–9.
- Carthey J, Walker S, Deelchand V, et al. Breaking the rules: understanding non-compliance with policies and guidelines. *BMJ* 2011;343:d5283.
- Debono DS, Greenfield D, Travaglia JF, et al. Nurses' workarounds in acute healthcare settings: a scoping review. *BMC Health Serv Res* 2013;13:175.
- McDonald R, Waring J, Harrison S. Rules, safety and the narrativisation of identity: a hospital operating theatre case study. *Sociol Health Illn* 2006;28:178–202.
- Hollnagel E, Wears RL. *From safety I to safety II: a white paper*. The Resilient Health Care Net: Published simultaneously by the University Southern Denmark, University of Florida, USA and Macquarie University Australia, 2015.
- Leistikow I, Mulder S, Vesseur J, et al. Learning from incidents in healthcare: the journey, not the arrival, matters. *BMJ Qual Saf* 2017;26:252–6.
- Vincent C, Amalberti R. *Safer healthcare: strategies for the real world [Internet]*. Cham (CH): Springer, 2016. ISBN 978-3-319-25559-0 (eBook) DOI.
- Patton M. *Qualitative research & evaluation methods: integrating theory and practice*. 4th edn. London: Sage Publication Inc, 2014. ISBN: 9781412972123.