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Tailored leadership training in emergency medicine: qualitative exploration of the impact of the EMLeaders programme on consultants and trainees in England

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ABSTRACT

Background Emergency medicine (EM) consultants are expected to provide leadership to facilitate optimal clinical results, effective teamwork and learning. To foster leadership skills, the Emergency Medicine Leadership Programme (EMLeaders) was launched in 2018 by the Royal College of Emergency Medicine (RCEM), Health Education England and National Health Service England. A mixed-methods evaluation of EMLeaders was commissioned to assess the impact at the strategic, team and individual levels. This paper reports the qualitative evaluation component.

Methods Qualitative data collected from 2021 to 2022 were drawn from an online survey of RCEM members in England, which included four open questions about leadership training. At the end of the survey, participants were asked to share contact details if willing to undertake an in-depth qualitative interview. Interviews explored perceptions of the programme and impact of curriculum design and delivery. Data were analysed thematically against the Kirkpatrick framework, providing in-depth understanding.

Results There were 417 survey respondents, of whom 177 had participated in EMLeaders. Semistructured interviews were completed with 13 EM consultants, 13 trainees and 1 specialty and associate specialist doctor. EMLeaders was highly valued by EM consultants and trainees, particularly group interaction, expert facilitation and face-to-face practical scenario work. Consultant data yielded the themes: we believe in it; EM relevance is key; on a leadership journey; shaping better leaders; and a broken system. Challenges were identified in building engagement within a pressured workplace system and embedding workplace role modelling. Trainees identified behavioural shift in themselves following the programme but wanted more face-to-face discussions with senior colleagues. Key trainee themes included value in being together, storytelling in leadership, headspace for the leadership lens and survival in a state of collapse.

Conclusion The development of leadership skills in EM is considered important. The EMLeaders programme can support leadership learning but further embedding is needed.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Effective leadership is one of the most influential factors in shaping a positive healthcare organisational culture where high-quality teamwork and clinical care are enabled and staff well-being is prioritised.
⇒ The Emergency Medicine Leadership Programme (EMLeaders) was launched in 2018. It is the first UK, emergency medicine (EM)-specific leadership training initiative of its kind and aims to address the unique demands of EM practice as well as broader issues of burnout and retention.

WHAT THIS STUDY ADDS

⇒ This qualitative study sheds light on the nuances of leadership training within EM, highlighting challenges, benefits and the need for tailored, contextualised training for effective leadership in the EM healthcare setting.
⇒ EMLeaders contains several effective components, and trainees who engaged in it felt supported in the EM environment and more satisfied in their role than before, indicating the potential of the programme to support trainee retention.
⇒ Trainees wanted more opportunities to engage in the 70% 'on the job' shop floor training component.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ This study creates a foundation for further research into the impact of EM leadership training on trainee and clinical outcomes, but ongoing support from leaders and managers is needed to fully embed the programme.

INTRODUCTION

Internationally, EDs are busier than ever[1] and the issue of clinician burnout[2] and workforce attrition has become universal.[3] It has been suggested that emergency medicine (EM) consultants are pivotal to tackling these challenges,[4] through 'clinical leadership' within front-line teams as well as via leadership roles at executive or director level.[5] Effective leadership in EM can increase worker support,[6–9] psychological safety,[10] staff retention[11] and well-being, since leaders set the tone, culture and behaviours within the work environment.[12]

Leadership is a complex and evolving concept[13 14] considered poorly developed,[15 16]

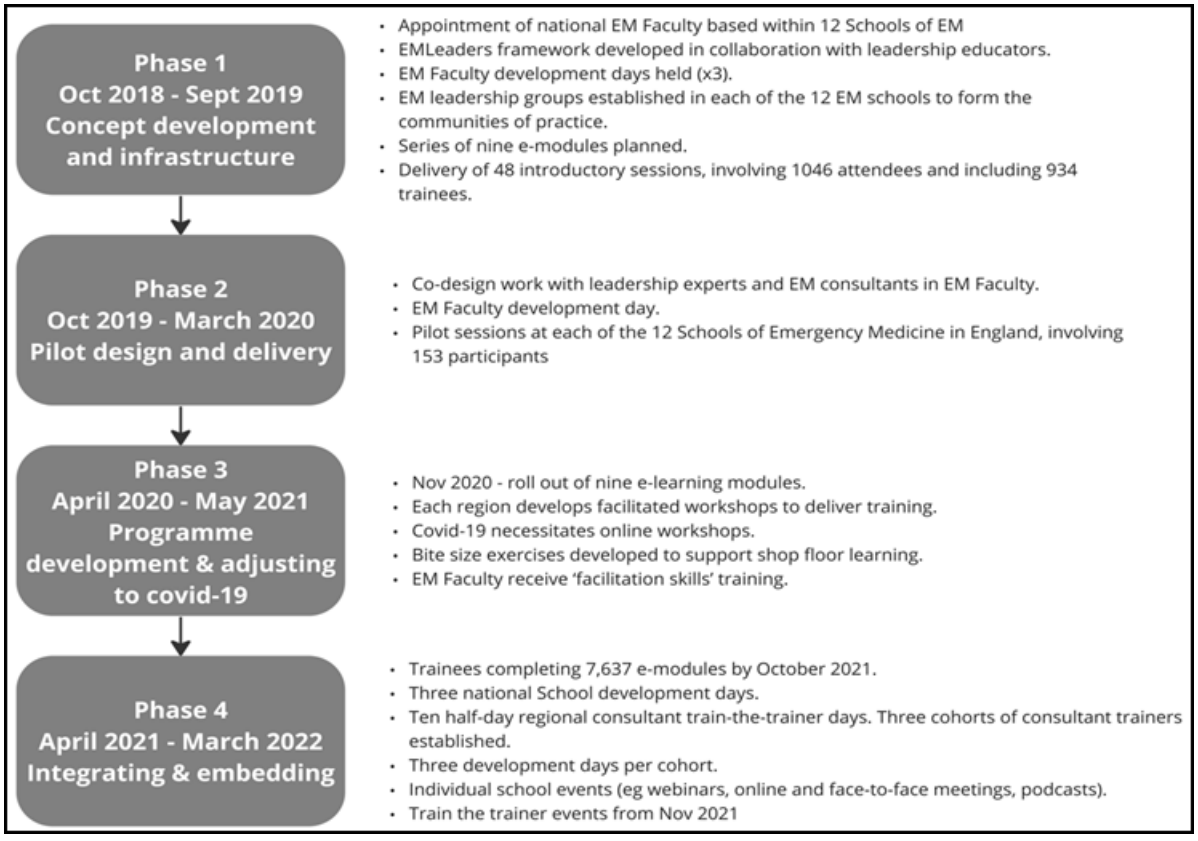

Figure 1 Development and roll-out phases of the Emergency Medicine Leadership Programme (EMLeaders). EM, emergency medicine.

articulated,[5] supported[17] and undervalued in EM.[4] Structured leadership programmes have been lacking[7 18] and it has been assumed that leadership capability develops informally over time, through observation and experience.[15] Recently, however, leadership has been identified as a key 'human factors' skill that should be developed and nurtured during a doctor's early career,[19] not least to improve patient outcomes[20 21] but also to better prepare doctors for the realities of clinical practice.[18 19]

Inattention to leadership training may result in an array of problems, including confusion about the clinical leadership role[16] and reluctance to take on leadership responsibilities.[12] Internationally, the need has been articulated for specialised EM leadership programmes to increase emphasis on crucial leadership skills such as communication, interaction, mentoring, collaboration, reflection and self-awareness.[7 15 17 18]

In the UK, a bespoke Emergency Medicine Leadership Programme (EMLeaders) was launched in 2018 through collaboration between the Royal College of Emergency Medicine (RCEM), Health Education England and National Health Service (NHS) England (see figure 1). As the first EM-specific leadership programme, EMLeaders was designed to provide leadership training to address the unique demands of EM practice plus issues of burnout and retention.[22 23]

In 2021, a mixed-methods, 10-month independent evaluation of EMLeaders was commissioned to assess the impact at the strategic, team and individual levels. This paper reports qualitative survey and interview data, sharing programme participants' experiences and perceptions of EMLeaders, further informing the programme's future development. The multicomponent evaluation is reported elsewhere.[24]

The EMLeaders programme

The EMLeaders programme establishes leadership knowledge, skills, behaviours, attitudes and competencies, referenced against the different stages of EM training. It is structured into five areas of clinical leadership, namely EM leader skills, working in teams, managing the emergency service, growth and collaboration and developing excellence within the team. Programme outcomes met during training (up to 6 years) include: (1) enhanced leadership capability and knowledge and (2) improved social support among trainees and supervisors.

Informed by the Lombardo model for workplace learning and social learning theory, the programme has three weighted components: (1) Work-based 'shop-floor' training (70%), delivered by EM consultants working in the ED team. Shop floor training activities include bite-sized leadership exercises, supervised learning events, simulations and the use of leadership assessment tool, for example. (2) Self-directed learning via nine e-learning leadership modules addressing self, systems, teams, change, culture, people, quality, service and strategy (20%). Topics include leadership theory, managing difficult decisions in a challenging workplace, handling conflict and creating a learning culture. (3) Formal learning (regional study days and specific EM training events) (10%).

Notably, EM consultants tasked with delivering work-based 'shop-floor' training are not formal trainers. Rather, these consultants are encouraged to implement leadership learning activities via regular regional 'train-the-trainer' development days, led by regional EM faculty staff and leadership champions, who shared training ideas, methods and knowledge. Since inception, programme scope has expanded from EM trainees to include all clinicians and multidisciplinary staff working in ED.

While not mandatory, completing the EMLeaders programme is highly recommended, providing evidence to map against the relevant Specialty Learning Outcomes and Generic Professional Capabilities within the RCEM curriculum.

METHODS

Study design

A multidisciplinary research team with EM clinical advisors (CL, CT) undertook this mixed-methods, summative impact and utilisation-focused study. Reporting adheres to the Standards for Reporting Qualitative Research checklist.[25] The Kirkpatrick framework[26] provided a practical structure to evaluate the potential effects of training, considering the reach of the programme, participant reactions to it, learning attributed to training, resultant behaviour changes and overall results and impact. Ultimately, this allowed us to assess the perceptions of the value of training, the satisfaction of trainees and consultants, the learning participants reported, whether learning could be applied in the workplace and impact on organisations.

Setting and participants

Members of the RCEM in England, specifically consultants and EM trainees, were recruited. The term 'trainee' refers to a doctor undergoing EM specialty training (ST), which typically spans a 6-year period. As indicated by the abbreviation ST for 'specialty training', ST1 refers to a doctor in their first year of specialist EM training, while ST6 refers to a doctor in their sixth year of training.

Methods of recruitment

Invitations to participate in an online survey were disseminated via email by RCEM to its membership on 20 December 2021, one reminder was sent and the survey closed on 31 January 2022. At the end of the survey, participants were asked to share contact details if willing to undertake a further in-depth qualitative interview.

Development of tools

A bespoke cross-sectional, online survey hosted on the Joint Information Systems Committee was developed by SP, RK and ARAA and piloted following feedback from CT and CL, based on their experience of leadership training and operational EM leadership. 16 survey items were developed, answered via a strongly agree to disagree Likert scale, plus four open survey questions (reported below):

Since taking part in the EMLeaders/other leadership training:

1. How has your knowledge of leadership in EM changed?
2. How has your confidence and/or competence as a leader changed?

Regarding the content and delivery of the EMLeaders/other training:

3. What worked well?
4. What would ideal leadership training look like?

The survey had study information, a privacy statement and in-built explicit informed consent. Participants could withdraw consent by closing their internet browser. The survey focused on three participant groups: those who had undertaken or been involved in delivering 'EMLeaders Training', those who had undertaken 'Other Leadership Training' and those who had undertaken 'No Leadership Training'. Only the first group is reported in this paper.

The semistructured interview topic guide (online supplemental file 1) was piloted and revised following feedback from CL and CT, using Kirkpatrick levels as an initial structure but allowing further probing. Interviews were undertaken via 'Microsoft Teams' videoconferencing in 2022.

Data analysis

Using the Kirkpatrick levels as an initial framework, a combination of deductive and inductive coding was applied to survey and interview data and the researchers' reflexive notes to generate a thematic content analysis (see online supplemental file 1).[27] Open-ended survey responses were downloaded and analysed by AM. Interview recordings were transcribed, and data were pseudonymised and identified with consecutive codes. Participant personal details were stored separately in a password-protected document accessible to AM and RK. Researchers AM and RK discussed the analysis with BP to refine it. We compared the analysis by respondent group to explore similarities and differences in perspective between consultants involved in course design or delivery, consultant supervisors and EM trainees. NVivo software organised the data and helped confirm themes were sufficiently developed. Interviewees were not contacted for member checking to minimise demands on them.

RESULTS

Of the 417 survey respondents, 177 had experience with the EMLeaders, and 76 (42.9%) shared details and agreed to be further contacted for interview. All 76 were invited to a single semistructured interview and provided with further information (eg, interview questions and funding source). No incentives were offered. Of the 76 interview invitations, 27 people replied (response rate 35.5%) and online interviews were scheduled. Reasons for non-participation are unknown. Individual 30–40 min interviews were undertaken to fit participant availability and ease scheduling, and were conducted by AM or RK, both experienced female doctoral-qualified qualitative researchers. We interviewed 13 EM consultants, 13 trainees and 1 specialty and associate specialist doctor. Participants were unknown to researchers. Tables 1 and 2 detail participant demographics. Respondents were broadly representative of RCEM members in terms of career grade, ethnicity, sex and disability.

Findings from the four open survey questions and interviews are presented together using Kirkpatrick levels to structure the reporting. Figure 2 summarises interview themes and online supplemental file 2 provides additional depth to interview analysis.

Reach of EMLeaders

Leadership faculty consultants interviewed reflected that EMLeaders had good reach among the trainee community, but it had been challenging to engage the wider consultant supervisor body. Key themes identified were: *'The programme has amplitude'* and *'Train the trainers: a challenge'*. All recognised that further work was needed to engage more EM consultants to provide shop floor supervision and support on-the-job learning.

> I'm not getting other consultants start to want to talk about it on the shop floor. It's not become the language. (ID13, consultant interview)

> Delivery should be on the shop floor, this is the biggest challenge for the programme. It is difficult to persuade trainers to engage when there are so many pressures on them. (Consultant, survey 88064947)

Trainee interviews confirmed variable exposure to EMLeaders. Some had experienced only one training session, not all had

Table 1 Survey participant demographics

Question/response	n=177
'Please select which career grade applies to you'	
Consultant	58 (32.8%)
Locum consultant	4 (2.3%)
SAS doctor (staff grade, associate specialist and specialty doctors)	10 (5.6%)
Trainee ST1	7 (4%)
Trainee ST2	18 (10.2%)
Trainee ST3	13 (7.3%)
Trainee ST4	17 (9.6%)
Trainee ST5	19 (10.7%)
Trainee ST6	20 (11.3%)
Advanced care practitioner	8 (4.5%)
Other	3 (1.7%)
'What ethnic group do you identify as?'	
Asian/Asian British	39 (22.2%)
Black/African/Caribbean/Black British	6 (3.4%)
Mixed/multiple ethnic groups	4 (2.3%)
Other ethnic group	12 (6.8%)
Prefer not to say	6 (3.4%)
White	109 (61.9%)
'What is your sex?'	
Male	91 (51.7%)
Female	78 (44.3%)
Prefer not to say	7 (4%)
'Do you consider yourself to have a seen or unseen disability?'	
Yes	15 (8.6%)
No	153 (87.9%)
Prefer not to say	6 (3.4%)

SAS, specialty and associate specialist; ST, specialty training.

Table 2 Interview participant demographics

Characteristics of consultants interviewed (n=13)	
Consultant role	% (n)
National faculty	7.7 (1)
Regional faculty	61.5 (8)
Non-faculty	30.8 (4)
Location	
West Midlands	23.1 (3)
Thames Valley	7.7 (1)
Yorkshire and the Humber	23.1 (3)
Peninsula	7.7 (1)
Kent, Surrey and Sussex	15.4 (2)
Severn	7.7 (1)
North West and Mersey	7.7 1)
Sex	
Male	69.2 (9)
Female	30.8 (4)
Ethnicity	
Asian/Asian British	23.1 (3)
Black African, Caribbean, Black British	7.7 (1)
White British	69.2 (9)
Characteristics of trainees interviewed (n=14)*	
Trainee grade	**% (n)**
ST2	14.3 (2)
ST3	28.6 (4)
ST4	14.3 (2)
ST5	21.4 (3)
ST6	14.3 (2)
SAS	7.1 (1)
Location	
East Midlands	7.1 (1)
Kent, Surrey and Sussex	21.4 (3)
North West and Mersey	21.4 (3)
Peninsula	7.1 (1)
Severn	7.1 (1)
Thames Valley	7.1 (1)
West Midlands	14.3 (2)
Yorkshire and the Humber	7.1 (1)
London	7.1 (1)
Sex	
Male	50.0 (7)
Female	50.0 (7)
Ethnicity	
Asian British	7.1 (1)
White British	78.6 (11)
Other	14.3 (2)

*Includes one SAS doctor.
SAS, specialty and associate specialist; ST, specialty training.

initiated e-learning modules and few had experienced shop floor reinforcement. Many struggled with embedding leadership learning because it was taught virtually. Almost universally, trainees considered EMLeaders would be more impactful if it involved more face-to-face and practical experiential learning. Where workplace support for leadership had been received it was hugely valued, even career changing, but specific shop floor reinforcement of EMLeaders was not experienced by many trainees.

> Since that training session, I haven't really heard that much more. (ID18, trainee interview)

Reaction to EMLeaders

Reactions from consultants and trainees to EMLeaders were extremely positive with both groups indicating improved leadership knowledge and understanding. Consultants felt the programme boosted confidence, improved self-awareness and reflective ability, enhanced feelings of professionalism and credibility and increased their ability to de-escalate conflict or challenge poor practice.

> I am now more knowledgeable in a way that I could not have achieved through normal clinical practice. My vocabulary has widened allowing me to express leadership concepts to others in a more coherent way. (Consultant supervisor, survey ID88818689)

> I am able to engage with conflict better, lead junior colleagues more effectively and use feedback developmentally. (Consultant supervisor, survey ID88607647)

Key themes from the consultant interviews were *engaging for some but not for all*, *we believe in it* and *the EM relevance is key*. Consultants who connected deeply with the programme gained personal benefit and could see its value to trainees and EM. However, while consultants reported positive trainee responses to EMLeaders, many remarked that not all trainees were ready for or dedicated the time to learn about leadership. Reasons given included trainee expectations of EM, other training requirements, willingness, learning preferences and reluctance to participate in reflective group learning. Some consultants

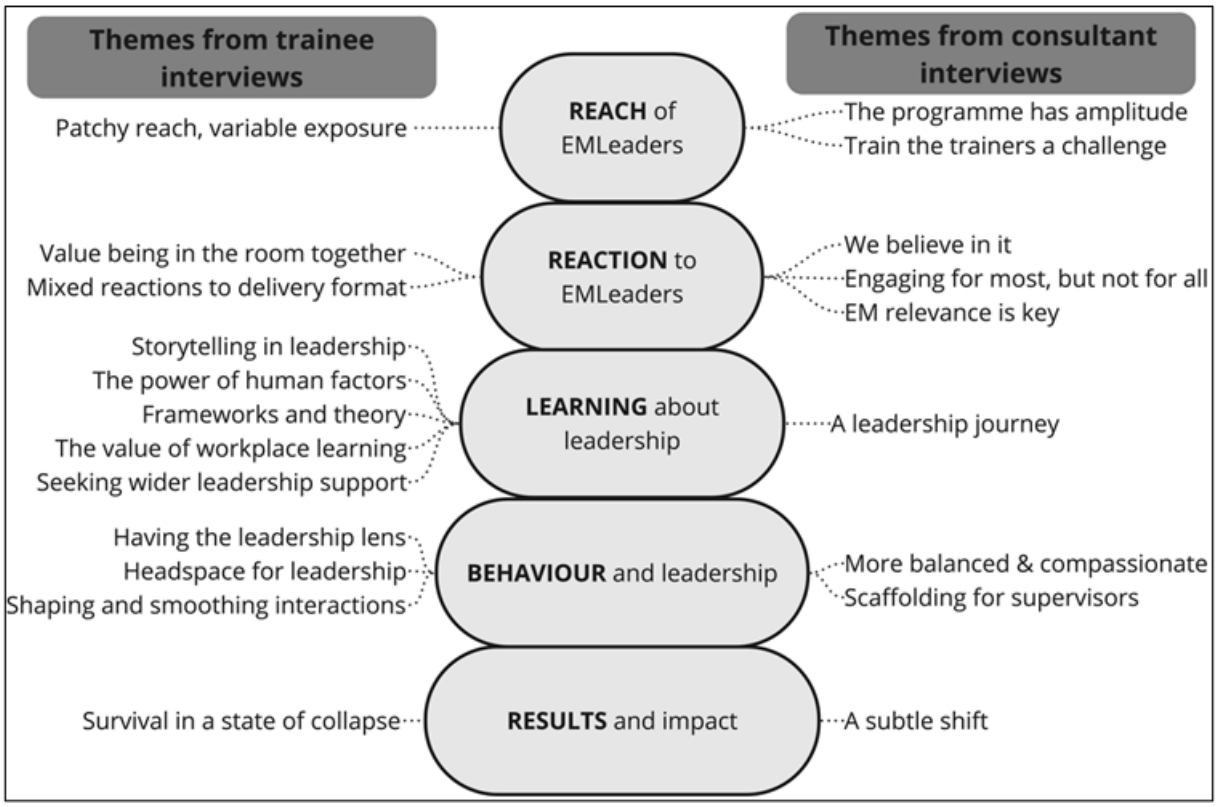

Figure 2 Summary of qualitative themes arising from interviews. EM, emergency medicine; EMLeaders, Emergency Medicine Leadership Programme.

considered early career trainees lacked insight into the importance of leadership, which underscored the need for specific EM focus in leadership training.

> Certain trainees, just the topic of emotional intelligence….I don't know whether their insight is ever going to change. (ID12, consultant interview)

Trainee reactions to EMLeaders were similar, with all respondents agreeing on the importance of EM-specific leadership development. While online learning was considered convenient, trainees '*valued being in the room together*', preferring face-to-face training since it signified commitment. '*Mixed reactions to delivery format*' spoke to concerns about over-reliance on e-learning and the desire for more shop floor teaching.

> I can tell people just skip through to the answers…It (elearning) just doesn't have the same impact that face-to-face training does. (ID26, trainee interview)

> Shop floor leadership is very much 'get on with it'. (ID16, trainee interview)

E-learning was considered time consuming. Trainees wanted to feel inspired by credible facilitators who could bring the programme to life. Though most trainees valued the course, a lack of uniform delivery across the regions resulting from COVID-19 meant some had experienced little training. Senior trainees were least positive.

> How has your knowledge or confidence changed as a result of EMLeaders training? '*Barely*', '*minimally*', '*not significantly*'. (All ST6, survey)

We asked survey respondents what worked well in EMLeaders (summarised in figure 3). Three areas were highlighted: facilitators with expertise and enthusiasm; content that was considered practical and reflective of 'real-life' scenarios; and delivery in a face-to-face format and which enabled group interaction.

Learning from EMLeaders

Trainee survey respondents confirmed that leadership knowledge and confidence were increased by EMLeaders, for example, changes in self-awareness, theoretical knowledge of leadership, understanding of the wider NHS, how to run teams, manage busy shifts and contribute to the team. The over-riding sense was the applicability of the programme, with some trainees feeling inspired to '*step up*'. Some indicated that the tailored programme made them feel more valued, better connected and more supported. This was an important finding as many trainees interviewed explained that workplace pressures reduced their mental health, but leadership training mitigated this.

During trainee interviews, we asked what information had been absorbed, what parts of training were meaningful and whether intended knowledge and skills were acquired. Five themes emerged: '*the power of human factors*', '*putting things in boxes*', '*the storytelling of leadership*', '*frameworks and theory*' and the '*value of workplace learning*'. The most recalled and valued learning was human factors training. Being aware of different communication strategies, personality types, leadership styles, negotiation and compromise were highlighted. Trainees reflected on the empowering nature of becoming self-aware.

> How I interact, conflict, how I support a junior…has been useful learning for me. I'm personally really interested in self-development and the psychology behind leadership & personality types. (ID15, trainee interview)

While leadership 'frameworks and theory' were acknowledged, trainees most valued listening to consultants' experiences

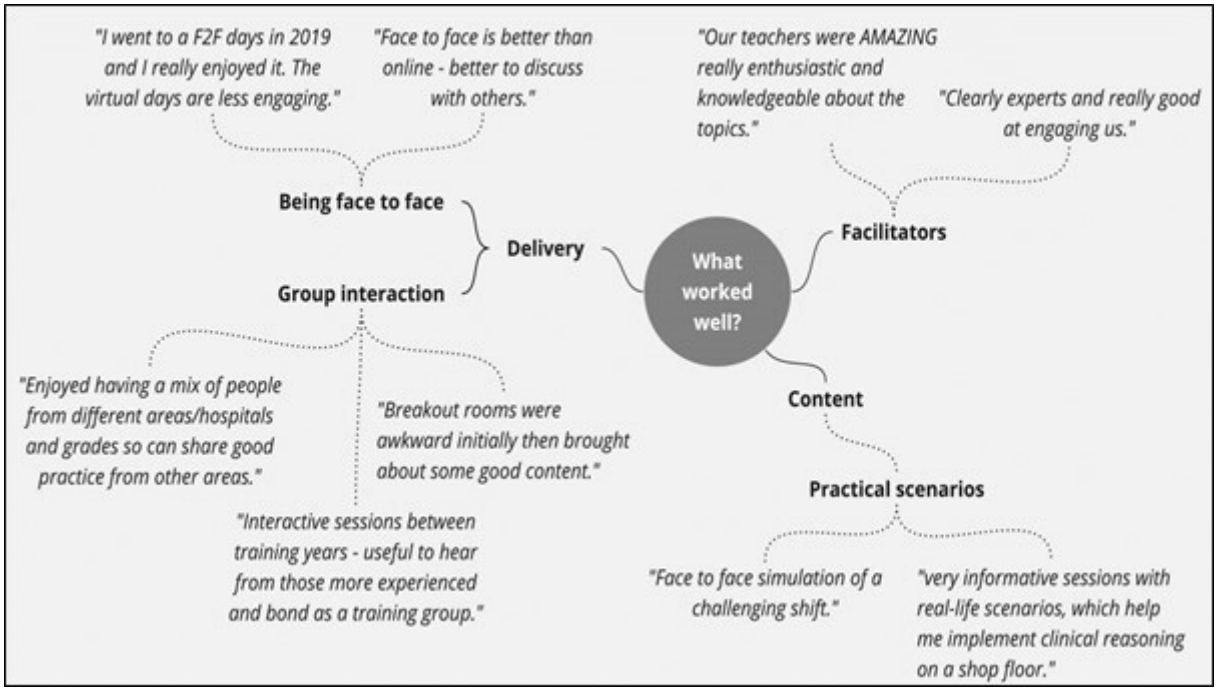

Figure 3 Survey responses—Regarding the content and delivery of the EMLeaders training, what worked well? EMLeaders, Emergency Medicine Leadership Programme.

(stories) and wanted more practical workplace leadership scenarios:

> A lot of consultants will really throw themselves into an ESLE (extended supervised learning event) and give you really good feedback…but you can do two a year…trying to get more than that is basically impossible…most places don't have time for it. (ID21, trainee interview)

More so than trainees, consultants described embarking on a deep, surprising, personal learning journey because of EMLeaders, which enriched their understanding of leadership.

EMLeaders and behaviour change

Participants struggled to define how their behaviour had changed because of EMLeaders, but there were tangible examples suggesting that individual leadership styles became more empowered, compassionate and self-reflective. The key themes from trainees were: *'having that leadership lens'*, *'giving you headspace'* and *'shaping interactions'*. For trainees, the influence on behaviour was less about being in the position of a leader and more about skills and attitudes which contributed to a leadership mindset, sharing ideas and discussing scenarios and alternate perspectives.

> It has helped me tremendously in handling difficult situations. (Trainee, survey ID87882039)

> Leading Self (e-module) has prompted me to consider how your self-management impacts on the clinical environment and your role within a team of people with different strengths. So, when I work clinically, I'm not just thinking about individual patients but also… the other members of my team. It's just sort of smoothing day to day work practices. (ID18, trainee interview)

Consultants interviewed considered EMLeaders had brought compassion and balance to their teaching and supervisory behaviour, particularly through train-the-trainer events. The two themes were *Shaping better, balanced, compassionate leaders* and *Scaffolding for supervisors*.

Results and impact of EMLeaders

EM leadership training was considered valuable and necessary by both trainees and consultants in developing the specialty and positively shaping the EM environment. Themes from trainee interviews were: *'Survival in a state of collapse'* and *'It is necessary for our specialty'*. Consultant interviews yielded the theme *'the system is broken'*, reflecting the relentless pressure on EM and its staff. This clearly impacted trainees, affecting job satisfaction, stress levels, feelings of control and optimism. A number reported going part-time for mental well-being and to complete training requirements, which were described as *'brutal'*. Junior trainees reported demoralisation among senior trainee colleagues: *'quite a lot of higher trainees are …looking to get out'* (ID16, trainee interview). Within this context, leadership training was considered vital to ensure *'survival'* and to engender a compassionate and civil work environment. It seemed EMLeaders had a protective function:

> It will open up our brains to a different culture, which will slowly trickle through. Whether it will have definable measurement on patient outcomes, I don't know… but it could make us happier and our jobs easier, which will affect patient outcomes, then yes, I think there is potential. (ID16, trainee interview)

The second theme established the benefit of leadership training in enhancing the credibility and reputation of the specialty.

> It fits really well with the ethos of RCEM and of our specialty in general…No one goes into EM for an easy ride but to try and look after patients… I certainly feel it will help us be a better team and look after patients better. (ID18, consultant interview)

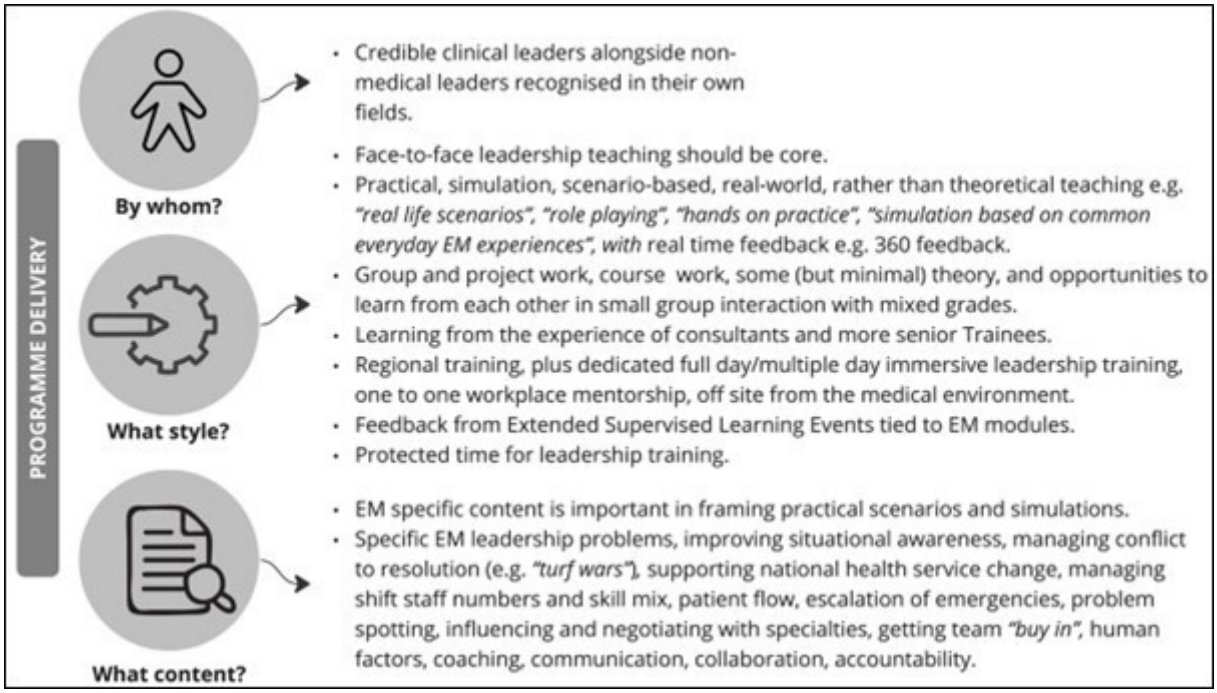

Figure 4 Survey responses—Regarding the content and delivery of the EMLeaders training, what would ideal leadership training look like? EM, emergency medicine; EMLeaders, Emergency Medicine Leadership Programme.

Considering future enhancements to the programme, survey respondents were asked what ideal EM leadership training would look like, indicated in figure 4.

DISCUSSION

This national, independent evaluation produced a rich qualitative dataset enabling a detailed assessment of this new programme. Respondents felt that participating in EMLeaders increased their skills, knowledge and awareness of leadership behaviours—an important finding, since many healthcare professionals feel inadequately prepared for leadership roles.[28] All participants considered that structured leadership development was most beneficial and effective when specifically designed for EM to engender a compassionate and civil work environment, contextualised with clear examples, as opposed to generic leadership courses. Trainees wanted more shop floor teaching, identifying the busy ED environment as a barrier to consultants' engaging in their personal leadership development. Perhaps most importantly, participating in EMLeaders led to trainees feeling valued and connected. This factor may, in the long term, support intention to stay in EM.

We found that the reach of EMLeaders was patchy and not all trainees and consultants had fully engaged with the multiple components. Wong *et al*[16] caution that when leadership development is left to chance, doctors may experience doubt about their leadership credibility. Since it is recognised that effective leadership skills in EDs can improve patient care quality and health professionals' well-being, it is important that further embedding of EMLeaders occurs and consultant supervisors are invested in the programme. Govindasamy and Hilbig[29] discuss the need for organisational support to ensure EM leadership development is undertaken in psychologically safe settings. It is possible that lack of space and opportunity for reflective practice, within a 'real-world' context of clinical risk and staff tensions, may inhibit senior clinicians from role modelling positive leadership activities.

An array of leadership theories have been articulated, including trait, behavioural, situational, transactional and transformative, and continue to evolve.[30] Today, emphasis turns to adaptive leadership, learning, person-centredness, genuineness and moral values, along with follower trust and engagement. Leader behaviours are considered important to creating psychological safety in clinical teams. Yet, within the EM literature, a full explanation of 'leadership' is lacking.[5] Daniels *et al*[12] identify that where negative blame cultures exist, compassionate leaders are needed, equipped to model effective behaviours, creating a climate conducive to well-being and learning. Participants indicated that EMLeaders went some way in preparing leaders of this type.

The RCEM has developed a unique and important leadership programme. Recommendations are suggested to shape future programme enhancements and implementation (see online supplemental file 3).

Limitations

Recency and recall bias could have affected survey and interview responses. Survey responses occurred between December 2021 and January 2022 and interviews between January and May 2022, while some participants undertook EMLeaders training in 2019. Specifically, of the 177 survey respondents (including interview subset), 37.3% (66) completed training in 2019, 14.1% (25) in 2020, 37.9% (67) in 2021 and 10.7% (19) were unsure when they did training. Respondents may have been more positive than non-participants, but we cannot quantify this. The COVID-19 pandemic may have affected responses as less face-to-face training took place than originally planned.

CONCLUSION

Based on the perceived training gains reported by participants involved with EMLeaders, further embedding the programme in EM practice would seem beneficial. Maximising the involvement

of shop floor consultants tasked with facilitating real-time work-based leadership learning will be integral to the future impact of the programme.

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Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by the Coventry University Ethics Service (reference P124919). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article or uploaded as supplementary information.

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Supplementary File 1

Evaluation aim and research questions

The long-term strategic aims of the EMLeaders Programme are to; develop personal skills and resilience in EM clinicians; reduce the number of physicians leaving emergency medicine (attrition) and; ensure a successful workforce in one of the most intense environments in the NHS.

To evaluate the EMLeaders programme, it was important to assess impact at individual, team and strategic level. At the individual and team level, we focused particularly on exploring trainee and consultants' perceptions of the programme and the impact of the curriculum design and delivery approach. At the strategic level, (reported elsewhere), the economic analysis sought to better understand the economic value of the financial investment in EMLeaders.

Using the Kirkpatrick Framework, we devised the following questions:

1. How far and wide has the EMLeaders programme extended its reach ?
2. How have participants reacted to the EMLeaders programme ?
3. What learning has been attributed to the EMLeaders programme ?
4. To what extent has the EMLeaders programme led to changes in behaviour ?
5. To what extend has EMLeaders impacted the development of personal skills and resilience in EM clinicians and reduced the number leaving the workforce?

Interview topic guide used in semi-structured interviews.

The table below indicates Kirkpatrick levels, the driving research question and areas for further prompting during interviews. Prompts as follows were used: please tell me more about…. ? can you explain that further ?

Kirkpatrick Level	Driving Research question	Interviewer explores the following with respondents
Reach	How far and wide has the EMLeaders programme extended its reach ?	Number and type of EMLeaders learning events experienced. Access to programme - face-to-face or online, or other.
Reaction	How have participants reacted to the EMLeaders programme ?	Favourable or negative views of programme. Views about the relevance of leadership development. Level of engagement and participation.
Learning	What learning has been attributed to the EMLeaders programme ?	Describe impact on leadership knowledge, behaviour, confidence sense of belonging to the EM community, and personal goals.

Changes in behaviour	To what extent has the EMLeaders programme led to changes in behaviour ?	Ability to apply learning to practice . Barriers and facilitators to applying learning.
Results and impact	To what extend has EMLeaders impacted the development of personal skills and resilience in EM clinicians and reduced the number leaving the workforce?	The longer-term impact of the programme, on individuals and clinical practice. Barriers and facilitators to roll out

Initial Coding Tree

	Trainees	**Consultants (non-Faculty COP)**
Reach	**Experience of the programme:** Number of sessions Where? When? Face to face vs online?	**Experience of the programme:** Views about reach to trainees Level of participation (set up; delivery, train the trainer sessions)
Reaction	**Thoughts about the programme:** Description of feelings about the delivery and experience of the programme in general Experiences related to face-to-face sessions Experiences related to online modules Experiences related to shop floor reinforcement	**Thoughts about the programme:** Description of feelings about the delivery and experience of the programme in general Experiences related to delivering different kinds of EMLeaders sessions. Experiences related to shop floor reinforcement of training. (Experiences of the COP sessions)
Learnings	**Key learnings from the sessions** Impact on knowledge and confidence Other personal impact	**Key learnings from the sessions** Impact on knowledge and confidence Other personal impact
Changes in Behaviour	**What learnings have been put into practice?** How has performance of job changed as a result of the training? Barriers and facilitators to implementing change	**What learning has been put into practice?** How has performance of job changed as a result of the training? Barriers and facilitators to implementing change
Results	**Long term impact expected** on trainees, consultants and clinical practice Barriers and facilitators to programme success	**Long term impact expected** on trainees, consultants and clinical practice Barriers and facilitators to roll out in future

Qualitative Analysis Process

We used both a deductive and inductive approach to our analysis. Deductive coding was structured within the frames of the Kirkpatrick model and inductive coding was applied to the data within each frame, following principles of thematic content analysis and a broadly interpretivist approach (Rivas 2017). As recommended by a recent systematic analysis, qualitative research data adequacy was appraised with reference to features of the underlying logic model framing the evaluation, with our 26 interviews falling within the range of 20-60 reported elsewhere for saturation (Vasileiou *et al* 2018). Determination of adequacy also included consideration of the appropriateness of the sample composition, as well as its size. Recent research indicates that the purposive sampling used has greater efficiency than a random sampling approach (van Rijnsoever 2017).

Each of the interview transcripts was read in its entirety by one researcher (AM) for familiarisation with each case. Notes were made on any emergent themes from this process and discussed within the team. Initially, a deductive framework approach was taken to the analysis, with the qualitative interview and survey data initially coded into frames in NVivo, based on each of the Kirkpatrick model levels.

The data was then analysed inductively within each frame and developing patterns and themes noted, described and agreed between lead qualitative researchers (AM and RK). A data session was held with the whole team and the overall themes and data supporting each discussed.

The key emergent themes were agreed and then the data was fully coded within each frame and theme. This process was to organise the data and confirm the robustness of each theme. Some changes were made and themes collapsed, combined or re-analysed where necessary. The final themes were agreed initially between the two lead researchers and finally with the full team.

Notes of all actions throughout the analysis and coding process were kept to maintain an audit trail. Methodological triangulation was provided through use of survey and interview data. Member checking was not conducted due to the burden on participants, however, final reports were discussed and agreed with representative clinical colleagues.

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Supplementary File 2 - Themes from interviews with EM consultants

Kirkpatrick level and summary comment	Theme	Explanation	Illustrative quote
Reach of the EMLeaders Programme Good potential for wide reach but patchy implementation where consultant uptake limited	The programme has amplitude	The value of the programme is spread by word of mouth, and via improved workplace practice, role modelled and disseminated by an upskilled Consultant body.	*The reach of the learning and the reach of the materials [is] much broader than the number of participants in the room because everybody would take their learning into their practice in their local area. I think we need to see reach by amplitude rather than by individual. (ID4)*
	Train the trainers a challenge	Bringing EM Consultants on board to take on the role of trainer was challenging with less engagement than needed for programme success.	*Some departments have put forward 2-3 people and some departments put forward no one…they are so pressurised in terms of the workload they haven't got the numbers of Consultants….it's trying to convince people of the importance of this when there's so much else going on. (ID17)*
Reaction to the EMLeaders Programme Extremely positive reactions to EMLeaders from Consultants who participated	'We believe in it'	Huge positivity from those who engaged deeply with the programme.	*It's been a fantastic programme…groundbreaking, we're pushing boundaries. (ID11)*
	Engaging for most, but not for all.	Not all trainees ready for, or able to give the time for a deep dive into leadership due to competing training requirements, openness to development, willingness to show vulnerability, or preferences (e.g. focus on science and physiology rather than 'softer' elements).	*I can see quite a lot of the trainees who are struggling to get their exams…they've got a lot of burden. And then to think, 'Oh my God, and I'm going to do some leadership modules!'... not everyone's cup of tea. (ID24)*
	EM relevance is key	Trainees may not see themselves as leaders or leadership in their role, so this needs to be explicit through real examples, scenarios and anecdotes, not generic leadership training.	*I think as far as I'm aware, this is the first and only specialty specific leadership course…it more relevant I think. So, sometimes doctors coming into leadership training I think well this isn't that relevant to what I'm doing. But when you apply it to a very specific speciality then it becomes more real and I think the take up from the trainees is improved. (ID29)*

Learning about Leadership Deep learning, enabling Consultants to share with others.	A leadership journey	EM Faculty Consultants had begun an individual and personal leadership journey, building resilience, time-management skills, self-awareness, positively influencing their professional and personal life.	*There's a method to it and it's interesting to hear how others approached it… there were a few things I could take away. (ID10)* *I think for me the journey is only just starting! (ID13)*
Behaviour and Leadership Aware of behaviour changes and new approaches after training	Better balanced and compassionate leaders	As a result of their engagement with the EMLeaders Programme, whilst difficult to articulate, EM Faculty 'felt' different in their approach with others, and through their communication strategies, becoming more self aware, more facilitative and more conscious of the importance of self care.	*I think it's very difficult to measure the outcome...but I know for certain that I am more balanced, more measured, more considered. (ID11)*
	Scaffolding for supervisors	A useful frame of reference used to structure supervision and theoretical reinforcement of existing teaching and leadership role modelling. Encouragement to be more facilitative.	*It gives you time to think about what makes [name] a leader? Or, how could I be a more effective compassionate leader to the teams that I'm leading at a micro level? It definitely has been part of my journey. I definitely think it helps confidence or maybe it just helps you to understand about what you're doing and how you're doing it. (ID30)*
Results / Outcomes of the EMLeaders Programme Change in practice will happen slowly and subtly, taking many years as more trainees and consultants are influenced by the programme.	A subtle shift	Consultants considered EMLeaders was successfully creating leaders for the future from the bottom up, but realistically they felt it could be years before cultural shift evident.	*Capturing the trainees that are very early on in their training [...] opening up this leadership conversation...it was quite profound for them to hear that I see them as leaders. They still see leadership as the realm of authority or seniority, which clearly it's not. (ID7)*
	The system is broken	Consultants highlighted the relentlessly challenging NHS environment, the intense pressures and 'crisis' within the current EM working environment leading to burnout, low morale and fatigue.	*There is an emergency medicine retention crisis. A lot of the pressure is related to kind of external things like waiting times. (ID08)*

Themes from interviews with EM trainees

Kirkpatrick Level	Theme	Explanation	Illustrative quote
Reach of the EMLeaders Programme	Patchy reach, variable exposure.	Not all trainees have experienced all elements of the programme.	*It feels like a couple of afternoon sessions we've had to discuss some topics that don't quite fit into my clinical framework. It doesn't feel like a programme. (ID20)*
Reaction to the EMLeaders programme Positive reactions though concerns about e-learning.	Value being in the room together.	Online learning valued (convenience), but most preferred being 'in the room' which signified commitment.	*'no one in their right mind does leadership training online, you can't read body language' (ID26) ' you miss out on the patter, which is invaluable. ' (ID24)*
	Mixed reactions to delivery format.	E-learning too time consuming. Inspiring and credible facilitators make the programme resonate and relatable to trainees. Experiential learning desired.	*'it's pretty much all leadership…as I've gone through my training it has become more and more important….you start to notice that most of what they (consultants) do is leadership and management …it's really important'. (ID25)*
Learning about Leadership All trainees recognised the need to develop leadership skills during training period	Storytelling in leadership.	Hearing consultants' experiences of leadership considered '*valuable, if not more valuable'* than curriculum.	*The most important component is the conversations, people coming together to discuss and reflect...hearing the stories. (ID30)*
	The power of human factors.	Communication, personality, leadership styles, culture, performing under stress, negotiation, compromise key takes.	*Leading culture was one that really sort of opened my eyes…all of a sudden recognising how culture is making such a huge impact on the NHS. ….Gaining insight into it has opened my eyes. (ID23)*
	Frameworks and theory.	Valuing knowledge of leadership theory and frameworks, understanding the behaviours of others and impact of the organisational system.	*I love the decision-making algorithms... I've screen shotted that on my phone…It's all completely new to me... The NHS still feels baffling sometimes, how things work. (ID25)* *I think the core modules, Self, Teams, Systems, work really well. (ID18)*
	The value of workplace learning.	A disconnect between EMLeaders programme and workplace learning, suggesting this aspect is under-developed.	*Dovetailing on the shop floor doesn't really happen….it's down to me to do my e-learning…to take it seriously, it's down to me to really engage with the workbook and really reflect …to apply it. There's …no leadership mentor saying*

			what do you think based on what you have learnt'…that's probably the weakness. (ID25)
	Seeking wider leadership support	Appetite for leadership development, but more support needed to apply learning to the workplace context.	*When the consultant pushes you into a leadership role, perhaps for a couple of hours, just so you can experience a bit of what it is like to be the clinical lead for example. I think that's great. (ID 26)*
Behaviour and Leadership Trainees explained how learning about leadership enabled them to see its impact in practice and trial new approaches themselves.	Having the leadership lens	Being more observant of the leadership behaviours, deciding the type of leader to be.	*I'm recognising what other people are doing that's having a positive outcome on me or the other trainees. I'm trying to mould myself to be more like that. (ID23)*
	Headspace for leadership	EMLeaders increased trainees understanding of systems, theory and personality styles which helped them step back to consider different perspectives, thinking before reacting.	*I used to get a lot more frustrated with systems failures…I used to resort to anger and not wanting to compromise because it felt like a defeat. As you go through your training you learn that it's better to not get frustrated…find another approach…that's a significant change for me. (ID5)*
	Shaping interactions, smoothing interpersonal relations	EMLeaders had positively shaped how trainees interacted with others, how they delegated and empowered, their understanding of people's differences.	*Challenging communication – there's been some benefits in reflecting that someone might be having a really difficult day. I try to think how I present myself. (ID19)*
Results / Impact of the EMLeaders Programme leadership development essential to specialism	Survival in a state of collapse	Job satisfaction, stress, mental health, feeling in control and optimism were affected negatively by NHS pressures. Trainees focused on getting through the shift and staying well themselves.	*You can become quite fatalistic and get a slightly depressing outlook on your career, because it feels that there is an inevitable march to it getting worse and worse. You wonder what you are doing….when …there's 60 patients waiting to be seen….you think it's unsafe…You don't feel like you're doing a good job. (ID5)*
	Leadership essential for the specialty	Support for dedicated EM leadership, to positively shape the EM working environment.	*Is the leadership training going to make the NHS better? No, it's not. It's probably going to allow us to survive in the system. …being kind to each other being compassionate and civil and putting the patient first. It's about having effective communication when you have conflict. (ID30)*

Supplementary file 3 – Overall Recommendations