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# Training residents to lead emergency teams: A qualitative review of barriers, challenges and learning goals

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## Abstract

**Objective:** An investigation to determine any consensus in opinions and views in the literature about challenges or barriers in training leadership for emergencies.

**Summary of background data:** Leadership in emergencies is reported as being very important for patient outcome. A systematic review failed in 2016 to find any focused leadership training. In the literature, the research has described and focused on developing tools to evaluate leadership.

**Method:** Articles identified in the systematic review combined with other reviews and opinions were included to incorporate experiences, perceptions and emotions connected with leadership training in emergency situations. Two qualitative content analyses were conducted. The first analysis searched for opinions about leadership and leadership training in emergencies. The method was abductive – inductive qualitative content analysis. The second analysis searched, on the basis of an article written in 1986, statements about challenges regarding leadership training in all articles. This method was directed qualitative content analysis.

**Findings:** In total 40 articles covering the years 1986–2016 were analysed. An explicit need for workable leadership training of team leaders in emergencies

was identified. The importance of the teamleader in emergencies was repeatedly stressed by 31/40 articles, leadership training is needed or required was stated by 30/40 articles, 27/40 articles described the emergency situation as stressful, complex, chaotic or unpredictable, 17/40 described the importance of self-confidence by the teamleader, and 8/40 described that the situation was perceived as creating concern, anxiety or panic.

**Conclusions:** The literature recommends finding a solution to teach residents to gain courage and confidence in stressful surroundings. The literature recommends finding a way to work with body language, non-verbal communication, attitude and appearance in order to radiate credibility in a setting separated from medical knowledge.

Keywords: Emergency medicine, Education, Psychology

## 1. Background

Team leadership in emergencies is reported as being important for the quality of the technical performance of teams [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12], for patient outcome, patient safety and patient care [10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23]. The quality of team leadership may even influence patient mortality and survival rates [7, 11, 15, 20].

A systematic review (conducted in 2016) searching the literature identifying training in empowering leadership for the team leader in emergencies, concluded that no focused leadership training has taken place [24]. Medical scholars have over many years interpreted leadership from a measurable perspective (simulation training and repeatedly developing taxonomy-based feedback). However, leadership in emergencies is, in the authors' opinion, basically — isolated from professional ability — a complex and multifaceted *social* competence. Analysing social interaction or training social competencies, including dissemination, requires an interpretative approach rather than the positivist's need for measurability and testing.

As previously described in the mentioned systematic review [24], leadership is acquired through practice, and therefore leadership competencies should be acquired not through theoretical learning, but through practice as described by Mintzberg [25]. In accordance with this, surgeons learn to sew a wound together by doing it in practice. In order to learn to ride a bike, theoretical knowledge, as well as feedback from educators and experts, is definitely valid but only by getting up on the bike and experiencing the feeling it is possible to acquire this competence. Experience obtained by practice is prerequisite for acquiring learning in certain areas. The authors of this study do not consider that feedback based on behavioural indicators (leadership measurements tools) is equivalent to workable training of practicing leadership in emergencies, it is necessary to exercise *practicing* leadership in order to fully acquire leadership competence.

Measuring time to perform tasks and giving feedback according to objectives defined in taxonomies mixes professionalism and attempts at leadership training but without taking into account the fact that more and very different mind systems are challenged, described as Systems 1 and 2 by Kahneman [26]. In accordance with Kahneman, it is possible to argue that training in clinical skills and memorizing algorithms, addresses the effortful, slow and rational operations of system 2 while interaction between people (leadership) takes place in the automatic, fast and intuitive system 1. It is difficult to operate in both systems simultaneously and errors can occur if the two systems conflict with each other. Consequently, this brings a focus on the role of the medical expert (medical competence) in this training and draws attention away from actually practising training of leadership.

Medical scholars have sought help in other high-risk professions of military and aviation. With the help of these professions, the medical scholars have theoretically developed “what to measure”. Leadership is implicitly defined in the Leadership Behaviour Description Questionnaire (LBDQ) checklist [27, 28, 29] (adapted from military, created in 1945), as well as in Crew Resource Management [30] (CRM) and the Non-Technical Skills checklist (NOTECHS) (adapted from aviation to healthcare for the first time in 2003, Anaesthetists’ non-technical skills [31] (ANTS)). This is accepted by the medical world without distinction to the differences between captains, officers and the young doctor (the resident). Military education and aviation education are aimed at professionals with different prerequisites/conditions than doctors. Officers and pilots in command of aircraft are leaders in their professions. It could be argued that their situation is essentially different to that of newly qualified young doctors who have not yet been introduced to leadership. In addition, it can be noted that doctors have to cope with several other roles in their profession, in accordance with CanMEDS definition of the seven roles of the doctor [32].

The previously mentioned systematic review suggested in addition that it is necessary to work with the personal challenges associated with stressful situations. As a consequence, it is necessary to work with the resident’s courage, self-confidence and authority when he or she acts as a team leader [24]. This is further supported by three studies, Hunziker et al. describes the negative emotions caused by stress in a simulated CPR situation [33], Petrosoniak et al. suggest it is advantageous to work with stress inoculation alongside with CRM training and simulation [34], and Mantha et al. who designed a curriculum for paramedic trainees in order to address stress and anxiety [35].

There are many training programmes for leaders in different contexts. We focus our review on *real* and *operational* leadership training for physicians in emergency situations in healthcare.

The quantitative research was effective in answering questions such as “Time to start cardiopulmonary resuscitation”, “Time to perform critical tasks” or “time to call for help during bleeding, operative time, and path length of laparoscopic instruments”, it would be less useful if we want to know the actual need for the training of empowering team leadership in emergencies that are sought in practice, that is, in the clinic. Furthermore, it will not provide the actual and personal challenges, which the residents are facing when performing their team leader function in emergencies. Qualitative research helps describe and find the reasons for needs, behaviour, emotions and its social context and therefore the reason for the methodology used in this study. It should be noted that in this study, articles with a qualitative approach were identified: Sadideen et al. [36], Leenstra et al. [10], Kolehmainen et al. [20], Jacobsson et al. [18], Hjortdahl et al. [4], and Yule et al. [37].

This study has three questions for the literature. The first question; does the literature itself have statements about the importance of leadership training and leadership in emergencies? Secondly, does the literature define any actual barriers, challenges and learning objectives that should be addressed in terms of training of the leadership function in emergencies? And finally, depending on the findings, the study will reveal if there is consistency between the actual focus in literature on leadership training versus the need described in the literature based on opinions, experience and knowledge.

## 2. Methods

### 2.1. Data sources

A search of the databases of PubMed, Psycinfo (via Ovid), and ERIC was carried out in June–December 2016 with the aid of a research librarian. Keywords in the search were: gesture, mimic, eye-contact, NTS Skills, NOTSS, communicat\*, non-verbal, task management, authority, lead, teamleader, teach\*, educat\*, train\*, learn\*, advanced life support, cardiopulmonary resuscitation [MeSH Terms], cardiopulmonary [All Fields], resuscitation" [All Fields], leadership [Mesh], Education, Medical [Mesh], urgency, leadership, “cardiac arrest”, human factors), where \* indicates wildcard. No time limit or language restrictions were applied. A thorough review of the search strategy has been described previously [24].

40 articles fulfilled the inclusion criteria, which were expanded to cover experience, perceptions and emotions relating to leadership training in emergency situations, and therefore primary as well as secondary articles became relevant in this study.

The research papers were treated as documents and primary sources in data collection, the method is inspired by a study conducted by Marston et al. [38] All 40 articles were grouped together in a single PDF document (a total of 299 pages) and

searched several times for keywords, their synonyms and if available, their meaningful similar positive and negative analogies, phrases and sentences. In both analyses, keywords were selected by TL, and relevance to inclusion and exclusion was discussed until TL and RBH reached agreement on the decision and then grouped them into categories. These categories helped to inform the development of patterns and finally themes seen across the selected studies.

The relevance of the identified keywords, phrases and sentences was discussed between TL and RBH. There was a high degree of overall agreement between the two authors (94.45%). Inter-coder reliability was very good (Cohen's  $\kappa$  coefficient = 0,852).

## 2.2. First qualitative content analysis searching leadership

Basically, this analysis stems from the wish to find an explanation for why the systematic review did not reveal any training in leadership. The source of 40 articles was examined for answers to 5 questions as expressed in [Table 1](#).

First, the source was examined in an abductive [39] – inductive Qualitative Content Analysis (QCA-1). An *inductive approach* (conventional, inductive [40]) is appropriate when prior knowledge regarding the phenomenon under investigation is limited or fragmented [41]. Using an inductive approach, codes, categories, or themes are directly drawn from the data [41] without imposing preconceived categories or theoretical perspectives [40]. By adding 'latent content analysis' [41] it is possible to interpret the underlying meaning of the words. This investigation was conducted with the purpose of identifying opinions about leadership in emergencies and leadership training. The quotes were grouped into themes in an iterative process.

The purpose of the search was to investigate whether the literature expressed that leadership was important, whether the training was adequate or if further action was required in the training of leadership in emergencies. The analysis was conducted across the articles in the assembled pdf document to determine patterns. First, the document was searched for the words 'important, importance, adequate, sufficient'. When relevant phrases and sentences were identified new keywords emerged and the search started over again. The identified sentences were grouped into categories, and then into the themes as presented in [Table 1](#).

Among relevant keywords in QCA-1 were: Important, importance, optimal, essential, adherence, correct, recognize, favourable, comfortable, sufficient, good, better, adequate, improve, enhance, critical, negative, poor, absence, lack, eclipsing, deviation, error, delay, uncomfortable, failure, fail, problem, deficit, variable, variety, varies, obstacle, insufficient, neglect, safe, safety, outcome, quality, performance, goal, need, coordinate, ability, role, ambiguity, demand, and require.

**Table 1.** QCA-1, team leadership in emergencies.

QCA-1: Team leadership in emergencies	Is important	Is lacking	Training is important	Training is ignored	Training is required
<b>Total</b>	<b>31</b>	<b>11</b>	<b>28</b>	<b>22</b>	<b>30</b>
1986: Iserson [42]	X	X	X	X	X
1986: McCue, Magrinat et al. [43]			X	X	X
1999: Cooper, Wakelam [27]	X		X	X	X
2001: Cooper [49]			X	X	X
2003: Wisborg, Ronning et al. [1]	X		X	X	X
2004: Itani, Liscum et al. [50]	X	X	X	X	X
2004: Marsch, Muller et al. [2]	X	X	X		X
2006: Yule, Flin, Paterson-Brown et al. [37]				X	X
2006: Yule, Flin et al. [13]	X			X	X
2007: Flin, Yule et al. [16]	X		X	X	X
2007: Gilfoyle, Gottesman et al. [14]	X		X	X	X
2007: Hayes, Rhee et al. [15]	X	X	X	X	X
2007: Makinen, Aune et al. [3]	X		X		X
2009: Carlson, Min et al. [51]			X		
2009: Hjortdahl, Ringen et al. [4]	X	X	X	X	X
2010: Georgiou, Lockey et al. [6]	X				
2010: Hunziker, Buhlmann et al. [5]		X	X	X	
2010: Hunziker, Tschan et al. [7]	X	X	X		X
2011: Hunziker, Johansson et al. [8]	X		X		X
2011: Ringen, Hjortdahl et al. [17]	X	X		X	X
2012: Jacobsson, Hargestam et al. [18]	X				
2013: Fond, Ducasse et al. [52]			X	X	X
2013: Hunziker, Tschan et al. [19]	X	X	X		X
2013: Stoller, Taylor et al. [53]	X	X	X	X	X
2013: Willems, Waxman et al. [54]			X	X	X
2014: Kolehmainen, Brennan et al. [20]	X				
2014: Krage, Tjon Soei Len et al. [55]	X		X		X
2014: Mercer, Arul et al. [45]	X				
2014: Roberts, Williams et al. [56]	X	X			
2014: Sommer [57]					
2015: Briggs, Raja et al. [9]	X		X		X
2015: Fernandez Castelao, Boos et al. [21]	X		X		X
2015: Nicksa, Anderson et al. [44]				X	
2015: Yule, Parker et al. [22]	X			X	X
2016: Ford, Menchine et al. [12]	X		X	X	X

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**Table 1.** (Continued)

QCA-1: Team leadership in emergencies	Is important	Is lacking	Training is important	Training is ignored	Training is required
2016: Hargestam, Hultin et al. [23]	X		X		X
2016: Leenstra, Jung et al. [10]	X		X	X	X
2016: Mantha, Coggins et al. [35]	X		X		X
2016: Robinson, Shall et al. [11]	X		X	X	X
2016: Sadideen, Weldon et al. [36]	X				

### 2.3. Second qualitative content analysis searching barriers, challenges and learning objectives

Secondly, a directed [40] – deductive QCA (QCA-2) was carried out to determine whether the literature reveals any opinions, attitudes, experiences or views to identify any *actual* challenges or barriers which leadership training for residents in emergencies needs to address. *Deductive* QCA starts with preconceived codes or categories derived from prior relevant theory, research, or literature [41]. The preconceived categories in the search were directed by the content of the eldest article found (published in 1986) written by Kenneth Iserson [42]. The article was identified as very relevant as it focused on the actual experience of physicians when performing as team leader in an emergency. Additionally, we decided that using the oldest of the 40 articles as the basic opinion on leadership would give an overview of developments in opinions or knowledge over the 30-year period, the articles represented.

The source was searched in order to establish whether the key issues identified by Iserson are still relevant today in the themes presented in Table 2. The analysis

**Table 2.** Isersons statements.

Isersons statements – QCA-2 (directed, deductive)	Theme
<i>The situation</i> itself, which may be “stressful”, “chaotic” and “confusing”	<i>Stress</i>
<i>Negative feelings</i> , such as being “uncomfortable”, as an “overwhelming burden”, and perceive it with “fear” and “anxiety”.	<i>Anxiety</i>
<i>Self-confidence</i> is prerequisite for good leadership	<i>Self-confidence</i>
<i>Capacity as leader/appears as authoritative</i> if he is able to show “responsibility”, “knowledge”, “power and authority”.	<i>The perception of the leader</i>
<i>Assuming leadership</i> , which involves the mental decision (mental preparedness) to assume “the mantle of the group’s possible failure”	<i>Mental aspect</i>

was conducted across the articles in the assembled pdf document to determine patterns. Keywords were selected from Iserson's article. As in QCA-1, when relevant phrases and sentences were identified new keywords emerged and the search started over again. Sentences were included if they contained anything about other perspectives on team leadership, teamwork, or personal challenges and feelings related to this, and grouped to themes demonstrated in [Table 3](#).

Among relevant keywords in QCA-2 were: Theme 1: stress, pressure, chaotic, confusing, unpredictable, unanticipated. Theme 2: uncomfortable, overwhelming, fear, anxiety, panic, disturbing, worrying, unpleasant, discomfort, calm. Theme 3: confidence, personality, relax, competent, self-image, self-belief, risk, performance, clear, communicate, charisma. Theme 4: responsible, knowledge, power, authority, planning, organization, command, trustworthy, credible, ideal, clear, distinct, influence, body, posture, pose, position, verbal, talk, speak, non-verbal, voice, gaze, eye, gesture, ethos. Theme 5: assume, failure, responsible, risk, vulnerable, mental, ready, directing, introspection, oneself, prepare, rehearse, role, strain, manage.

The keywords in each QCA were grouped in five different themes and the themes and quotes containing the words were sorted chronologically. Comprehensive data presentation is shown in the Appendix.

### 3. Results

Ten themes emerged: QCA-1 demonstrated five themes related to leadership and QCA-2 showed five themes related to barriers, challenges and learning goals for the team leader in emergencies. The results (keywords) of QCA-1 are presented in [Table 1](#) and the results (keywords selected from Iserson) of QCA-2 are presented in [Table 3](#).

#### 3.1. QCA-1 on leadership

##### 3.1.1. Theme 1, leadership is important

“... clinical leadership is the ultimate synthesis of medical knowledge and one of the most important aspects of critical medical care”

Iserson, 1986 [42]

“Leadership skills directly correlate with the quality of technical performance of cardiopulmonary resuscitation (CPR) and clinical outcomes”.

Robinson, 2016 [11]

Thirty one studies repeatedly stressed the importance of the teamleader in emergencies. This function is important for the ‘quality of team performance’, ‘crowd control’, ‘task performance’, ‘adherence to algorithms’, ‘guidelines’, ‘established



**Table 3.** QCA-2, challenges and learning goals for the team leader in the emergency situation.

QCA-2: Challenges and learning goals for the team leader in the emergency situation	The scenario is complex/stressful/unpredictable/chaotic	Perceived with anxiety or panic/is disturbing/worrying/overwhelming	The leaders confidence is important for the team	Non-verbal communication is important for the situation/for the perception of the leader	Assuming the leadership: Mental process/risk taking/managing oneself/mental preparation
<b>Total</b>	<b>27</b>	<b>8</b>	<b>17</b>	<b>13</b>	<b>16</b>
1986: Iserson [42]	Stress, chaos	Anxiety	Confidence	Calm, quiet tone	Decision to assume the role
1986: McCue, Magrinat et al. [43]		Threat	Confidence		Assume the responsibility
1999: Cooper, Wakelam [27]	Stress, chaos	Unpleasant, disturbing, fight a losing battle	Confidence, trust	Non-verbal behaviour	Taking risks
2001: Cooper [49]			Confidence		
2003: Wisborg, Ronning et al. [1]			Confidence		
2004: Itani, Liscum et al. [50]	Stressors				
2004: Marsch, Muller et al. [2]		Emotional, concern, fail			
2006: Yule, Flin et al. [13]	Complex, stress		Self-belief	expertise is difficult to verbalize	Personal vulnerability, mental readiness
2007: Flin, Yule et al. [16]	Stress				
2007: Gilfoyle, Gottesman et al. [14]				Calm, clear voice	Assume the leadership
2007: Hayes, Rhee et al. [15]	Stress	Anxiety, unprepared, worrying, overwhelmed	Confidence		
2009: Hjortdahl, Ringen et al. [4]	Complex, stress	Anxiety	Confidence, trustworthy, calmness	Communicate clear and distinct	responsibility
2010: Georgiou, Lockey et al. [6]					Comfortable directing
2010: Hunziker, Tschan et al. [7]	Complex				
2011: Hunziker, Johansson et al. [8]	Complex, stress				Assume responsibility
2011: Ringen, Hjortdahl et al. [17]	Complex, stress		Radiate confidence	Communicate clearly	
2012: Jacobsson, Hargestam et al. [18]	Complex, time pressure		Confidence, ethos, trust	Position and how they speak	
2013: Fond, Ducasse et al. [52]			Confidence	Apperance, charismal, non-verbal	Introspection/ Assume responsibility
2013: Hunziker, Tschan et al. [19]	Stress				

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**Table 3.** (Continued)

QCA-2: Challenges and learning goals for the team leader in the emergency situation	The scenario is complex/stressful/unpredictable/chaotic	Perceived with anxiety or panic/is disturbing/worrying/overwhelming	The leaders confidence is important for the team	Non-verbal communication is important for the situation/for the perception of the leader	Assuming the leadership: Mental process/risk taking/managing oneself/mental preparation
2013: Stoller, Taylor et al. [53]	Stress		Confidence, trust		Manage oneself
2013: Willems, Waxman et al. [54]	Chaos				Self-care
2014: Kolehmainen, Brennan et al. [20]	Feverish, chaos	Discomfort, panic, anxiety	Calm people down, confidence	Powerful posture, non-verbal, speak clearly	Mentally prepare, assume leadership
2014: Krage, Tjon Soei Len et al. [55]	Stress				
2014: Mercer, Arul et al. [45]	Complex		Crowd control		Mentally rehearse
2014: Sommer [57]	Stress				
2015: Briggs, Raja et al. [9]	Complex				
2015: Fernandez Castelao, Boos et al. [21]	Complex, time pressure			Gesture, eye contact	
2015: Nicksa, Anderson et al. [44]	Complex		Confidence		
2015: Yule, Parker et al. [22]	Stress				
2016: Ford, Menchine et al. [12]	Complex, chaos				Assume the role
2016: Hargestam, Hultin et al. [23]	Complex			Use their bodies, fluent speech	
2016: Leenstra, Jung et al. [10]	Complex, pressure				
2016: Mantha, Coggins et al. [35]	Complex, stress		Confidence	Body language, speech pace	
2016: Robinson, Shall et al. [11]	Stress	Anxiety	Confidence		Anxiety management
2016: Sadideen, Weldon et al. [36]	Complex			Non-verbal behaviour	Mental strain

protocols', 'errors', 'clear communication', 'success of operations', 'medical performance', 'patient safety', and 'patient outcome'. In particular, the importance of leadership in specialties such as paramedics, anaesthesia, ALS, resuscitation teams, trauma teams, and surgical performance were identified. Thus, there is consensus in 77.5% of the articles that leadership is important for the team's work and the clinical outcome.

### **3.1.2. Theme 2: leadership is lacking**

“The results suggest that residents perceive deficits in their training and supervision to care for critically ill patients as cardiac arrest team leaders”.  
Hayes, 2007 [15]

“Level of experience among team leaders was highly variable and their educational background insufficient according to international and proposed national standards”.  
Ringin, 2011 [17]

Eleven studies explicitly state that leadership is ‘lacking’, ‘residents lack competence’, ‘failed to treat’, ‘perceive deficits’, ‘have not linked the necessity of leading’, ‘is insufficient’, ‘residents feel unprepared’, and ‘eclipsing attention to leadership development’. It is thus suggested that leadership is missing in clinical emergencies in 27.5% of the studies covering a 30-year period.

### **3.1.3. Theme 3: leadership training is important**

“An emergency leadership training programme is essential to enhance the performance of leaders and their teams”.  
Cooper, 1999 [27]

“Despite its importance, dedicated leadership education is rarely part of physician training programs”  
Ford, 2016 [12]

Twenty-eight studies repeatedly express that leadership training is important to ‘improve performance’ and ‘effectiveness’ of the leader. A high level of consensus was identified in 70% of the articles stating that leadership training is important.

### **3.1.4. Theme 4: leadership training has been ignored**

“Leadership has been neglected as a part of the education and training of physicians”.  
McCue, 1986 [43]

“Traditionally, surgical education has not formally taught leadership skills, effective communication, professionalism, or team management; instead, these skills are learned on the job during surgical residency... residents often take years to gain the confidence and expertise to master the nontechnical and technical skills needed to address high-risk clinical emergencies”.  
Nicksa, 2015 [44]

Twenty-two studies point out that leadership training has been ‘ignored’, or ‘neglected’ and that this is a serious deficiency in medical training. As 55% of the

studies thus states that training has been ignored, this finding complies with theme 2: Leadership is lacking. But it is surprising in relation to theme 3: Leadership training is important. If 70% of the studies states that training is important, and 55% expresses that the training has been ignored, then a problem has been identified.

### ***3.1.5. Theme 5: leadership training is required***

“... physicians are never taught clinical leadership”.  
Iserson, 1986 [42]

“... practical guidance needed for the deliberate practice of leadership skills”.  
Leenstra, 2016 [10]

Thirty studies repeatedly stress that training is ‘required’. The authors find that it is surprisingly strong as 75% of the studies – over three decades – suggests there is an urgent need. This is a strong indication that a problem remains, in spite of the existing CRM and simulation training, NOTECHS and LBDQ.

## **3.2. QCA-2 on barriers, challenges and learning goals**

### ***3.2.1. Theme 6: stress***

“In fact, in a medical crisis, even with limited time and resources, sparse information, rushed and somewhat stressed personnel, the patient should be the only one with an emergency.”  
Iserson, 1986 [42]

“Participants explained that the code leader should be the “chaos control factor” and project a composed demeanor to “help calm other people down.” They also described often being “panicked” but trying to appear as the “calmest person in the room.” One likened his behavior to a duck, saying: “If you’ve ever watched a duck on a pond, it looks as though it’s floating effortlessly across the lake. But if you’ve ever looked underneath at a duck’s feet, they’re paddling feverishly.”  
Kolehmainen, 2014 [20]

Leadership in emergencies as well as the emergency scenarios have – for a variety of reasons – been described as ‘complex’. The situation is furthermore described as ‘stressful’, ‘under time pressure’, ‘unpredictable’, ‘unanticipated’, ‘urgent’, and ‘chaotic’. A consensus was identified in 67,5% of the studies thus describing the emergency itself as stressful.

### ***3.2.2. Theme 7: anxiety***

“Interns felt that the combined simulation-debriefing sessions would reduce their anxiety and improve their confidence and skills in participating in real cardiac

arrests.” ... “The perceived lack of adequate training seemed to be responsible, at least in part, to feelings of being unprepared, overwhelmed, and of worrying about committing errors during cardiac arrests in a significant number of residents”.

Hayes, 2007 [15]

“Many residents spoke about increased anxiety before codes, a numb feeling during codes, and anxiety afterwards that some described as “PTSD” like”.

Kolehmainen, 2014 [20]

Leadership in emergencies has been perceived with negative feelings and emotions as stated in 20% of the studies. These emotions range from ‘unpleasant’, ‘disturbing’, and ‘worrying’ to ‘overwhelming’, ‘fighting a losing battle’ perceived with ‘anxiety’, and ‘panic’.

### ***3.2.3. Theme 8: confidence***

“... mental preparation in the operating theater, including commitment, self-belief, positive imagery, mental readiness, and distraction control”.

Yule, 2006 [13]

“One nurse said that if the leader seems confident she feels confident too”

Hjorddal, 2009 [4]

Self-confidence is important for the team leader’s ability to lead, but the team leader’s confidence is as important for the team to engender trust in the leader and allow the team to assess whether he or she is ‘competent’ and ‘credible.’ Having self-confidence, being trustworthy and being credible is important in order to appear competent was emphasized in 42.5% of the studies.

### ***3.2.4. Theme 9: the perception of the leader***

“The leader needs to be flexible, but at the same time engender trust and respect from his team”

Cooper, 1999 [27]

“Team members were silent, mainly listening, and did not question leaders’ knowledge and priorities. This could be explained in situations where the leader had a strong ethos and expressed competence”

Jacobsson, 2012 [18]

The teamleader’s non-verbal communication was stated as important for the team’s perception of the leader. Nineteen of the studies (47,5%) emphasised that the leader could deliberately work with ‘body language’, ‘voice’ and pace when speaking, his or hers’ ‘positioning’, ‘physical gesture’, ‘eye-contact’ and ‘charisma’ in order to appear ‘powerful’ and strengthen his or her ‘credibility’ and ‘authority’.

### 3.2.5. Theme 10: mental aspect

“In accepting the leadership role, the individual assumes the mantle of the group’s possible failure. Any individual’s faltering can be laid at the leader’s feet. This is the law of total responsibility”.

Iserson, 1986 [42]

“... allows time for the team leader to brief the team, determine names, roles and competencies, prepare contingency plans, check equipment and mentally rehearse any expected mental models”

Mercer, 2014 [45]

Sixteen studies (40%) emphasised the ‘mental preparation’ when assuming the leadership. It is important to ‘manage oneself’ in the process, demonstrate ‘mental preparedness’ and ‘recognize personal vulnerability’, ‘introspection’, ‘rehearse expected mental models’, and exercise ‘psychological self-care’, and ‘anxiety management’.

## 4. Discussion

Our review of research suggests that there is consensus about an urgent need for workable training of the practise of the teamleader function in emergencies and that leadership training has been neglected. Despite that the majority of the medical scholars request workable leadership training, the objective of the scholar’s research has focused on developing or adapting measurement-based (taxonomy-based) feedback.

The question is if the research, — as stated by Psychologist Kahneman — has been ‘blind to the obvious’ and ‘blind to our blindness’ in the past 30 years [26]. However, medical scholars are beginning to acknowledge the problem. Obviously, there is in literature identified a need for ‘something’ not identified in the learning goals as defined in the current method of training (feedback), this ‘something’ should be investigated and defined.

The objective of the training should be to make the residents rise to the occasion when called upon to act as leaders of emergency teams. The mental challenge of assuming leadership in emergencies is — in the identified literature — described in 40% of the studies. It is necessary in the training to pay attention to the personal mental preparation for the team leader including considering the primary deliberate decision *to assume* leadership and thereby the risks connected to the function. To ‘assume leadership’ is a decision that has profound consequences for a person’s self-understanding, and a deliberate but important choice to be made *before* experiencing the challenging situation.

The emergency situation is described as stressful and chaotic and these conditions are contributing to how some of the residents respond with very strong negative feelings. A particularly strong feeling like ‘anxiety’ is highlighted in several studies and ‘panic’ has been mentioned by a single study. We believe it is important to respond to anxiety because anxiety can block learning and performance (amygdala hijack), ‘paralyses or causes errors, it can interfere with what we want to do’ as stated by Prof. Williams [46]. In addition, when the resident is asked to rise to the occasion adopting the role as leader in an emergency situation, he or she is at the same time tested on professional knowledge – life and death depends on it. In addition, in this stressful situation, he or she will be tested as to whether he or she can gain their colleagues’ respect when performing as team leader. Those factors may influence his or her career and is a contributing stress factor to an already challenging situation.

We didn’t find any training describing how to address the fear that residents can experience in a stressful situation. This challenge should be focused in future research if we want to prepare the residents for these stressful situations.

In addition, it is disturbing to learn that all Iserson’s statements written 30 years ago are still valid today. Despite many initiatives, research projects and man hours spent over these years of intense work, the literature seems to have failed to address what the literature itself has pointed out were important learning objectives during this period.

Over the past 30 years the literature has stated that these negative emotions, feelings and perceptions are highly involved when a team leader needs to rise to the occasion in front of an emergency team, but the literature has not as yet described a method to accommodate this. This has been the case whether the reason has been lack of knowledge, lack of leadership definition, lack of focus or lack of ability to handle the simple but difficult question: to find “something ‘that works’ in terms of leadership training in emergencies” [24] in order to prepare residents for this.

The necessity of giving the resident the confidence and thus the courage in the situation is emphasised in sixteen studies stating that the team leader’s degree of self-confidence is important for the quality of the leadership. However, we must keep in mind that simulations and feedback are very different from the real clinical world. We need to find a way to bring what is taught in the simulations to the real world.

#### 4.1. Learning goals, the five Cs

The results of the QCA-2 suggest barriers, challenges and learning goals to be addressed in future training.

We have summarized the results of QCA-2 in [Table 4](#): The Team-Leader’s Five Cs.

**Table 4.** The Team-Leader's five Cs.

The Team-Leader's five Cs	
Command	Demonstrate authority and power
Credible	Be trustworthy
Competent	Demonstrate ability to the situation at stake
Calm	Create calmness for the team
Communicate	Ability to communicate with the team

**Command:** It is necessary that the team leader is able to demonstrate immediately that he or she is the one in command. By deliberately working with body language and nonverbal communication, it is possible to appear convincing in the role of a leader radiating authority.

**Credible:** It is important the leader appears trustworthy, has a strong ethos, and has charisma. It is especially emphasised that gestures and positioning in the room are powerful tools in order to radiate power and gain credibility.

**Competent:** It is important that the teamleader is able to appear competent (show expertise). Jacobsson states in 2012:

“In health care, knowledge is strongly linked to power, and power in this context is further linked to the profession. In emergency praxis, the designated formal leader in the team is often a physician (surgeon) who is considered to have expert knowledge”.

Jacobsson, 2012 [18]

**Calm:** It has been repeatedly emphasized that the acute situation is stressful, complex and even chaotic and therefore it is important for the team that the teamleader is calm in order to calm people down and demonstrate crowd control.

**Communicate:** It is emphasised that it is important that the leader is able to communicate with his team. In order to do so, he or she must be aware of the use of voice (distinct, clear, calm) and especially eye contact is especially emphasised.

The authors of this study believe that these are important topics which should be explored and developed in future studies. It would be appropriate to relate to the fact that the situation is even extremely challenging for future and current team leaders. This should not be ignored, but on the contrary highlighted and explicitly addressed in the training. The necessity of giving the doctor the courage and confidence in the situation is strongly emphasised stating that the team leader's degree of self-confidence is important for the quality of the leadership.

In order to simulate an emergency situation and to optimize leadership, a training course creating a framework with stress, anxiety, and discomfort in a harmless, non-clinical, and safe setting should be developed. It would be important to provide



psychological safety [47] where the participants feel able to accept being uncomfortable and feel that they would be viewed positively even if they make mistakes [48].

“No matter how much training you have or how many books you have read, nothing can fully prepare you for the challenge. In this respect, leadership isn’t easy; it’s difficult, necessarily difficult. And the most essential things about it cannot really be taught — although, in the end, they can be learned”.  
(Dov Frohman et al. Leadership the hard way)

## 5. Conclusions

Leadership in emergencies is considered very important for patient safety and can affect mortality. However, literature reported that many residents feel unprepared for the leadership role in emergencies. Barriers such as strong negative emotions for acquiring leadership competencies and learning goals were identified.

It is necessary for residents to address and handle anxiety and panic in stressful and complex situations. Therefore, in order to provide good and convincing leadership, residents must learn to be confident and calm when assuming the role of team leader.

### 5.1. Perspective

There is no systematic leadership training that takes this aspect into account. Addressing residents’ negative feelings is rarely part of existing programs, despite being mentioned in the literature [33, 34, 35]. Leadership during an emergency situation involves knowledge and skills, but also implies dealing with the pressure of being the decision-maker and the pressure of bearing the ultimate responsibility for what happens (or does not).

### 5.2. Limitations

Residents in emergency situations will often face complex, stressful, unpredictable and sometime chaotic situations, and one could argue that those who cannot cope with these situations should not become emergency physicians or even physicians. But it has nevertheless been demonstrated that for many residents this is a challenge that should be addressed. Therefore, a way to help those residents who are nonetheless overwhelmed by discomfort in this situation would be a great improvement when training empowering team leadership in emergencies.

## Declarations

### Author contribution statement

Ture Larsen, Randi Beier-Holgersen: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Doris Østergaard, Peter Dieckmann: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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## Competing interest statement

The authors declare no conflict of interest.

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