

# BMJ Open Assessing non-conveyed patients in the ambulance service: a phenomenological interview study with Swedish ambulance clinicians

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**To cite:** Lederman J, Löfvenmark C, Djärv T, *et al.* Assessing non-conveyed patients in the ambulance service: a phenomenological interview study with Swedish ambulance clinicians. *BMJ Open* 2019;**9**:e030203. doi:10.1136/bmjopen-2019-030203

► Prepublication history and additional material for this paper are available online. To view please visit the journal (<http://dx.doi.org/10.1136/bmjopen-2019-030203>).

Received 04 March 2019  
Revised 23 August 2019  
Accepted 05 September 2019

## ABSTRACT

**Objectives** To combat overcrowding in emergency departments, ambulance clinicians (ACs) are being encouraged to make on-site assessments regarding patients' need for conveyance to hospital, and this is creating new and challenging demands for ACs. This study aimed to describe ACs' experiences of assessing non-conveyed patients.

**Design** A phenomenological interview study based on a reflective lifeworld research approach.

**Setting** The target area for the study was Stockholm, Sweden, which has a population of approximately 2.3 million inhabitants. In this area, 73 ambulances perform approximately just over 200 000 ambulance assignments annually, and approximately 25 000 patients are non-conveyed each year.

**Informants** 11 ACs.

**Methods** In-depth open-ended interviews.

**Results** ACs experience uncertainty regarding the accuracy of their assessments of non-conveyed patients. In particular, they fear conducting erroneous assessments that could harm patients. Avoiding hasty decisions is important for conducting safe patient assessments. Several challenging paradoxes were identified that complicate the non-conveyance situation, namely; responsibility, education and feedback paradoxes. The core of the responsibility paradox is that the increased responsibility associated with non-conveyance assessments is not accompanied with appropriate organisational support. Thus, frustration is experienced. The education paradox involves limited and inadequate non-conveyance education. This, in combination with limited support from non-conveyance guidelines, causes the clinical reality to be perceived as challenging and problematic. Finally, the feedback paradox relates to the obstruction of professional development as a result of an absence of learning possibilities after assessments. Additionally, ACs also described loneliness during non-conveyance situations.

**Conclusions** This study suggests that, for ACs, performing non-conveyance assessments means experiencing a paradoxical professional existence. Despite these aggravating paradoxes, however, complex non-conveyance assessments continue to be performed and accompanied with limited organisational support. To create more favourable circumstances and, hopefully,

## Strengths and limitations of this study

- The open character of phenomenological research in general and reflective lifeworld research (RLR) in particular allowed our participants to reflect on and deepen their own understanding of their lived experiences of non-conveyance assessments, resulting in rich and varied descriptions.
- This is the first comprehensive study to cover all three ambulance companies providing ambulance care in the Stockholm region; thus, it includes company-specific variations regarding non-conveyance.
- A possible limitation is the relatively small number of informants in the study; however, their descriptions of the phenomenon were considered to be rich and of great variation, which meets the methodological requirements within the RLR approach.
- Generality might be affected as a result of difficulties in recruiting emergency medical technicians compared with specialist nurses, as the latter are generally medically responsible in ambulance teams.

safer assessments, further studies that focus on these paradoxes and non-conveyance are needed.

## INTRODUCTION

Calls to emergency medical communication centres (EMCCs) and visits to emergency departments (EDs) are steadily increasing in the developed world.<sup>1–3</sup> However, patients with non-urgent medical needs account for a substantial percentage of patients treated by ambulance services. Approximately 50% of ambulance missions are classified as non-urgent by EMCCs<sup>2–4</sup>; however, analysis of the initial patient assessments performed by ambulance clinicians (ACs) has reported that over two-thirds of all patients examined are deemed by these clinicians to require conveyance to an ED.<sup>5–7</sup> Up to approximately the first decade of the 21st century, the default final destination for patients cared for by Swedish



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ambulance services was an ED.<sup>89</sup> However, partly as a result of overcrowding in EDs,<sup>10</sup> alternative care pathways such as ‘see and convey elsewhere’ (ie, transporting patients to primary healthcare units or minor injury care units) and ‘non-conveyance’ (see and treat, see and refer) have been introduced in the last decade.<sup>911</sup> This has placed new and challenging demands on ambulance services and, thus, ACs.<sup>12</sup> Accumulating research is emphasising the need for in-depth knowledge regarding the assessments that lead to non-conveyance decisions.<sup>13 14</sup> Accurate assessments may help patients obtain necessary care within a reasonable period of time, and consequently avoid the ED<sup>11 15 16</sup>; however, incorrect assessments can adversely affect patients’ health, and even lead to death.<sup>13 17-19</sup>

Decision-making that accommodates patients’ needs for appropriate care is a complex process that should combine the perspectives and needs of patients, family members, ACs and the wider healthcare system.<sup>11 20-23</sup> Furthermore, ACs have medical guidelines and, commonly, triage tools to use when performing assessments. However, access to and use of valid non-conveyance guidelines is limited across ambulance services worldwide.<sup>13</sup>

When performing non-conveyance assessments, ACs can experience difficulties and frustration regarding differing expectations and conflicting perspectives and demands.<sup>20 21</sup> Furthermore, such situations can also place high levels of responsibility on ACs.<sup>21 24 25</sup> Non-conveyance is a complex phenomenon that can have existential significance for patients.<sup>26</sup> However, there remains a lack of in-depth knowledge concerning ACs’ lived experiences regarding non-conveyance assessments and related decisions.

Considering this, the aim of the present study is to describe ACs’ experiences of assessing non-conveyed patients.

## METHOD

A reflective lifeworld research (RLR) approach, grounded in the philosophy of phenomenology, was chosen for this study. This approach aims to describe phenomena as they are lived and experienced by individuals.<sup>27</sup> This approach could clarify the essential meaning and variations of the phenomenon, which in this study is ACs’ experiences of assessing non-conveyed patients. Thereby fostering a deeper understanding of this phenomenon. The RLR approach can deepen the researchers’ understanding of the phenomenon through the methodological principles of openness, compliance, promptness and uniqueness. Thus, developing researchers’ awareness of their own preconceptions of the studied phenomenon.<sup>27</sup>

### Informants and setting

The target area for this study, Stockholm, Sweden, has a population of approximately 2.3 million and contains seven emergency hospitals.<sup>28</sup> Here, three companies provide ambulance services on behalf of the Stockholm County Council, and all ambulance crews comprise at

**Table 1** Informants’ characteristics

	Total (n = 11)	Female (n = 6)	Male (n = 5)
Age (median, years)	39	45	35
Years in ambulance service (median)	11	11.5	7
Years in present profession (median)	9	9.5	5
Specialist nurses, n (%)	9 (82)	5 (83)	4 (80)
Registered nurses, n (%)	2 (18)	1 (17)	1 (20)

least one registered nurse. Moreover, the regional formal requirements of Stockholm County state that at least one of the two ACs on each ambulance must have at least 1 year’s additional training at university and a degree in specialist nursing.<sup>2</sup> The other AC must be another specialist nurse, a registered nurse or a nurse assistant (emergency medical technician). The specialist nurse is medically responsible within the ambulance team<sup>29</sup>; however, non-conveyance assessments and decisions are not part of the specialist-nursing curriculum.<sup>30</sup> The non-conveyance guidelines for Stockholm County ambulance services are divided into ‘see and treat’ and ‘see and refer’; both of which have a patient-consent requirement (see online supplementary file).<sup>31</sup> Furthermore, telephone consultation with an EMCC physician is obligatory during non-conveyance assessments.<sup>31</sup>

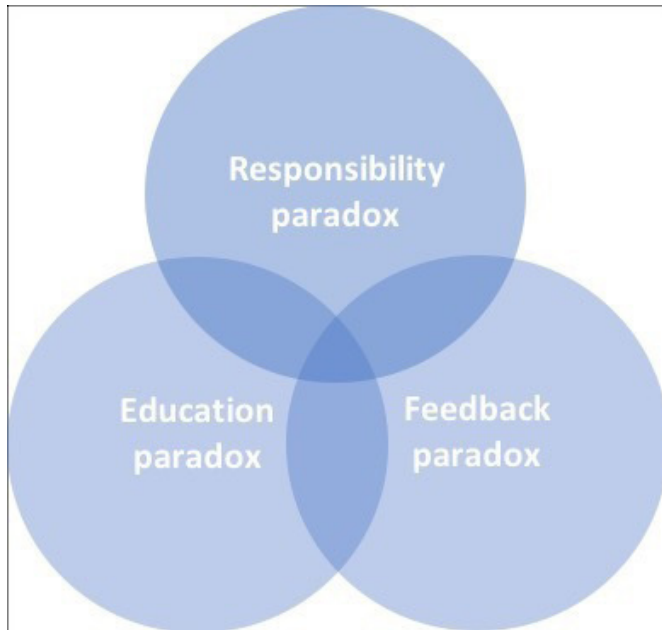
The inclusion criteria regarding informants for the present study concerned ACs who had assessed non-conveyed patients within Stockholm County. Through internal discussions within the research group, a selection template was constructed to cover variations in the phenomenon judged to be important (this conforms with the RLR approach): the geographical location of the ambulance unit (highly urban, urban or rural area), ambulance company, gender, age, years of experience, day/night shift, workday/weekday and formal education training. Following advertisement of the study, a total of 13 ACs reported a willingness to participate; of these, 11 gave approval (table 1).

### Ethical considerations

Ethical processes were applied in accordance with the Declaration of Helsinki.<sup>32</sup> Written informed consent was obtained from all informants, who also received verbal and written explanations of the study aim, the actions that would be taken to ensure confidentiality, and that they could withdraw participation at any time.

### Data collection

Data collection was performed from January to April 2018 using in-depth, open-ended individual interviews. These were all conducted in Swedish by the first author (JL, Registered prehospital emergency nurse, PhD student and male) and recorded using a digital recorder. Prior the interviews, all informants received necessary information



**Figure 1** Venn diagram showing the three paradoxes that together constitutes the essence of ambulance clinicians' experiences of assessing non-conveyed patients.

about the interviewer's background. The informants were all native speakers of Swedish and off-duty while undergoing interviews, which were carried out at places chosen by the informants. All interviews began with an open question: 'Please tell me about a situation where you, as an AC, assessed a patient who was non-conveyed'. During all interviews, follow-up questions were used, such as 'please expand on this point' or 'you mentioned family members in relation to your assessment, please tell me more'. The interviews varied between 53 and 116 min in length, with a median of 68 min. Afterwards, digital verbatim transcription was performed by the first author.

#### Patient and public involvement

There was no patient and/or public involvement in this study.

#### Data analysis

The data analysis was performed in Swedish and manually, without any data software, primarily by the first author but with support from CE and CL. Discussions involving all authors followed. The analysis was conducted in accordance with Dahlberg *et al's* description of the RLR approach.<sup>27</sup> To transform concrete lived experiences into abstract levels and thereby explicate a phenomenon's essence, the analysis should be characterised by a recurrent movement between the initial whole, the constituent parts and the new whole. When analysing the text, the researcher should strive to be as reflective, humble, open and curious towards the data as possible. Each interview was divided into smaller parts, called 'meaning units', which should be related to the phenomenon of interest. These meaning units, with its 'meanings', were then abstracted into 'patterns' and then into 'clusters',

which comprise groups of meaning units that are related to each other and the phenomenon. These clusters were repetitively compared with each other, a process called 'figure-background-figure', and the above-mentioned process involving parts and the whole was also applied. In other words, there was a constant back-and-forth movement between the interviews, meaning units, meanings, patterns and clusters. This process aims to ensure that the data material are not distorted as the construction of clusters and the abstraction process diverge from the original text content; furthermore, it reveals new connections between different clusters and, eventually, provides a description of the essence of the studied phenomenon.<sup>27</sup> Once the data analysis was completed and manuscript under construction, quotations was selected and translated into English. An essence is the studied phenomenon's essential meaning as experienced by the informants; a meaning that does not vary. The result is presented below in terms of the phenomenon's essence and its variances, the so-called constituents (figure 1).

#### RESULTS

Assessing non-conveyed patients means experiencing uncertainty regarding the accuracy of one's assessment. There is considerable fear of conducting erroneous assessments that could harm patients. Avoiding hasty decisions is important for conducting safe patient assessments. Several challenging paradoxes complicate the non-conveyance situation. First, the responsibility paradox involves, on the one hand, organisational expectations that non-conveyance assessments be conducted while, on the other hand, organisational conditions that are inadequate for the increased risk and responsibility involved; therefore, conducting safe patient assessments is challenging.

Second, issues concerning the clinical reality are described through references to the education paradox of limited and inadequate non-conveyance education. This, in combination with limited support from the non-conveyance guidelines, causes the clinical reality to be perceived as challenging and problematic.

Third, there is a feedback paradox, in which professional development might be obstructed, and even halted, due to an absence of learning possibilities after assessments. Moreover, loneliness is experienced during assessment situations, and additional perspectives and companionship are sought to address this. Furthermore, insecurity is ubiquitous, and is reinforced through the absence of feedback regarding assessments.

#### Frustration: desire but inability

The ACs describes a willingness to perform non-conveyance assessments because they recognise their benefits for patients. Furthermore, the ambulance-service processes regarding non-conveyance is considered to have hidden potential for development. Nevertheless, ACs report, a lack of organisational support and, thus, frustration



regarding assessments. Furthermore, they report mistrust and scepticism in the non-conveyance guidelines as a result of their unknown evidence base, which creates further frustration. Moreover, being required to perform assessments without adequate non-conveyance education and training is highlighted as problematic. The ACs also experience an imbalance between their knowledge base regarding acutely sick and non-acutely sick patients. This, in combination with the use of non-validated non-conveyance guidelines, is considered to be problematic, challenging and frustrating:

There is a great focus on acutely sick patients during specialist training. However, in my everyday life as an ambulance specialist nurse, the majority of the patients I meet are not in need of emergency care (No. 2).

The ACs also experience joy and pride when conducting these often challenging assessments that involve more than just a medical perspective. In particular, they report experiencing great satisfaction when successfully performing an assessment. However, they also describe frustration regarding the differences between the ambulance service's overall assignment and non-conveyance. Consequently, ambiguity between the ambulance service's general mission and the organisational expectations of ACs regarding non-conveyance assessments is revealed:

However, it is not my responsibility to not convey patients. We do not have any guidelines for that. [...] It is never my initiative to say 'I think you can stay at home and take two fever-reducing tablets'. [...] However, on the other hand, it is my responsibility to support different care processes, and it is my responsibility to support the patient's choice to stay at home (No. 5).

### Consensus and power: balancing the imbalance

Reaching a consensus between the ACs, patients and their family members regarding non-conveyance decisions is highlighted as important. Patients are viewed as vulnerable and dependent on ACs. To address this imbalance, avoiding hasty decisions regarding assessments is considered to be crucial. Furthermore, the ACs stress the importance of maintaining awareness of the implications of assessments while discussing and reflecting on decisions. Moreover, trying to create a caring dialogue that accommodates patients' and their family members' expectations is also mentioned as important from a consensus and power perspective. When trying to create a caring dialogue, finding common ground with the patient requires emotional qualities such as determination, patience and calmness. Awareness of one's own actions during assessments is also expressed as essential when seeking to address the imbalance in power:

You must have the patience and understanding, empathy, and presence of mind to treat it as a unique

situation, a unique event, a unique encounter (No. 9).

Awareness of patients' and their family members' expectations is also highlighted as important when seeking to create a caring dialogue. The ACs report that patients and their family members often expect conveyance to occur, especially if patients had experienced high levels of fear, possibly even regarding dying:

There really is an expectation of the ambulance service when we arrive. We arrive with our boots and blue lights and yellow cars, and we have vests and big bags. It looks like [...] there's a kind of drama involved; it will be a dramatic event. And then we say that these problems can be managed by your primary health care centre (No. 11).

There is also an imbalance of power in the ambulance team regarding the team members' formal competences and responsibilities, and this can become salient when team members disagree regarding assessments and non-conveyance decisions. This imbalance influences decision-making and, thus, patient safety:

I have the lowest competence in the team, and I usually [...] ask a question if I have a different opinion, or if I disagree with a decision. I did so this time, but my colleague didn't want to convey the patient to a hospital (No. 10).

### Past, present and future: putting the non-conveyance assessment puzzle together

To perform safe non-conveyance assessments, it is important for ACs to obtain an holistic picture of patients' situations. This should include a patient's past, present and future. However, obtaining the entire picture is described as a 'utopia'; there is always at least one element missing. A prerequisite for obtaining as comprehensive a picture as possible is establishing trust in the relationship between ACs, patients and their family members. However, regardless of the level of trust present, there will always be a piece missing in the challenging, complex non-conveyance assessment puzzle. The ACs mention that to obtain an holistic picture, it is important to actively listen to the patient. Through this, patients may feel confirmation and a sense of being cared for. Moreover, to be critical of one's own understanding is important:

You have to constantly question why; not just say 'ok, he is dizzy'. 'Yes, but why is he dizzy?' 'Because he has not eaten.' 'Ok, why has he not been eating?' 'No appetite.' 'Why does he have no appetite?' [...]. Then, the full picture begins to develop. You do not obtain the full picture simply from the fact that the patient fell because he felt dizzy (No. 5).

The ACs feel that the ambulance service is on the periphery of the wider societal healthcare organisation, which harms their opportunities to conduct safe

assessments. Being unable to arrange follow-ups through primary care units or home care is reported as problematic and can lead to unsafe circumstances. This, along with a lack of access to patients' previous medical records, is described as aggravating circumstances. Furthermore, despite the physical presence of colleagues, feelings of loneliness during assessments are reported. The ACs manage this issue, to some extent, through obtaining additional perspectives, such as those of primary care units, home care units, colleagues and EMCC physicians (however, the latter can reinforce this loneliness through showing disinterest during telephone consultations). Nevertheless, one's loneliness and vulnerability can be reduced when a constructive dialogue is established:

So, if you can have good dialogue, it feels like you are making an even better assessment, because then you add higher [...] medical competence in the assessment. Then, it feels [...] like good support and a good complement to my own assessment (No. 9).

### Confidence and insecurity: constantly present

The ACs report an ongoing inner struggle between feelings of insecurity and inadequacy and the importance of appearing confident and trustful to patients and their family members. Deciding not to convey patients is described as related to greater risks and, thus, higher responsibility than when conveying patients. In combination with a perceived lack of organisational structure and support, the greater responsibility that follows these assessments is perceived as challenging.

After all, it is absolutely the greatest responsibility. [...] It is completely different to conveying a patient that I meet and supervise for 20 min during transportation before transferring the responsibility to ED staff. There is considerably more responsibility involved in leaving patients at home (No. 4).

Moreover, the ACs' insecurity is exacerbated by a lack of internal organisational support. The absence of performance feedback after assessments is stressed as particularly problematic and challenging. ACs are prohibited from following up on patients and, consequently, the patient outcome is unknown. This is described as one of the most significant factors complicating professional development and reinforcing insecurity:

As long as you do not hear anything, you have done a good job [...]. It is really quite remarkable that we do not have opportunities to obtain feedback (No. 3).

The ACs mention a strong desire to know patient outcomes. When they cannot determine this, other strategies employ involving active reflection on one's own attitude and approach. While the ACs can reflect on assessments and attitudes independently, involving colleagues is preferred. Hence, the importance of attitudes with colleagues in regard to gaining confidence is highlighted.

I need a colleague who is, hmm, who takes his job seriously [laughs a little]; so that I have someone to discuss with (No. 1).

## DISCUSSION

### Methodological considerations

From a lifeworld perspective, objectivity is not considered as being non-biased<sup>27</sup>; being open, susceptible and sensitive to the phenomenon is important. The first author's pre-conceptions of the studied phenomenon were critically highlighted through several processes, such as self-reflection, seminars and supervision. All measures taken were employed to prolong the first author's process of understanding and thus reduce the bias from preconceptions throughout the whole research process; this is essential with regard to objectivity and validity.

Through an RLR approach, a researcher strive to fully capture embodied experiences.<sup>27</sup> The design of a selection template was preceded by discussions within the research group regarding external variations that could possibly be of interest regarding the phenomenon. This process can be regarded as strengthening both the validity and generalisability of the study. Reaching data saturation is not applicable within phenomenology; the 11 informants' deep descriptions of their lived experiences were judged to be rich and to have great variance, which also strengthened the study's validity and generalisability. Data collection was considered complete once all variations found in the selection template were covered.

During data collection, difficulties in recruiting emergency medical technicians were experienced. The results reflect this fact, and generalisability might be affected. Another possible limiting factor is the context-specific setting. However, a strength of lifeworld-based research analysis is the high level of abstraction in the description of the essence of the phenomenon, which makes it possible to generalise the results to ambulance services in other regions of Sweden, and even to ambulance services overseas that have similar staffing, education and non-conveyance assignments.

### Discussion of the results

This study aimed to describe ACs' experiences of assessing non-conveyed patients. The results show that feelings of uncertainty regarding the accuracy of one's assessment are constantly present among such clinicians. Furthermore, frustration exists prior, during and after assessments. The feelings of loneliness experienced by ACs have not been described before. This is an important finding, as it indicates a certain degree of vulnerability among ACs during non-conveyance situations. Overall, performing non-conveyance assessments means being in a paradoxical professional existence. The sections below discuss the results based on the three paradoxes.

### The responsibility paradox

The core of the responsibility paradox is that the increased responsibility following non-conveyance assessments is not accompanied by the required organisational support. This complicates ACs' ability to manage non-conveyance situations and creates frustration. Our study offers new insights regarding ACs' experience of increased responsibility-related risks following non-conveyance assessments. In comparison to conveyance, performing these assessments means acting with a greater responsibility, as patient risk is higher. Complicating this further is that the ACs felt there were organisational expectations that these assessments should be conducted. Sweden's health policy promotes alternative pathways, such as non-conveyance, as methods of offering care closer to patients' homes<sup>33 34</sup>; however, ACs indicated that the organisational support was inadequate. Compared with, for example, Great Britain, Swedish health policy does not focus on standardising practises within ambulance services on a national level. This could explain the discrepancy between the perceived societal and organisational expectations regarding non-conveyance and the lack of organisational support experienced. Discharging patients at the scene involves risk awareness and management; the least risky option is most often to convey patients to the ED.<sup>35</sup> Thus, naturally, the ACs perceived an increased level of risk in non-conveyance assessments. This is supported by earlier empirical findings, which reported that non-conveyed patients have an increased risk of subsequent adverse events.<sup>13 15</sup> Moreover, ACs described the risk associated with assessments and experiencing an inner struggle between doing what they considered best for the patient and complying with medical guidelines. Unnecessarily conveying patients to an ED fostered dissatisfaction with oneself, the ambulance service and the wider health-care system. According with our finding, a lack of formal support offered by non-conveyance guidelines has been mentioned in previous studies<sup>13 20</sup>; furthermore, ACs' working environments and realities have previously been shown to differ significantly from existing non-conveyance guidelines.<sup>24 36 37</sup> However, the results of our study provide a new insight into the possible consequences of using non-conveyance guidelines that have an unknown evidence base. Additionally, along with uncertainty during non-conveyance situations, scepticism regarding ambulance-service management was mentioned.

Inadequate organisational support was also described by the ACs, who perceived themselves as being on the periphery of the wider healthcare system; this created difficulties in arranging adequate follow-ups to assessments. Similarly, previous studies have demonstrated the importance of collaborative work between ambulance services and other care providers within emergency and urgent care systems.<sup>9 21 25</sup> Successful collaboration with other care providers and adequate follow-ups of patients through primary care units or home care could lead to more clinically appropriate non-conveyance decisions.

### The education paradox

Central to the education paradox is a perceived lack of specific education regarding non-conveyance assessments and decisions. Our results highlight the need for educational efforts that correspond to the transition in ambulance care. An increasing proportion of ambulance missions is being classified as non-urgent.<sup>4</sup> In relation to non-conveyance, the current educational focus during specialist nurse training is perceived as obsolete and only prepares ACs for a limited part of their upcoming clinical reality: caring for acutely sick patients. Similar results have been reported previously, although not specifically from a non-conveyance context.<sup>12 30 38</sup> Additionally, our results offer an in-depth insight regarding the clinical consequences of inadequate non-conveyance education. Frustration regarding inadequate education and having different expectations to one's professional reality can create unfavourable circumstances during non-conveyance situations. Furthermore, an increased risk of developing compassion fatigue during non-conveyance assessments has been shown to correlate to increased frustration.<sup>20</sup> Thus, developing favourable circumstances for ACs to perform safe non-conveyance assessments requires minimising frustration through adequate education and the creation of an evidence base on which future non-conveyance guidelines can be built. There is currently no consensus regarding when it is appropriate to call and receive an ambulance for a 'primary care sensitive' problem.<sup>39</sup> This, together with the skewness of educational content, influences trainee ACs' expectations regarding their upcoming professional roles and could also foster conflicts with patients and their family members regarding non-conveyance. From a patient perspective, these conflicts have been shown to involve suffering and feelings of not being taken seriously.<sup>40</sup>

### The feedback paradox

A key element of the feedback paradox is ACs' limited opportunities to learn from previously conducted non-conveyance assessments. This is accompanied by a sense of loneliness that has not been described in previous research; this is an important finding, as it indicates a certain degree of vulnerability among ACs during non-conveyance situations. By including additional perspectives in one's assessment, ACs can obtain a clearer overview and can meet specific assessment-based knowledge needs. The importance of collegial support when conducting non-conveyance assessments was partly described in a previous study.<sup>21</sup> Our findings complement these results by adding a deeper insight regarding colleagues' roles during non-conveyance assessments. Colleagues, together with the patient, their family members and the EMCC physician, form part of a team that collaborate to find the best solution for the patient. However, despite this teamwork, ACs still experience loneliness as a result of their responsibility following assessments.



Previous clinical experience was described as an important part of ACs' knowledge base when conducting non-conveyance assessments. Therefore, it is problematic, and indeed paradoxical, that there is an absence of performance feedback following these assessments. Clinical performance feedback is imperative for facilitating performance improvement and maintaining competence.<sup>38–41</sup> Furthermore, subsequent clinical performance feedback can cause a shift in patient safety culture on a systematic level, instigating a more accepting atmosphere in which individuals dare to discuss and reflect on errors committed in clinical practice.<sup>41</sup> Therefore, continuously performing complex non-conveyance assessments without performance feedback is a barrier for ACs' professional development.

## CONCLUSION

This study aimed to describe ACs' experiences of assessing non-conveyed patients. The results suggest that performing non-conveyance assessments resembles having a paradoxical professional existence. Despite these aggravating paradoxes, complex non-conveyance assessments continue to be performed and are accompanied by limited organisational support. Furthermore, including additional perspectives is important when trying to decrease experienced loneliness during assessment situations. The results of this study provide in-depth insight regarding the complexity of conducting safe non-conveyance assessments within an ambulance service in transition.

## Implications

Taken together, these results show a need for improved and increased organisational support through the development of non-conveyance guidelines that are based on empirical knowledge, revised specialist-nurse education curricula and enhanced learning possibilities through clinical performance feedback. These findings further suggest the need for improved dialogue and collaboration between ambulance services, primary care units and other care providers within the emergency and urgent care system to create favourable circumstances for safer non-conveyance assessments. This would consequently result in care that conforms with national health policies. Future studies on these different implications and non-conveyance are needed to create more favourable circumstances and, hopefully, more accurate assessments.

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**Contributors** All authors contributed during the planning stage. JL performed the data collection. CE and CL supported data analysis. TD and VL collaborated with the other authors in discussing and establishing the results. All authors contributed to the final manuscript.

**Funding** This work was supported by Region Stockholm through Academic Emergency Medical Services Stockholm. The views expressed are those of the authors and not Region Stockholm or the Academic Emergency Medical Services Stockholm.

**Competing interests** None declared.

**Patient consent for publication** Not required.

**Ethics approval** The Regional Ethical Review Board of Stockholm approved this study (2017/2187-31).

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

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**Author note** The COREQ reporting statement was completed.

## REFERENCES

- Lowthian JA, Cameron PA, Stoelwinder JU, *et al.* Increasing utilisation of emergency ambulances. *Aust. Health Review* 2011;35:63–9.
- Stockholm County Council. Årsrapport 2017 Prehospitäl verksamheter i SLL [Annual report 2017 Prehospital units in the Stockholm County Council] Stockholm County Council; 2018.
- SOS-Alarm. SOS-Alarms Årsberättelse 2017 [Annual report 2017]. SOS Alarm; 2017.
- Ek B, Edström P, Toutin A, *et al.* Reliability of a Swedish pre-hospital dispatch system in prioritizing patients. *Int Emerg Nurs* 2013;21:143–9.
- Gratton MC, Ellison SR, Hunt J, *et al.* Prospective determination of medical necessity for ambulance transport by paramedics. *Prehosp Emerg Care* 2003;7:466–9.
- Hjälte L, Suserud B-O, Herlitz J, *et al.* Initial emergency medical dispatching and prehospital needs assessment: a prospective study of the Swedish ambulance service. *Eur J Emerg Med* 2007;14:134–41.
- Suserud B-O, Beillon L, Karlberg I, *et al.* Do the right patients use the ambulance service in south-eastern Finland? *Int J Clin Med* 2011;02:544–9.
- Bremer A. Dagens ambulanssjukvård. In: Suserud B-O, Lundberg L, eds. *Prehospital akutsjukvård*. Stockholm: Liber AB, 2016: 48–64.
- Norberg G, Wireklint Sundström B, Christensson L, *et al.* Swedish emergency medical services' identification of potential candidates for primary healthcare: Retrospective patient record study. *Scand J Prim Health Care* 2015;33:311–7.
- The National Board of Health and Welfare. Väntetider och patientflöden på akutmottagningar [Waiting time and patient flow at emergency departments]. 2017.
- Larsson G, Holmén A, Ziegert K. Early prehospital assessment of non-urgent patients and outcomes at the appropriate level of care: a prospective exploratory study. *Int Emerg Nurs* 2017;32:45–9.
- Rosén H, Persson J, Rantala A, *et al.* "A call for a clear assignment" – A focus group study of the ambulance service in Sweden, as experienced by present and former employees. *Int Emerg Nurs* 2018;36:1–6.
- Ebben RHA, Vloet LCM, Speijers RF, *et al.* A patient-safety and professional perspective on non-conveyance in ambulance care: a systematic review. *Scand J Trauma Resusc Emerg Med* 2017;25:71.
- van de Glind I, Berben S, Zeegers F, *et al.* A national research agenda for pre-hospital emergency medical services in the Netherlands: a Delphi-study. *Scand J Trauma Resusc Emerg Med* 2016;24:2.
- Tohira H, Fatovich D, Williams TA, *et al.* Is it appropriate for patients to be discharged at the scene by Paramedics? *Prehospital Emergency Care* 2016;20:539–49.

16. Magnusson C, Källenius C, Knutsson S, *et al.* Pre-Hospital assessment by a single Responder: the Swedish ambulance nurse in a new role: a pilot study. *Int Emerg Nurs* 2016;26:32–7.
17. Snooks HA, Halter M, Close JCT, *et al.* Emergency care of older people who fall: a missed opportunity. *Qual Saf Health Care* 2006;15:390–2.
18. O’Cathain A, Knowles E, Bishop-Edwards L, *et al.* Understanding variation in ambulance service non-conveyance rates: a mixed methods study. *Health Serv Deliv Res* 2018;6:1–192.
19. The Health and Social Care Inspectorate. Supervision, according to chapter 7, section 3 of the patient safety act (2010: 659) of the ambulance hospital in Stockholm County Council 2015.
20. Barrientos C, Holmberg M. The care of patients assessed as not in need of emergency ambulance care - Registered nurses' lived experiences. *Int Emerg Nurs* 2018;38:10–14.
21. Höglund E, Schröder A MM, *et al.* The ambulance nurse experiences of non-conveying patients. *J Clin Nurs*.
22. Vicente V, Svensson L, Wireklint Sundström B, *et al.* Randomized controlled trial of a prehospital decision system by emergency medical services to ensure optimal treatment for older adults in Sweden. *J Am Geriatr Soc* 2014;62:1281–7.
23. Wireklint Sundström B, Annetorp M, Sjöstrand F, *et al.* Optimal vårdnivå för multisjuka äldre. In: Suserud B-O, Lundberg L, eds. *Prehospital akutsjukvård*. Stockholm: Liber AB, 2016: 263–7.
24. Porter A, Snooks H, Youren A, *et al.* Should I stay or should I go? Deciding whether to go to hospital after a 999 call. *J Health Serv Res Policy* 2007;12(1\_suppl):32–8. :S1.
25. Knowles E, Bishop-Edwards L, O’Cathain A. Exploring variation in how ambulance services address non-conveyance: a qualitative interview study. *BMJ Open* 2018;8:e024228.
26. Rantala A, Ekwall A, Forsberg A. The meaning of being triaged to non-emergency ambulance care as experienced by patients. *Int Emerg Nurs* 2016;25:65–70.
27. Dahlberg K, Dahlberg H, Nyström M, *et al.* *Lund*. 2nd ed. Studentlitteratur, 2008.
28. Stockholm County Council. Patienttransporter I framtidens hälso-och sjukvård 2016.
29. Stockholm County Council. *Medicinska riktlinjer för ambulanssjukvården [Medical guidelines for the Ambulance service]*. Stockholm: Stockholm County Council, 2017.
30. Sjölin H, Lindström V, Hult H, *et al.* What an ambulance nurse needs to know: a content analysis of curricula in the specialist nursing programme in prehospital emergency care. *Int Emerg Nurs* 2015;23:127–32.
31. Stockholm County Council. *Medicinska riktlinjer för ambulanssjukvården - Fortsatt egenvård [Medical guidelines for the Ambulance service - Non conveyance]*. Stockholm: Stockholm County Council, 2017.
32. World Medical Association. WMA Declaration of Helsinki - Ethical principles for medical research involving human subjects 2013:29–32.
33. Stockholm County Council. Förstudie Om framtida prehospital vård I SLL. Rätt vårdinsats I rätt tid Med rätt resurs 2017– 2025, 2016. Available: <http://www.sll.se/Global/Politik/Politiska-organ/Halso-och-sjukvardsnamnden/2016/2016-04-19/p7.pdf> [Accessed 10 Aug 2017].
34. Coordinated development for good quality - local health care. God och nära vård [Good quality, local health care – a primary care reform]. *Stockholm* 2018.
35. O’Hara R, Johnson M, Hirst E, *et al.* A qualitative study of decision-making and safety in ambulance service transitions. *Heal Serv Deliv Res* 2014;2:1–138.
36. ’Hara R O, Johnson M, Siriwardena AN, *et al.* A qualitative study of systemic influences on paramedic decision making: care transitions and patient safety. *J Health Serv Res Policy* 2015;20:45–53.
37. Snooks HA, Kearsley N, Dale J, *et al.* Gaps between policy, protocols and practice: a qualitative study of the views and practice of emergency ambulance staff concerning the care of patients with non-urgent needs. *Qual Saf Health Care* 2005;14:251–7.
38. Wihlborg J, Edgren G, Johansson A, *et al.* Reflective and collaborative skills enhances Ambulance nurses' competence - A study based on qualitative analysis of professional experiences. *Int Emerg Nurs* 2017;32:20–7.
39. Booker MJ, Shaw ARG, Purdy S. Why do patients with 'primary care sensitive' problems access ambulance services? A systematic mapping review of the literature. *BMJ Open* 2015;5:e007726.
40. Ahlenius M, Lindström V, Vicente V. Patients' experience of being badly treated in the ambulance service: a qualitative study of deviation reports in Sweden. *Int Emerg Nurs* 2017;30:25–30.
41. Morrison L, Cassidy L, Welsford M, *et al.* Clinical performance feedback to paramedics: what they receive and what they need. *AEM Education and Training* 2017;1:87–97.