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A UK multisite evaluation of the impact of clinical educators in Emergency Departments from a learner's perspective

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1. **Considerably worsened**

   "No effort done for education, it was just a checklist that was marked that they would do, but not effective at all" ***Medical Learner (site 015)***

   "We have never been informed or made aware of Clinical educators. - I personally have received no teaching on the shop floor from consultant (except for 2 occasions when discussed my patient with one consultant in particular, 5 minutes each time)…." ***Medical Learner (site 040)***

2. **Worsened**

   "I feel a lot of senior staff with clinical knowledge have left and a lot of staff are promoted quite quickly without having very much ED experience. I am basing this from my experience from a previous trust." ***Nurse Learner (Site 012)***

   "Difficult to compare as not experienced ED without. But wonder if consultants are more reluctant to do WPBAs normally as the Clinical educators are seen as a good opportunity instead making them harder to achieve particularly due to the limited number of slots and increased reluctance of consultants to engage outside of the slots. Also, highly dependent upon the clinical educator" ***Medical learner (site 021)***

3. **No change**

   "Not enough instances and not long enough to have an effect of my learning." ***Medical learner (009)***

   "I have only encountered the teaching twice as I do mainly night shifts." ***Medical learner (014)***

   "not really engaged with it although invited to" ***Physiotherapist (008)***

4. **Some improvement**

   "More availability to undertake case discussion and learning at the actual point of care" ***ACP paramedic (site 041)***

   "It makes a nice change to gain bedside teaching and to be directly observed with immediate feedback." ***Medical learner (site 041)***

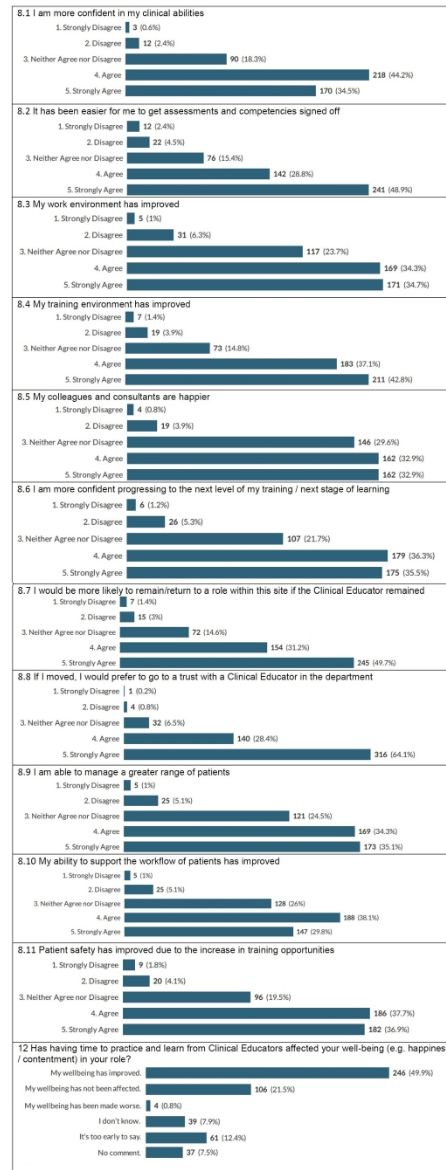
   "Would be great to have more of this teaching on the shop floor but when had access to it was very useful" ***Medical learner (site 015)***

5. **Excellent improvement**

   "Having a dedicated Clinical Educator on the shop floor allowed me to complete some assessments (e.g. ESLE) which I would have otherwise struggled to complete without interfering with shop floor activities. It made finding a 'free' consultant to observe MiniCEX in particular more easy, and CbDs could be completed in real time, whilst questions were fresh in the mind allowing for immediate feedback. Prioritising education made all grades in the department feel like they were learning, and expected to learn and be assessed as a valued part of the job - especially important in these pressured times when 'service' can sometimes seem to take priority over all." ***Medical learner (site 016)***

Change of learning due to Clinical Educator pilot - short text answer comments per category

176x256mm (300 x 300 DPI)

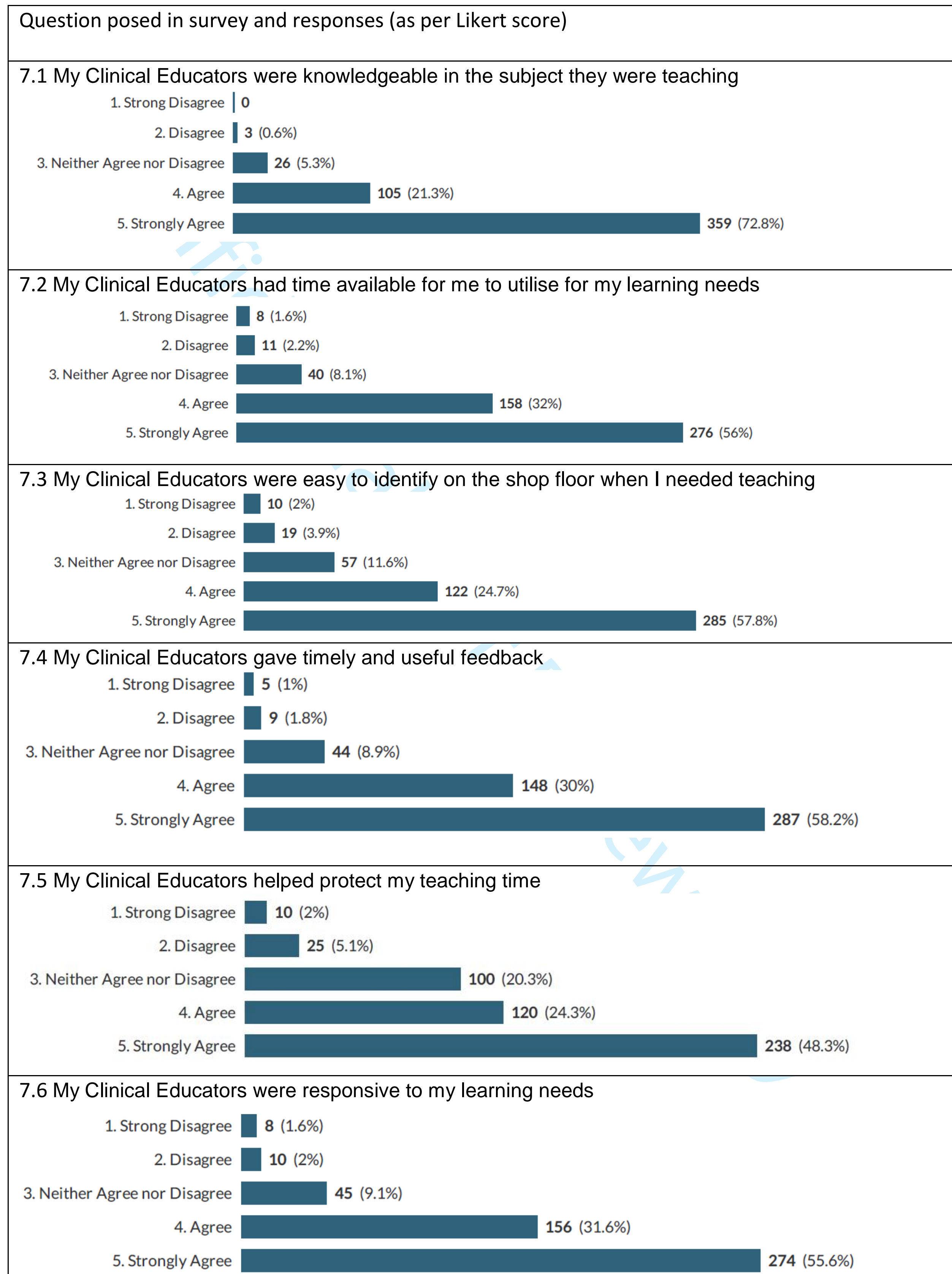


Summary evaluation of the learners perception of the effect of having a Clinical Educator has had on their training development and progress. Question posed in survey and responses (as per Likert score)

149x373mm (300 x 300 DPI)

Supplementary information S1

Summary evaluation of the learners experience of the clinical educators on site



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Supplementary information S2

Summary of the impact of the 2018-19 CE pilot on learner recipient wellbeing. Examples of free-text responses per category selected

Don't know:

"Would like longer to reflect on this but generally speaking I do feel like the environment stimulates my educational desires." ***Medical learner (site 022)***

It's too early to say

"I think it may take few years to answer this question but I am not hesitant to say that presence of CE makes it easy for trainee to do assessments and management work." ***Medical learner (site 002)***

My wellbeing has been made worse

"Difficult to gain consultant time for assessments. Lack of interest from many consultants to complete assessments or provide shop floor teaching." ***Medical learner (site 048)***

"Negative attitude and blame game tradition." ***Medical learner (site 036)***

My wellbeing has not been affected

"If there was more of it my wellbeing would def improve" ***Medical learner (site 015)***

"The discontentment is not related to my skills/learning. This is a stressful department." ***Medical learner (site 011)***

My wellbeing has improved

"Its helped my confidence no end - its terrifying to move into a role with such responsibility especially when everyone else is so busy in their role too - so the support and guidance has been invaluable. Its increased my confidence and allowed me to take on more complex patients than I would have and to get involved in situations I would have shyed away from before - because now I know my clinical educator is right next to me to support and guide me through. I'm happier, more confident, and feel very supported in this role with the clinical educators in place - without them I'm not sure I would feel the same way" ***Trainee ACP (site 011)***

"Less anxiety around getting assessments signed off. Opportunity to receive feedback in skills that would not routinely be witnessed by consultant (independent etc.)" ***Medical learner (site 011)***

"Ability to better plan assessments thereby helping to ease the stress of training, feel that the consultants have taken a specific interest in my learning. A person to ask for support when feeling the pressure of learning - a point of contact." ***Trainee ACP (site 032)***

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A UK multisite evaluation of the impact of clinical educators in Emergency Departments from a learner's perspective

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Abstract

Background: In England, demand for emergency care is increasing while there is also a staffing shortage. The Royal College of Emergency Medicine (RCEM) suggested that appointment of senior doctors as Clinical Educators (CEs), would enable support and development of learners in Emergency Departments (ED) and improve retention and well-being. This study aimed to evaluate the impact of CEs in ED on learners.

Methods: CEs were placed in 54 NHS Acute Trust EDs for a pilot beginning July 2018 and ending October 2020. Learners from multiple disciplines working at 54 NHS Acute Trust EDs where CEs were deployed were invited to complete an online survey designed to identify the impact of CEs in July of 2019, as part of an interim service evaluation.

Results: Respondents numbered 493 from 49 of 54 study sites, including 286 (58%) medical (non-consultant) and 72 (14.6%) all other nursing, allied health professionals. 9 out of 10 learners reported having experienced a change to their learning as a result of the deployment of CEs in their department. 49.9% (246/493) reported that CEs had a positive impact on their well-being. 95% (340/358) reported an improved accessibility to undertaking clinical based assessments. 78% (281/358) perceived that access to CEs increased likelihood of passing assessments. Of those responding, 80.9% (399/493) reported they would remain/return to the same ED with a CE, and 92.5% (456/493) responded that they would prefer to go to a Trust with a CE.

Conclusions: According to survey respondents, deployment of CEs across NHS Trusts have resulted in improvement and increased accessibility of learning and assessment opportunities for learners within ED. The impact of CEs on wellbeing is uncertain with half reporting improvement and other half unsure. Further evaluation within the project will continue to explore the service benefit and workforce impact of the CEED intervention.

Key messages (box)

What is already known on this subject	What this study adds
There is a rise in demand for services in the ED.	This study reports on a 54 site (England, UK) online questionnaire evaluating the impact of deploying CEs – consultants with protected time to provide training and support to the Emergency Medicine medical trainees and learners from other healthcare professions in ED
The intense working environment has been recognised as a leading cause of medical staff dissatisfaction, attrition and premature career burnout. Attrition rate in EM in the UK is high	The findings suggest that CE deployment has had a reported improvement in accessibility to learning opportunities for learners. The pilot's impact on wellbeing however is uncertain.
There is a lack of evidence on the deployment, impact and effect of having a CE but some suggestion that a learning environment would help recruitment and retention.	

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Introduction

Emergency Departments (EDs) have seen a rise in demand for services by patients and members of the public and crowding globally [1]. Exacerbating this challenge in the UK are issues of recruitment into Emergency Medicine (EM) training posts and workforce retention thereafter [2].

In 2012, RCEM highlighted a number of concerns to the GMC related to EM training: continuing service pressures, which reduces the amount of time trainers can dedicate to delivering training; rota gaps, which increase the pressure on doctors in training to work more out-of-hours shifts; a lack of senior supervision for junior doctors in training; and a lack of resources, leading to ineffective simulation training. The GMC in turn published a review of training within a test group of seven EDs which identified concerns about the amount and quality of supervision received by EM Trainees [3]. Previous assessments of training by EM trainees have reported disillusionment with the specialty of EM with high rates of burnout reported, concerns over intensity of the workload, and the quality of training (GMC National Training Survey and Emergency Medicine Training Association surveys) [4].

All of this suggests a need to develop within ED multi-professional teams a culture that supports shop-floor, integrated learning [2]. Shop-floor training is an important part of EM education in the UK and beyond, and its relevance in the USA has been highlighted [5].

In October 2017, RCEM, Health Education England (HEE), NHS England (NHSE) and NHS Improvement (NHSI) published '*Securing the Future Workforce for Emergency Departments in England*' [2]. This workforce strategy recommended a range of interventions to ensure a sustainable workforce, capable of meeting the needs of an increasing patient population, presenting with ever-more varied and complex health and care needs. One such recommendation involved the development of a novel clinical educator (CE) strategy, to support multi-professional clinical staff working in ED. The CE strategy would look to address these issues through an intervention which could enable dedicated training time within the EDs most in need of shop-floor educational support. (Figure 1)

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In the fall of 2018, a pilot programme, the Clinical Educator in Emergency Departments (CEED) was initiated in 55 emergency departments in England. The programme part-funds an EM consultant to serve in the role of a dedicated clinical educator during clinical shifts. It is expected that learner groups would be multi-professional and representative of the ED clinical team and that 90% of training would be delivered on the shop-floor. It was anticipated that the presence of defined CEs in the ED might realise system benefits including: Improved knowledge and understanding of EM and Emergency Care in general; Increased contact time between educators and learners leading to an improved sense of value, wellbeing and job satisfaction; opportunities to undertake work place based assessments (WPBA), and supervision of cases, and of particular skills e.g. ultrasound and conscious sedation etc. with reduced stress associated with assessments; increased opportunities to address the individual educational needs of the learners; and improved identification of learners' unique and team-wide training needs.

A test of concept and linked evaluation were deemed necessary to justify any future development, integration or commissioning of CE roles. This paper reports on the results of a survey of learners at the interim point in the study on the impact of CEs.

The Clinical Educators in Emergency Departments (CEED) Intervention

Figure 1: Clinical Educators in Emergency Departments (CEED) pilot development

From January 2018, a partnership including HEE, NHSI, NHSE and RCEM tasked all Heads of School of EM in England to identify and rank Acute Trust EDs according to their need for educational support. The identification of sites within which to test the concept was determined by Heads of Schools of EM and the RCEM Training Standards Committee [TSC]. Data from the 2017 GMC survey, Acute Care Common Stem / Higher Speciality Training in EM surveys, local education surveys, HEE quality visits, Care Quality Commission visits, resignation rates and local intelligence was used to provide a rationale for allocation of rankings in each region. A total of 72 Trusts were initially identified as potential pilot sites and confirmed by the TSC & HEE. HEE funding was secured to support the release of (the equivalent of) 162

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Programmed Activities (PAs) of CE time, divided across pilot sites. A conservative estimate was that each CE might have responsibility for the shop floor education of 5-20 clinicians; approximately 1000 in total. Of those Trusts which expressed an interest, 55 were able to match HEE funding and sought to identify consultants to fill the CE role. Each CE post was match funded in a 50:50 ratio by HEE and the participant acute Trust. This was a condition of involvement and was consistent across all study sites. Pilot sites joined the project between October and December 2018.

CEED commenced from October 2018, with an intention to conclude data capture in October 2020 and present pilot findings in January 2021. 169 CE posts were recruited across 54 sites, one site failed to recruit. The number of CEs and the number of PA per CE were agreed locally based on the numbers of consultants who applied for posts and the number of PAs that Trusts were willing to support.

CEED was developed to test the service benefit of a CE role, the purpose being to provide dedicated or 'ring fenced' time for education on a weekly basis for a minimum of 4 hours and a maximum of 20. The role was initially made available to EM Consultant Doctors (FRCEM holders), and later expanded to include MRCPCH qualifications. RCEM TSC suggested that the development of innovative new CE roles might support retention and wellbeing of multi-professional clinical teams in the ED. An independent evaluation of the project was commissioned and awarded to Aston University (Academic Practice Unit), supported by RCEM.

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Method

The pilot programme ran from July 2018 to October 2020. At the interim phase of the study 11th July 2019, a 15-question survey was designed to independently evaluate learner perspectives of having a CE in the ED. At this point in the study all CEs were consultants in emergency medicine, with a minimum of one year experience at consultant level. The survey was developed, piloted internally, and approved by academics from Aston University (including academic nurses, pharmacists), clinical members of RCEM (consultants in ED) and the HEE programme team. This survey was designed using JISC online surveys (formerly known as Bristol Online Survey) [6].

The survey link was sent via an invite from HEE to each of the 54 active CEED NHS Trust ED sites. Site study leads were asked to distribute the link to their learners (any ED non-consultant medical and all other ED nursing, allied health professionals) in the ED during 11th July and 31st August 2019. Two reminder emails were sent to sites during the data capture period. At this point in the study five sites did not provide any data returns which prompted direct discussion with the site leads, without resolution during this period.

The questions were a series of categorical Likert score questions, with a focus on learners' experiences, opinions and recommendations relating to CEs on their learning, training, and access to assessments. The impact on the wellbeing of the learners as well as details of the types of activities they received as part of the CE pilot were also explored. A summary of the questions is provided in Table 1.

Table 1. Summary of questions on the learner's online survey for the evaluation of the Clinical Educators 2018-19 pilot programme

Question number	Summary of question
1	Information about the survey and question to confirm understanding and gain informal consent to proceed.
2	Please select the Trust where you encountered the Clinical Educators Pilot 2018-2019
3	Which profession of learner are you? (e.g. Medic, Nurse, ACP, Pharmacist, paramedic etc.)
4	On a scale of 1 - 5 how would you rate the change to your learning due to the Clinical Educators Pilot 2018-2019?

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Question number	Summary of question
5	Did you complete assessments with Clinical Educators during the Clinical Educators Pilot 2018-2019? 5a. On a scale of 1 - 5 how did the Clinical Educator Pilot change your opportunities to undertake assessments? 5b. On a scale of 1 – 5 how did the Clinical Educator Pilot change your ability to pass assessments?
6	On a scale of 1 - 5 how did your experiences with Clinical Educators change your access to teaching on the shopfloor?
7	On a scale of 1 - 5 please indicate how much you agree with the following statements concerning your experiences with Clinical Educators 7.1 My Clinical Educators were knowledgeable in the subject they were teaching 7.2 My Clinical Educators had time available for me to utilise for my learning needs 7.3 My Clinical Educators were easy to identify on the shop floor when I needed teaching 7.4 My Clinical Educators gave timely and useful feedback 7.5 My Clinical Educators helped protect my teaching time 7.6 My Clinical Educators were responsive to my learning needs
8	On a scale of 1 - 5 please indicate how much you agree with the following statements concerning your experiences with Clinical Educators 8.1 I am more confident in my clinical abilities 8.2 It has been easier for me to get assessments and competencies signed off 8.3 My work environment has improved 8.4 My training environment has improved 8.5 My colleagues and consultants are happier 8.6 I am more confident progressing to the next level of my training / next stage of learning 8.7 I would be more likely to remain/return to a role within this site if the Clinical Educator remained 8.8 If I moved, I would prefer to go to a trust with a Clinical Educator in the department 8.9 I am able to manage a greater range of patients 8.10 My ability to support the workflow of patients has improved 8.11 Patient safety has improved due to the increase in training opportunities
9	I undertook the following training activities with my Clinical Educator as part of the Clinical Educators Pilot 2018-2019 (select all that apply): - Shop Floor teaching (including in situ Sim) - Classroom teaching - Simulation and Clinical Skills away from the shop floor - Other
10	Which of the following assessments* if any did you complete with a Clinical Educator? (select all that apply) - Acute Care Assessment Tool [ACAT] - Case Based Discussion [CBD] - Direct Observation of Procedural Skills [DOPs] - Mini Clinical Evaluation Exercise [Mini-CEX] - Extended Supervised Learning Event [ESLE] - Mini Extended Supervised Learning Event [Mini-ESLE] *Note that all these assessments listed in the question above are work place based assessments WPBA of which are tools that can be used by clinical supervisors and the Clinical Educator to assess trainees in the workplace. This can provide opportunities for observation and feedback at regular intervals throughout training, or identify for more detailed assessment for trainees displaying delayed development of their clinical skills or identify more detailed assessments trainees displaying generic problems that are likely to be a barrier to clinical practice.

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Question number	Summary of question
	Reference for further information: - Royal College of Emergency Medicine. Appendix 1. Emergency Medicine Workplace Based Assessment System 2015. Available at:- https://www.rcem.ac.uk/docs/Training/2015%20Curriculum%20-Appendix%201%20(July%202016%20update).pdf (Accessed 9th September 2020).
11	Did you receive shop floor teaching/ help completing assessments from others who were not a Clinical Educator from October 2018-July 2019?
12	Has having time to practice skills and learn from Clinical Educators affected your wellbeing (e.g. happiness / contentment) in your role? (Select one option) - My wellbeing has improved - My wellbeing has not been affected - My wellbeing has been made worse - I don't know - It's too early to say - No comment
13	Are there additional resources/ teaching you think would be useful to your learning that a Clinical Educator could provide? (Yes/No) What additional resources/ teaching do you think would be useful to your learning that a Clinical Educator could provide? (Free-type answer)
14	Are there any additional resources/ teaching that you require for your development that a Clinical Educator is not able to provide that you would like access to? (Yes/No) What additional resources/ teaching that you require for your development that a Clinical Educator is not able to provide, would you like access to? (Free type answer)
15	If there are any other thoughts you would like to share with us on the Clinical Educators Strategy please enter them using the text box below (Free type answer)
Legend	
1-5 Likert score options for Questions 4, 5a, 5b and 6 1. Considerably worsened 2. Worsened 3. No change 4. Some improvement 5. Excellent improvement	1-5 Likert score options for Questions 7 and 8 1. Strongly disagree 2. Disagree 3. Neither agree nor disagree 4. Agree 5. Strongly Agree

The online survey data was collected, and analysed via: descriptive statistics using Microsoft Excel 2013, the export report from online survey and IBM SPSS Version 23. The free-text responses were analysed via thematic analysis. An initial framework was established by the academic authors (lead CH), verified by the wider study team, and summary key findings agreed in open discussion prior to inclusion in this manuscript.

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Results

The survey was completed by 493 respondents across 49 NHS Trusts representing 91% (49/54) of the Trusts that took part in the CE pilot. The number of responses ranged from 0 to 53 responses per site. Multiple health care professionals completed the survey, with medical learners (trainees and non-trainees) making up 77.5% of respondents (see Table 2).

Table 2 Respondents to the 2018-19 Clinical Educators programme pilot according to registered professional body

Profession	Number of responses	Percentage
Advanced Clinical Practitioner	51	10.3%
Advanced Clinical Practitioner (trainees)	26	5.3%
Healthcare Assistant	1	0.2%
Medical (trainees, non-trainees etc.)	382	77.5%
Nurse	23	4.7%
Paramedic	2	0.4%
Physicians Associate	6	1.2%
Physiotherapists	2	0.4%

Change of learning due to CE pilot

Most respondents reported improvement in learning: 48.1% (237) reported excellent improvement, and 42.2% (208) reported some improvement. 8.9% (44) reported no change, 0.4% (2) reported that learning worsened and 0.4% (2) reported that it had considerably worsened.

Examples of responses per scoring rating is shown in Figure 1

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Accessibility and ability to pass assessments

Nearly all 99% (355/358) of learners reported completing assessments. 59.5% (213/358) learners reported excellent improvement, 35.5% (127/358) reported some improvement; 4.7% (17/358) reported no change, 0.3% (1/358) reported that their ability to access assessments worsened and 0 reported considerably worsened. With regards to the ability of the learner to pass assessments as a result of the CE pilot, 40.2% (144/358) reported excellent improvement, 38.3% (137/358) reported some improvement, 21.2% (76/358) reported no change and 0.3% (1/358) reported that it worsened their ability.

Access to teaching

53.1% (262/493) learners reported excellent improvement in access to teaching while 33% (164/493) reported some improvement. The rest noted either no change 12.6% (62/493); worsened access 0.2% (1/493) or considerably worsened access 0.8% (4/493).

Learners experience and evaluation of the CE on site during the pilot

Learners, reported the following based on their experience of a CE, 80.9% (399/493) reported they would remain/return to the same ED with a CE, and 92.5% (456/493) responded that they would prefer to go to a trust with a CE. With regards to their well-being, 49.9% (246/593), have reported that their well-being had improved as a result of having a CE on site. Further results of questions relating to learner experience and evaluation of the effect of having a CE on site are summarised in supplementary information S1 and figure 2 respectively. Free type response explanations of the impact of CE on learner's well-being is included in supplementary information S2.

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Activities during the pilot

Respondents reported that the most common form of teaching was shop-floor teaching (including in-situ simulation) (89.7%, 442/493) (Table 3). The most common types of workplace-based assessments reported by learners as completed d were Case Based Discussions (79.4%), followed by Mini-Clinical Evaluation Exercise (65.6%) (Table 3). The longer type of assessments such as the ESLEs were among the least reported (20.1%) Table 4.

Table 3 Summary of teaching activities used by Clinical Educators as reported by the respondents.

Activity description	Number (percentage) of learners reporting activity style teaching (493 max)
Shop floor teaching (including in-situ)	442 (89.7%)
Classroom teaching	166 (33.7%)
Simulation and Clinical skills away from the shop floor	174 (35.3%)
Other	48 (9.7%) Most common examples given: - • Cased Based discussions 10 • Workplace Based Assessment WPBA non-specified 6 • ESLEs 4

Table 4 Summary of assessments reported by medical learners as completed during CE pilot.

Workplace Based Clinical Assessment type	Number (percentage) of learners reporting activity style teaching (493 max)
Acute Care Assessment Tool [ACAT]	64 (14%)
Case Based Discussion [CBD]	363 (79.4%)
Direct Observation of Procedural Skills [DOPs]	229 (50.1%)
Mini Clinical Evaluation Exercise [Mini-CEX]	300 (65.6)
Extended Supervised Learning Event [ESLE]	92 (20.1%)
Mini Extended Supervised Learning Event [mini-ESLE]	21 (4.6%)
Other	38 (8.3%)

Teaching or assessment from other senior staff

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23.5% (116/493) reported that they received teaching or help with assessment by a staff member other than a CE deployed into the Emergency Department as part of the pilot.

Discussion

This interim study evaluated a pilot deploying EM consultants as designated CEs on the ED shop-floor to provide clinical education support to the multidisciplinary emergency workforce in the UK. Findings show that 90% of respondents (445/493) report a positive change to learning as a result of the deployment of a CE in their department. Nearly all learners (95%, 340/358) reported an increase in access to support for clinical assessments and 78% (281/358) perceived an increased likelihood of passing assessments as a result of this access. Approximately half of all respondents (49.9%, 246/493) reported that the presence of a CE has had a positive impact on their wellbeing, with 21.5% (106/493) reporting their wellbeing had not been affected, and the remainder were 'do not know' or have chosen not to comment. A very small number of respondents (0.8%, 4/493) have commented that their wellbeing has been made worse, with comments relating to a lack of opportunity to spend time with a CE, or the respondent's perception of the department having a 'blame culture' and not linked directly to the CE role.

The interim CEED study findings are generally in agreement with studies published in Canada in 2005 [7] and USA [8]. which focused on what learners would want from their ED clinical teachers. The multisite focus group across five academic centres in Canada reported that learners considered the following attributes as important from their clinical teachers: "takes time to teach"; "gives them feedback"; "tailors teaching to the learners"; "uses teachable moments" and has "a good teacher attitude". No follow-up studies were published as to how this was implemented into practice [7]. Our survey did not cover the attributes of appointed CEs, however the respondents reported that CE access had a positive impact on learning. The single site USA study showed that implementing a rotation of an emergency department resident to teach medical school students, and other medical trainees in the emergency

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department improved patient flow, procedure performance and undergraduate medical learning experience. However, this study used only Likert-score based quantitative findings were only reported without reporting explanations behind the context [8].

There are limitations to this present study at the interim point. The principal limitation is that the full-staff denominator is unknown. Only 49/53 sites with Clinical Educators participated. There is also a potentially skewed response to the survey presented in this paper, with 53 respondents coming from one of the study sites, which may lead to bias. Due to the transitory nature of trainees as well as the rotations of staff, it is difficult to estimate with accuracy the number of learners per department. A second limitation was that despite there being opportunities for those surveyed to provide free-text answers, upon analysis, there was insufficient information provided by the responses to fully analyse qualitative elements of the respondents' views and perceptions. Further studies of a qualitative nature will be undertaken during the remainder of the pilot evaluation term to elicit more in depth information on the impact of the programme on training as well as well-being.

In conclusion, most learners in the 54 NHS Trusts involved in the CEED study reported improvement in clinical learning opportunities within the ED at this interim point in the pilot. Impact on well-being is less clear. Further evaluation within the pilot will realise further evidence and data in relation to the impact of CEs on the recruitment, retention and wellbeing of the multi-professional ED workforce.

Statements

a. Contributorship statement

- Muniswarmy Hemavathi, Eloise Phillips, Matthew Aiello, contributed towards the conception and design of the study, drafting, revising and reviewing the manuscript for final approval.
- Chi Huynh contributed towards the conception and design of the study, acquisition, analysis and interpretation of the data, drafting, revising and reviewing the manuscript for final approval.
- Brian Kennedy, Mike Clancy, Wayne Hamer, contributed towards the conception and design of the study, and reviewing the final manuscript for final approval.

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- Graham Rutherford, Aanika Khan, contributed towards the conception and design of the study, and the acquisition of the data and reviewing the manuscript for final approval.
- David Terry contributed towards the conception and design of the study, analysis and interpretation of the data, revising and reviewing the manuscript for final approval.

b. Funding

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c. Competing interests

No, there are no competing interests for any author

d. Data Sharing/Data availability

All data relevant to the study are included in the article or uploaded as supplementary information S1

e. Ethics approval

Not applicable

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