

# BMJ Open Finnish emergency medical services managers' and medical directors' perceptions of collaborating with patients concerning patient safety issues: a qualitative study

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## ABSTRACT

**Objectives** This study aimed to describe emergency medical services (EMS) managers' and medical directors' perceptions of collaborating with patients concerning patient safety issues in the EMS.

**Design** The study used a descriptive qualitative approach. Five focus groups and two individuals were interviewed using a semi-structured guide with open-ended questions. The data were analysed using reflexive thematic analysis. Consolidated criteria for Reporting Qualitative research was used to guide the reporting of this study.

**Setting** EMS organisations from Finland's five healthcare districts.

**Participants** EMS medical directors (n=5) and EMS managers (n=14). Purposive sampling was used.

**Results** Two main themes, 'Patient safety considered an organisational responsibility' and 'EMS patients' opportunities and obstacles to speaking up', were generated from the data. Under the main theme, 'Patient safety considered an organisational responsibility', were three subthemes: patient safety considered part of the quality in EMS, system-level models for handling and observing patient safety in EMS, and management's ability to find a balance when using patients' feedback for patient safety development. Under the other main theme were four subthemes: 'social and feedback skills of EMS personnel and management', 'managements' assumptions of patients' reasons for not speaking up', 'EMS organisations' different but unsystematic ways of collecting feedback' and 'management's openness to develop patient participation'.

**Conclusions** The nature of the EMS organisations and EMS assignments could affect a patient's participation in developing patient safety in EMS. However, EMS managers and medical directors are receptive to collaborating with patients concerning patient safety issues if they have sufficient resources and a coherent way to collect patient safety concerns. The management is open to collaborating with patients, but there is a need to develop a systematic method with enough resources to facilitate the management's collaborating with patients.

## INTRODUCTION

According to the Finnish Health Care Act, all patient treatment should be high-quality,

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The descriptive qualitative approach enabled an in-depth and rich exploration of emergency medical services (EMS) managers' and medical directors' perceptions of collaborating with patients concerning patient safety issues in the EMS.
- ⇒ Participants were from different managerial levels in the EMS from five healthcare districts in Finland.
- ⇒ Of the participants, 73.7% were men, which could have limited the data's diversity.
- ⇒ Interviews were conducted in a single area in Finland; managers in other regions may have different perceptions.

safe and properly implemented.<sup>1</sup> This act regarding the status and rights of patients states that patients have the right to good health, medical care and related treatment; to be informed; and to self-determination. The same law states that a patient has the right to submit an objection to the director responsible for healthcare in the healthcare unit in question.<sup>2</sup> In the recently published Finland's Client and Patient Safety Strategy and Action Plan 2022–2026, 2 of the 12 objectives highlight the patients' and their relatives' role in developing safety in healthcare and healthcare services.<sup>3</sup> However, the organisation's management is ultimately responsible for patient safety in emergency medical services (EMS) organisations.

Approximately 1 in 10 patients experience a patient safety incident in EMS.<sup>4</sup> The working conditions of EMS differ from other healthcare settings. External factors like weather, distance to the hospital and other environmental factors<sup>5</sup> affect how the EMS personnel can perform patient care; those factors affect patient safety<sup>6</sup> and patients' experiences of safety.<sup>7</sup> Moreover, the EMS personnel works with limited resources beyond the healthcare



facility and acts independently with little information about the patient, usually without a doctor's presence. EMS assignments vary between very challenging and time sensitive<sup>8,9</sup> in situations where a patient's condition is evaluated and confirmed without needing to convey this information to the patient.<sup>10</sup> The role of EMS might change towards acute mobile healthcare, as has been suggested.<sup>11,12</sup> All these factors can cause unpredictable risks to patient safety in an EMS setting. A system-level approach is recommended to prevent safety incidents, meaning healthcare systems should strive to standardise their processes to offer safer and better-quality care.<sup>13</sup>

Patient safety studies in an EMS setting mainly focus on adverse events, near-misses, occupational hazards, or the safety of the non-conveyance decisions focusing primarily on an organisational or EMS personnel perspective.<sup>5,10,14-18</sup> Patients' perceptions of safety in the EMS have been studied; the findings show that patients' perceptions of safety in the EMS are not the same as receiving safe care.<sup>7,19,20</sup> However, little is known about how EMS organisations use patients' experiences when developing patient safety in EMS, despite global guidelines recommending increasing patient participation when developing patient safety.<sup>13,21</sup>

Patient participation in developing patient safety has mainly been studied in hospitals.<sup>22-24</sup> However, patient participation has been shown to facilitate patient safety, although what entails this participation is unclear. Despite identified facilitators, recognised barriers exist when adding patient participation to produce patient safety.<sup>25-27</sup> Adding patient involvement, especially in a hectic environment, is challenging. Cultural changes in the organisations are needed, which could take time and do not automatically improve patients' perspectives on the quality of care.<sup>28</sup> Still, patients could give valuable insight into improving or assessing patient safety.<sup>22-24,29</sup>

EMS medical directors and managers are responsible for patient safety. Therefore, they have a major role in developing and implementing ways to increase patient safety and participation in EMS. EMS managers and medical directors may have more opportunities to diminish weaknesses and enhance strengths when they become aware of potential opportunities and obstacles in collaborating with patients concerning patient safety issues in the EMS. Therefore, this study aims to describe EMS managers' and medical directors' perceptions of collaborating with patients concerning patient safety issues in the EMS.

## METHODS

### Study design

This was a qualitative study with the EMS managers and medical directors. Five EMS organisations from five healthcare districts in Finland were recruited to participate. The study used a descriptive qualitative approach. Consolidated criteria for Reporting Qualitative research<sup>30</sup> guided the reporting (see online supplemental file 1).

### Setting

Every hospital district (n=21) in Finland pertains to one university hospital area (n=5).

These areas coordinate EMS performance, give guidance to hospital districts and enhance scientific research in their areas. Otherwise, the hospital districts are responsible for organising the EMS by providing the EMS. These districts can purchase the EMS from another party, such as a rescue department, other hospital districts or the private sector.<sup>1</sup> Finland has two levels in the EMS: basic and advanced. Basic-level ambulances mostly conduct non-urgent assignments where the patient's condition is stable. An emergency medical technician or professional firefighter is the minimum educational demand in a basic-level ambulance. Advanced-level ambulances can initiate treatment, alleviate symptoms and secure a patient's vital functions at the scene and during transport. At least one EMS personnel in an advanced-level ambulance should be bachelor-level educated. According to the Finnish official statistics (available at: <https://sotkanet.fi/sotkanet/fi/index>), there were approximately 778 000 EMS assignments in 2021.

According to national regulations, every hospital district should have an EMS officer and an EMS medical director. The EMS medical directors' primary responsibilities are preparing service standard decisions, participating in preparedness planning with other authorities, writing out EMS care instructions, giving guidance to the emergency response centres on how to dispatch the EMS units, and confirming the EMS workers' treatment obligations. Medical directors and EMS officers (operational supervisors who lead in challenging assignments and mass casualty situations in some organisations, including administrative work) are always in the hospital district, but the administrative supervisor/manager employer depends on the service provider. An emergency medical decree defines standards for medical directors' and EMS officers' education levels. However, no national regulations concerning EMS administrative supervisors' or managers' educational levels exist.<sup>31</sup>

### Patient and public involvement

All of the study's participants were EMS professionals. Therefore, patient involvement was inapplicable. However, a voluntary public representative research panel commented on a data protection statement, information about the study's purpose and interview questions before applying for the research permits.

### Recruitment process

Aiming to achieve variation (gender, working experience, EMS organisational structure) among the participants, purposeful sampling was used.<sup>32</sup> We contacted five potential participating organisations by emailing their head managers to inquire about their interest in participating in the study. All the contacted organisations agreed to participate. EMS organisations were guided that all the participants' job descriptions should include managerial/

supervisor responsibilities; one of the participants should be an EMS organisation's medical director, and one should be the manager overseeing the EMS. Otherwise, EMS organisations were allowed to decide who to ask from the organisation to participate in the study.

### Data collection

Data were collected between May and September 2021. Purposive sampling was used<sup>32</sup> to describe EMS managers' and medical directors' perceptions of collaborating with patients concerning patient safety issues in the EMS by interviewing EMS managers (n=14) and medical directors (n=5). Interviews were recorded and conducted remotely via On-Premise Zoom provided by NORDUnet. This service was implemented securely following European Union regulations.<sup>33</sup>

Data were collected in five groups (3–4 participants to a group) and two individual interviews. Because of timing, two interviews were conducted with two medical directors, achieving the equivalent of the information that would have been obtained had all the medical directors from all the participating healthcare areas been interviewed. In interviews, the participants requested a description of what patient safety in EMS was and how they could include patients in developing it. The complete interview guide is available in online supplemental file 2. We evaluated the possible need for changes to the interview guide during and after the first interview. No changes were needed, so all the interviews were conducted using the same interview guide. Interviews conducted by the first author lasted approximately 30 min to a little over an hour. Considering the model of Malterud *et al*, which focuses on the study's aim, sample specificity, established theory, interview dialogue and analysis strategy,<sup>34</sup> we evaluated that we achieved sufficient information power for our study.

### Data analysis

Data were analysed using reflexive thematic analysis (TA).<sup>35</sup> TA was chosen because it is flexible and suitable for inductively developed analysis. In TA, a researcher can consider latent (developing themes) and manifest content (developing categories),<sup>36</sup> which are noted in the analysis process. Atlas.ti software was used to organise the data. **Figure 1** presents six phases of TA<sup>37</sup> of the analysis process. The first author initiated and oversaw the first two analysis phases. Before initiating the third phase, the extracted codes were shared with the last author. In the fourth phase, all participating organisations were contacted to hear and comment on the results. Three organisations expressed interest in participating. During the analysis, there was recurrent movement between phases. The analysis process was ended when the report was finalised. An example of the coding tree is available in online supplemental file 3.

### RESULTS

Most of the participants were men (n=14). Nearly half (n=9) said their job description includes clinical work. Most had at least a master's degree (n=13); all stated they had patient safety education (**table 1**).

The data generated two main themes: 'Patient safety considered an organisational responsibility' and 'EMS patients' opportunities and obstacles to speak up' (**figure 2**). The main themes and their *subthemes* are presented with illustrative quotations (see below).

#### Patient safety is considered an organisational responsibility

The theme 'Patient safety is considered an organisational responsibility' describes EMS managers' and medical directors' views that *patient safety is considered part of the quality*. Participants stated they had *system-level models to*

Figure 1. Description of the analysis phases

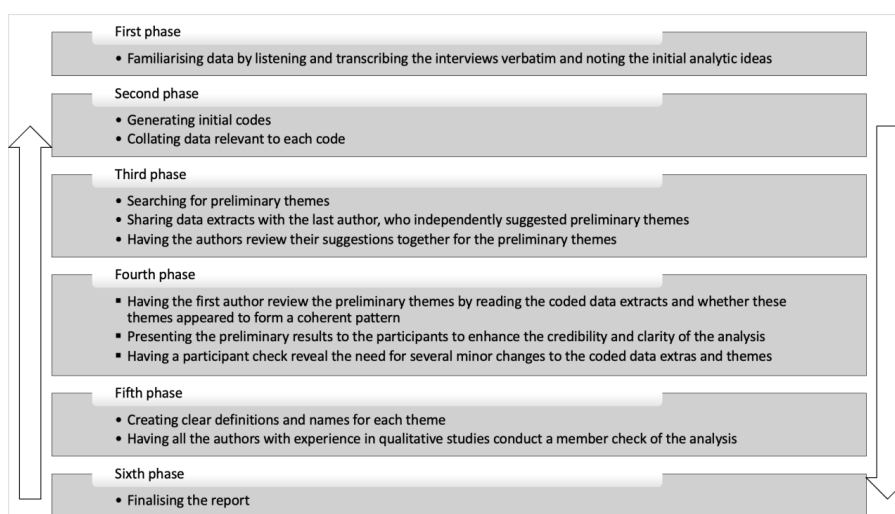


Figure 1 Description of the analysis phases.

**Table 1** Participant characteristics

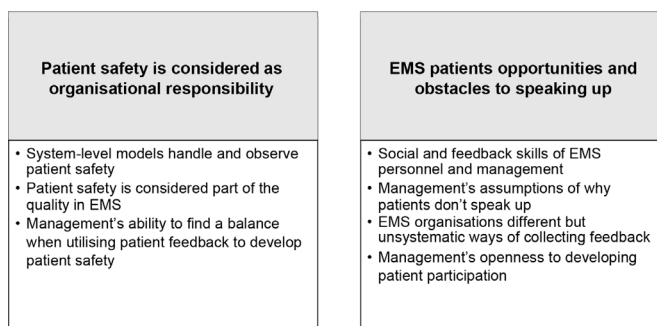
Characteristics	n=19 (100%)
Gender	
Male	14 (73.7%)
Female	5 (26.3%)
Age	
30–39	5 (26.3%)
40–49	5 (26.3%)
≥50	9 (47.4%)
Position in the organisation	
Medical director	5 (26.3%)
EMS manager	5 (26.3%)
EMS supervisor	9 (47.4%)
Education level	
Licentiate in medicine or higher	5 (26.3%)
Master's degree or higher	8 (42.1%)
Bachelor's degree	4 (21.1%)
Other	2 (10.5%)
Work includes clinical work	
Yes	9 (47.4%)
No	10 (52.6%)
Working experience in EMS	6–36 years (mean 22.1 years)
Working experience in current position	<1–30 years (mean 9 years)
Received patient safety education	
Yes	19 (100%)
Context where patient safety education was received	
International (seminars, workshops, conferences, etc)	7 (36.8%)
National (seminars, workshops, conferences, etc)	16 (84.2%)
Training provided by own organisation	19 (100%)
Training during education (doctoral, master's, bachelor's, etc)	13 (68.4%)

EMS, emergency medical services.

*handle and observe patient safety in EMS* but that this system-level approach does not automatically increase *management's ability to find a balance when using patients' feedback in patient safety development*. The participants highlighted that organisations could not transfer patient safety responsibility to the patients.

#### Patient safety is considered part of the quality of EMS

According to the participants, patient safety is considered part of the quality of EMS. For example, participants stated that patient safety in EMS is noticed in service-level decisions and that overall patient safety is closely connected to quality in EMS. According to



**Figure 2** Main themes and subthemes. EMS, emergency medical services.

participants, ensuring EMS personnel are professionally competent is an organisation's responsibility. Participants highlighted that an organisation must offer EMS personnel appropriate working conditions meaning resources, vehicles, equipment and medicines and that instructions for patient treatment are evidence-based and standardised. Participants highlighted that the care in EMS is protocol-guided, and the patient contacts are relatively short. All these aspects led participants to question patients' understanding of care guidelines and patients' abilities to recognise patient safety risks or threats in EMS.

The big challenge is that our patient does not know how and why certain things are done at prehospital care (Int. 5, p1)

They [patient] are not necessarily the evaluators of the medical practices and [medical] models (Int. 4, p4)

#### System-level models to handle and observe patient safety in EMS

Participants described that system-level models to handle and observe patient safety in EMS helped them manage patient safety. Participants who did clinical work noted better opportunities to observe and react to patient safety deviations in real-time. Participants described how they use a system-level approach when handling patient safety deviations but stated that an official complaint process could distort the matter from which feedback is given. Participants described that sometimes a system-level approach makes participating with the patients to develop patient safety in EMS difficult; in some cases, the participants explained that legislation could construct a barrier to collaborating with patients.

The patient feels the treatment was unsuccessful and were treated wrong; the patient wants a written response. Then we go to a kind of statutory interpretation, and it is an official patient complaint to which we must respond and so on; the response must fill the criteria of the official complaint and so on. We have clearly fumbled and experienced difficulties (Int. 5, p2)

### Management's ability to find a balance when using patients' feedback for patient safety development

According to the participants, management's ability to find a balance when using patients' feedback for patient safety development was difficult. The participants described that patient feedback is more like customer feedback. Moreover, participants found that using patients' experiences in patient safety development in EMS was challenging, especially if the patient safety deviation reports came from those not present, such as other healthcare personnel or next of kin. Conversely, participants experienced limited options to support patients if patients suffered patient safety deviation. Overall, participants were somewhat afraid that encouraging patient participation could overburden the management if the increased workload was not considered.

Of course, the volume started increasing. Creating that sort of model [low threshold feedback channel to the patients] requires time; if several messages are coming in daily, there should be resources to handle this correspondence (Int. 1, p1)

### EMS patients' opportunities and obstacles to speaking up

Theme 'EMS patients' opportunities and obstacles to speaking up' describe EMS managers' and medical directors' views on how the social and feedback skills of EMS personnel and management could affect patients' willingness to voice their concerns.

Management holds assumptions about patients' reasons for not speaking up and views on EMS organisations' different but unsystematic ways of collecting feedback. Conversely, participants highlighted management's openness to developing patient participation in their organisation's patient safety work.

### EMS personnel and management's social and feedback skills

According to the participants, EMS personnel and management's social and feedback skills are vital for communicating with the patients. Participants mentioned that an abysmal customer service experience could still concern patient safety, even if all the treatment was done by the book. Such an experience could make the patient feel that s/he received poor treatment, even if the treatment was sound. Based on participants' descriptions, EMS personnel's behaviour and communication style when treating patients could affect patients' possibilities and willingness to give real-time feedback about patient safety.

Actively involving [the patient] depends on our listening to them. Often, they [the patient] knows the most about their problems, such as their medications. As such, patients have an active role. For example, by knowing their own allergies, they potentially prevent a medication error when we listen to their story about the situation (Int. 3, p2)

EMS managers and medical directors stated they are responsible for leading by example and said their communication style is critical when discussing and sharing information with patients concerning patient safety. However, participants experienced limited abilities to affect staff attitudes regarding patient safety and patient encounters. For example, participants were sceptical of the EMS personnel's knowledge and willingness to handle direct patient feedback.

If they [patient] provides feedback, not all EMS personnel bring it forward. They take it as "thank you for the feedback," especially if it [feedback] is critical. So do they [EMS personnel] want to bring it [feedback] forward? (Int. 2, p3)

### Assumptions about patients' reasons for not speaking up

Participants had assumptions about patients' reasons for not voicing patient safety concerns. Language barriers and cultural reasons were considered possible explanations. Participants also assumed patients might fear the consequences of speaking up if they voiced their concerns, meaning patients are afraid they will be treated less favourably if they do so.

Of course, patients may be afraid of stigmatisation or worse: that they do not get proper treatment or care if [they] provides feedback (Int. 3, p3)

### EMS organisations' different but unsystematic ways of collecting feedback

Participants stated that EMS organisations have different but unsystematic ways of collecting feedback. According to participants, these ways provide the patients many opportunities to give feedback, meaning patients can give feedback through an official complaint process, various electronic systems (email, electronic feedback system, etc) or by phone. Participants who worked closely with the university hospital district stated they collect patient feedback more systematically and use a patient council when developing patient safety in EMS, while other participants just discuss those options. Overall, participants saw patient councils as opportunities to further develop patient safety in EMS. Despite different feedback systems, participants mentioned that patient participation depends on patients' own activity. Therefore, participants were concerned about how to reach the 'right' patients, especially the elderly and other vulnerable patient groups, to develop patient safety in EMS.

Quite a large proportion of our patients are elderly with multiple morbidities and do not have the physical abilities and opportunities/possibilities to search for contact details to provide feedback (Int. 2, p4)

### Management's openness to developing patient participation

Participants were open to developing patient participation. Participants mentioned that low threshold options



were considered a possibility for the patients to give feedback more easily and honestly. Participants were willing to develop those kinds of feedback options to aid patient participation. Participants said patient feedback allows them to develop EMS processes and patient safety in EMS and raise concerns about possible patient safety consequences if no patient feedback is received.

If the patient does not have the courage or they do not want, for one reason or another [to give feedback], then we keep repeating the same pattern. Eventually, there will be a bigger adverse event if we don't fix these bad models and practices (Int. 1, p2)

## DISCUSSION

Our study aimed to describe EMS managers' and medical directors' perceptions of collaborating with patients concerning patient safety issues in EMS. Based on our results, EMS managers and medical directors appear to experience an organisational responsibility for patient safety so strong that there is no room for patients' views on patient safety. Conversely, participants recognised that patient safety and EMS development are incomplete without patient experiences of EMS processes.

Overall, our results aligned with previous studies, describing facilitators (eg, improving organisational resources, encouraging patients and affirming trustful relationships) and barriers (eg, patient or healthcare workers' unwillingness, deficient infrastructures) to patient engagement and patient safety.<sup>27 38</sup> However, participants expressed that patient safety challenges are unique and somewhat different in the EMS context, meaning participants described that EMS is protocol-guided and the patient contacts are relatively short, which could limit collaboration with patients to develop patient safety in EMS.

Concerning the EMS personnel's decision-making, EMS assignments can be very complex.<sup>16</sup> Some EMS assignments can be challenging and time-sensitive,<sup>8 9</sup> possibly affecting patients' possibilities to communicate their safety concerns. Conversely, most EMS assignments are non-urgent,<sup>10–12</sup> giving patients more opportunities to participate in their care and voice their safety concerns. However, research has shown that developing patient/family-centred care can decrease harmful errors (preventable adverse events) and unpreventable adverse events without affecting time use.<sup>39</sup> Therefore, from the patient safety perspective, the need exists to add patient-centredness to EMS encounters and enhance patient participation to develop patient safety in the EMS context, especially when EMS managers and medical directors mention that EMS personnel behaviour could affect patients' willingness to voice his/her safety concerns. Also, from the patient's perspective, EMS personnel's behaviour is vital to create a safe environment for the patient.<sup>7</sup>

Patients could recognise potential risks to their safety in the EMS, such as environmental factors or EMS professionals' driving skills.<sup>4</sup> Still, participants described that patient feedback is more like customer feedback. EMS managers and medical directors mentioned that patient participation in patient safety feedback depends on patient activity. Enhancing patient involvement is recognised as challenging and depends on patients' willingness to participate.<sup>28</sup> Study participants described several different feedback systems, most of which are based on electronic systems. User-friendly and appropriately implemented electronic systems can be good; age does not always have to be an obstacle to using electronic systems.<sup>29 40 41</sup> However, not all patients have the possibilities, skills or willingness to use them. For example, age, language, mental health and a patient's overall experience affect their comfort and courage in speaking up.<sup>42</sup> Clearly, there is a need for more research to develop a user-friendly electronic feedback system for patients to give feedback suitable for the EMS context.

Enhancing patient participation in patient safety needs organisational support, patient–professional collaboration, a proactive approach and user-friendly feedback systems,<sup>38</sup> which all need employee resources. Thus, study participants were concerned about the lack of resources if new models for adding patient participation to develop patient safety were implemented. After all, adding patient participation requires time and cultural changes in the organisation, where leadership plays a crucial role.<sup>28 43</sup> Therefore, thinking the managers need structured support to invite patients to participate in patient safety work is reasonable. Further research is essential to explore how to ask patients to participate in patient safety work in the EMS.

EMS organisations should recognise these gaps between time, resources, and patient safety development and offer support and resources to EMS managers and medical directors to develop patient participation in patient safety development work. The Organisation for Economic Co-operation and Development has evaluated that over 12% of healthcare expenditures are consumed by managing unsafe care and other indirect costs.<sup>44</sup> We do not know how much those costs are in EMS organisations, but patient safety issues cost EMS organisations. Overall, many patient safety incidents in prehospital care<sup>4</sup> give reasons to use every opportunity to reduce patient safety incidents, which come at a cost.

## Strengths and limitations

We selected the qualitative study design because qualitative methods are suitable when researching meanings and experiences from the participant's perspective.<sup>45</sup> Interviews were done in a single area in Finland, possibly limiting the transferability of the results. However, basic EMS principles are strikingly similar globally: emergencies and relatively short patient encounters. Therefore, we believe our findings are transferrable to similar settings.

Most of the participants were men, which could be considered a limitation. This homogeneity could have limited the data's diversity. Another limitation could be an authority issue; all the participants had managerial or supervisor status in their own organisation but were still at different hierarchical levels among themselves, which could have limited some participants in expressing their views in the discussions, although the discussions aimed to be open and informal.<sup>46</sup>

The Finnish EMS circles are small; everybody knows each other, at least by name, limiting the possibility of conducting this kind of research without a previous relationship with the participants, which may have affected the participants' willingness to speak freely about the subject investigated. The first and two other authors have a long experience working in EMS, enhancing their understanding of the context. Conversely, only one author has administrative experience in EMS and emergency care management, which could be considered a strength or a limitation. However, this experience can be considered a strength because the first and two other authors lack administrative experience in EMS, possibly making them more open to the subject. Regardless, a risk of bias exists since three out of four authors had experience with EMS. The fourth author, without experience in EMS, critically reviewed the research process and analysis to reduce this risk.

## CONCLUSION

Adding patient participation to develop patient safety in EMS is challenging, mostly because of the nature of EMS assignments. However, EMS managers and medical directors are willing to add patient participation to develop patient safety in EMS. EMS managers and medical directors are receptive to collaborating with patients concerning patient safety issues. However, they need sufficient resources and a coherent way to collect patient safety concerns. Management is open to collaborating with patients, but systematic methods with enough resources are needed to facilitate its ability to collaborate with patients.

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**Contributors** AV, ST, MC and VL designed the study. AV conducted the interviews. AV and VL thematically analysed the data once it were transcribed and coded as a sample set. AV prepared the manuscript. All authors edited and reviewed the manuscript and approved the final draft for submission. AV is responsible for the overall content as guarantor.

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**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

**Patient consent for publication** Not applicable.

**Ethics approval** This study involves human participants and the Declaration of Helsinki's guidelines were followed.<sup>48</sup> After consultation, the local ethics committee stated that the planned and used study designs do not need formal ethics approval. However, we had to apply for a research permit from every organisation participating in this study. For the participants' privacy, research permit numbers and the information on the participating organisations are confidential because research permit numbers could expose the study participants. A data protection statement and information about the study's purpose were shared with the organisations' contact persons. Participants received written information through their contact person before the interview time was agreed on. The study's purpose and information about the research were also discussed with the participants when the interviews commenced. Participants were informed that this study is part of the first author's PhD studies. All participants provided verbal consent to voluntary participation before the interviews. Verbal consent was recorded—an acceptable method to document participants' voluntary participation.<sup>47</sup> Therefore, collecting written consent was not required.

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

**Data availability statement** Data are available upon reasonable request. Data are available upon reasonable request from the corresponding author. Due to participants' privacy, sharing complete interview transcripts may be impossible, but additional anonymised illustrative quotations may be available.

**Supplemental material** This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

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