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Using Project Echo to Deliver Palliative Care Teaching for The New 2019 Internal Medicine Training (IMT) Curriculum: An Innovative Approach to Postgraduate Medical Education

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3. Post graduate medical education curriculum
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ABSTRACT

Background

The IMT program is an evolution of Core Medical Training introduced in 2019. The IMT curriculum places an increased emphasis on palliative care however access to palliative care training is variable. Project ECHO develops communities of practice and is a valuable tool

for medical education. We report on an evaluation of Project ECHO to deliver Palliative Medicine training across a geographically large deanery in the North of England.

Methods

Project ECHO training programme involved multipoint video technology, tele-mentoring, expert talks, and case-based discussions over 6 sessions and was fully mapped to the palliative care component of the IMT curriculum. We collected data particularly around attendance and self-reported confidence and knowledge.

Results.

By creating a community of practice, we provided virtual placements and over 9 hours of virtual direct contact with palliative medicine consultants, and in total 921 individual attendances occurred, with 62% attending all six sessions. The course was associated with an increase in self-reported confidence, and high satisfaction.

Discussion

Project ECHO is an effective method of delivering teaching to trainees across a large geographical area. Course evaluation show outstanding results in trainee satisfaction, confidence, knowledge, patient care, clinical skills and reduction in fear when managing death and dying.

200/200

KEY MESSAGES

What was already known?

Project ECHO is a tool used successfully for delivery of medical education across the world.

Project ECHO has never been used to deliver a curriculum.

What are new findings?

Project ECHO has been shown to be an effective and well received tool for delivering a curriculum.

Project ECHO has been shown to be effective in replacing a face-to-face placement for palliative care training in IMT

What is their significance?

CLINICAL

Training now needs to be cost effective and environmentally friendly - Remote learning with a small faculty offers a cost effective, valuable alternative thus meets both criteria.

Project ECHO Palliative care has value for increasing knowledge and confidence around death and dying for IMT trainees.

RESEARCH

Project ECHO can be utilised for other curriculum aspects and regions also struggling to provide consistent clinical exposure or struggling to meet curriculum needs.

Table 1: Internal Medicine Curriculum 2019 - capabilities in practice (CiPs)	
Generic CiPs	
1	Able to successfully function within NHS organisational and management systems
2	Able to deal with ethical and legal issues related to clinical practice
3	Communicates effectively and is able to share decision making, while maintaining appropriate situational awareness, professional behaviour and professional judgement
4	Is focussed on patient safety and delivers effective quality improvement in patient care
5	Carrying out research and managing data appropriately
6	Acting as a clinical teacher and clinical supervisor
Clinical CiPs	
1	Managing an acute unselected take
2	Managing an acute specialty-related take
3	Providing continuity of care to medical in-patients, including management of comorbidities and cognitive impairment
4	Managing patients in an outpatient clinic, ambulatory or community setting, including management of long-term conditions
5	Managing medical problems in patients in other specialties and special cases
6	Managing a multi-disciplinary team including effective discharge planning
7	Delivering effective resuscitation and managing the acutely deteriorating patient
8	Managing end of life and applying palliative care skills

BACKGROUND

The Internal Medicine Training programme (IMT) UK was developed to replace Core Medical Training and implemented in August 2019 and is one of the largest postgraduate training schemes [1]. Dominant changes in the curriculum emphasised a greater focus on patient-centred care, communication, and the deteriorating patient [2] [3]. In Yorkshire and Humber (YH), [4] despite the significance of palliative care in the curriculum, specific palliative care placements are not routinely offered. Trainees evidence palliative care training in placements such as stroke, medicine for the elderly, and intensive care [4]. When the availability and quality of existing palliative care teaching provisions throughout YH were assessed, internal data demonstrates significant variation in delivery. These issues were compounded when the COVID-19 pandemic significantly increased the palliative care workload of junior trainees [5]. It was therefore clear that specific tailored palliative care teaching / training was required to meet the needs of the new curriculum and to ensure trainees were prepared for palliative care situations within any medical speciality.

The Internal Medicine curriculum comprises of 14 “Capabilities in Practice” (CiPs), describing professional tasks or areas of work [4]. They are written to allow flexibility in training and recognise the value individual placements and trainees bring to learning and experiences [4]. The 14 CiPs consist of six generic CiPs covering the universal requirements of all specialties, and eight clinical CiPs outlining tasks or activities which are essential to the practice of internal medicine (Table 1). Project ECHO is concerned project with Clinical CiP 8; Managing end of life and applying palliative care skills.

Project ECHO (Extension of Community Healthcare Outcomes) was developed in the USA to ensure equal access to specialist medical care across a large geographical area for individuals with Hepatitis C [6]. It has subsequently been used to support allied health

professionals' education in the UK. Its specific philosophy recognises that is that everyone is both a teacher and a learner in a community of practice. The community is enriched by sharing learning, whether via a specialist in that field sharing expert knowledge or by attendees sharing their case-based experience. ECHO uses a defined structure and remote conferencing technology to facilitate a series of sessions and was making use of these resources long before the COVID-19 pandemic brought their value to the fore [6].

Project ECHO involves a facilitated telementoring session, supported by videoconferencing software. The ECHO model uses a "hub-and-spoke" knowledge-sharing approach where expert teams lead, but everyone contributes. Project ECHO can be described using an ABCD acronym; **A**mplification – using technology to leverage scarce resources, share **B**est Practice, **C**ase based learning to master complexity, and web-based **D**atabase to monitor outcomes. [6] [7]. To our knowledge, ECHO has not been used as a formal adjunct to postgraduate medical training programmes in the UK. (ref)

Yorkshire and Humber (Y&H) deanery cover a large, geographically complex area [8]. Face to face training is challenging, especially in smaller and more geographically isolated units. The remote aspect of ECHO addresses these challenges. In addition, given the lack of specialist palliative placements for IM trainees, ECHO provides a forum for trainees to engage with interdisciplinary consultants including those in palliative and intensive care. We report on the implementation of a Palliative Care specific ECHO programme conducted in the Yorkshire and Humber Deanery, exploring, attendance, and self-reported acceptability, satisfaction, and confidence in dealing with palliative care situations.

AIM

This report aims to evaluate the use of Project ECHO as a tool for delivering Palliative Care training to IMT trainees.

METHOD

We developed a six-session ECHO programme to deliver palliative care training. Although project ECHO provides a flexible methodology, there are common stipulations expected during implementation. The first is that ECHO methodology is respected, including adhering to the ECHO implementation framework [9] [10] and ensuring that at least one permanent member of the team has been trained specifically in ECHO methodology. In addition, a fixed core faculty is recommended. In this instance, faculty included the local TPD, consultants in palliative medicine and a specialty trainee in anaesthetics, with guest speakers supporting the programme. Further stipulations include bespoke tailoring of sessions to learners' wants and needs, running to time, and provision of a resource and sessions library [10].

There were minor deviations from common ECHO methodology which were necessary to project delivery. A generic pre-ECHO survey is usually sent to develop the curriculum. This was adapted this to ensure a focus on confidence and underlying knowledge relevant to the IMT curriculum, and in particular CiP8. This was supported by questioning participants about their exposure to palliative care. In order to achieve a balance between trainee preference and curriculum stipulations, the pre-ECHO questionnaire data was mapped to common threads in the curriculum (Appendix 1). In addition, to retain adherence to ECHO principles, trainees provided self-assessed confidence scores in given areas. These were used to weight the focus of the sessions.

The programme comprised six sessions, one of which included an introduction to the course. Each full session was 90 minutes long including a 30-minute presentation by an expert and two 30-minute case-based presentations delivered by the learners. Sessions took place in evenings, with attendees able to offset this time by booking time off in lieu. Sessions were based around themes, to incorporate all aspects of the curriculum: (1) Introduction to death and dying, (2) Recognising dying, (3) Disease and symptom-specific dying (with a focus on Motor Neurone Disease), (4) Palliative pharmacology, (5) Communicating Dying and (6) Law and ethics.

Data collection

ECHO includes an integrated approach to evaluation, which was used to structure data collection and reporting. Data is collected on attendance and satisfaction following each session. At the beginning and end of the course, a detailed questionnaire is administered (Appendixes 2 and 3), which addresses self-reported confidence, ability, and outcomes specific to course delivery. We also included a free text section which allowed trainees to express their main ideas and concerns and identify gaps in knowledge or experience.

We collected post-course data by asking whether trainees felt the programme met their curriculum requirements and had any impact on future career choice. Confidence, satisfaction, and questions on career choice were rated on 5-point Likert scales. Data for these surveys were anonymous, which prevents linking of the data; results are therefore descriptive.

Ethics and governance

ECHO was undertaken as an education programme with an integrated evaluation methodology. This did not require REC/HRA approval. Individuals consent to use of their data for evaluations at the outset of the course. The programme was registered as a service evaluation with the hosting clinical service, and with the relevant deanery.

RESULTS

Attendances

Between April 2020 and July 2021, 23 individual sessions were hosted across 4 courses. The first course ran from April to July 2020, when training was severely affected by the COVID pandemic. The subsequent three courses include a single year's intake (2020-2021) and are therefore the focus of the reporting.

For the 2020-2021 programme, a total of 199 trainees registered, 175 attended at least one session and 921 individual attendances occurred. The number of attendances was skewed, with 124 trainees (62%) attending all six sessions. The majority of trainees (139, 69.8%) were IMT1, 38 (19%) were more senior (IMT2/CMT2/CMT3), and the remainder unclear.

Pre- and post- Course evaluations

Trainees were not mandated to complete the course evaluation as a condition of attendance. Of the 175 trainees attending at least one session, a total of 79 attendees responded to at least one question, with a response rate of 45.1%. For self-reported confidence pre-ECHO, a total of 61 trainees responded, for post-ECHO, 70 responses were received. Results are shown in

Figures 1 and 2 and are consistent with a clear increase in self-reported confidence across all domains.

The post-course questionnaire invited attendees to rate whether they had gained knowledge in each of the six areas described by trainees as having low confidence pre-course. In each session, at least 89% of attendees agreed or strongly agreed that they had gained knowledge in these areas.

Additional post-course evaluations.

Additional questions were included to map the impact of ECHO on trainees' wider training and future career. Table 2 shows the extent to which trainees felt the course mapped to their CiPs. Here, it can be seen that the majority of respondents felt the course covered their entire CiP8 curriculum requirements, whilst supporting other CiPs.

	Yes n(%)	Partly n(%)	No n(%)	No response* n(%)	Total
1. Did the 6 sessions cover all the CiP 8 of the IMT 2019 curriculum?	55 (69.6)	12 (15.2)	1 (1.3)	11 (13.9)	79
2. Did the 6 sessions add learning and experience to CiP's other than CiP8 within your curriculum?	55 (69.6)	10 (12.7)	3 (3.8)	11 (13.9)	79

*Table 2. Extent to which respondents felt the course met training needs. *Out of overall 79 respondents.*

Whilst the majority of trainees appear prompted to incorporate good palliative care as a result of the course, there is no clear evidence that ECHO has impacted on career choices. (Figure 3)

There was a positive impact on self-reported clinical skills and patient care in comparison with other teaching tools in use within the IMT programme (figure 4).

Free text responses

A total of 43 respondents contributed, albeit some including only single brief sentences. A full qualitative analysis of this data is not therefore appropriate. Examples of responses included comments on the logistics of attending, and on both the advantages and disadvantages of meeting out-of-hours in exchange for a lieu day. Otherwise, it is relevant to note that responses reflected the survey data reported here, with reference to increased confidence and reduced anxiety in delivering end of life care.

Discussion

Summary of main findings

The Yorkshire and Humber IMT Project ECHO saw an increase in self-reported confidence and knowledge in the CiP relevant to palliative care. Trainees similarly reported the ECHO

programme contributed to their learning, with most reporting that the course addressed additional specialist and generic CiP domains. In post-course surveys, 86.67% of trainees said that Project ECHO will positively affect their long-term clinical skills and 89.3% reported a similar impact on patient care. This was further emphasised by trainees as demonstrated in the written feedback. In addition, 80% of trainees agreed that all CiP8 could be evidenced in their portfolio by Project ECHO, demonstrating good curriculum compliance.

The programme condensed the equivalent of 1-2 days of face-to-face teaching in to 6 x 1.5-hour sessions. Specialist teaching such as this is usually delivered in regional centres. Considering that the distance between a peripheral centre and one of the key tertiary centres can be as much as 70 miles and 90 minutes travelling time, ECHO permits a reduction of the travel and carbon footprint burden of trainees. Additional considerations include the impact on expert clinician time, cost burden on the trust, loss of trainees for specific training days and room / catering provisions when delivering on-site are also reduced.

Comparison with existing research

ECHO

This is the first time Project ECHO has been used within IMT, although it has been used to deliver knowledge and resources in other contexts. In these areas, Project ECHO has shown improved patient outcomes for patients with hepatitis C, chronic pain, dementia, and type 2 diabetes [11].

Project ECHO “moves knowledge not people”, this has been shown to have a direct impact on increasing knowledge in both test conditions and self-reported studies and given its consistent satisfaction as a learning tool. [12] There is ongoing research, commenced in 2021, into the Effectiveness and experiences of the ECHO Model in developing competencies among healthcare professionals. [13]

IMT

IMT was introduced in August 2019, and the COVID pandemic began in March 2020. Given this relationship, and the relatively limited implementation resources prior to roll-out, there has been very little published on the effectiveness of teaching resources for IMT education. Our study demonstrates one method of making IMT delivering viable, sustainable, and effective teaching across a large geographical area, even in the setting of a global pandemic.

The COVID-19 pandemic reduced the opportunities for face-to-face learning for IM trainees. For some UK doctors in training, there was a near-total focus on service delivery and care provision rather than learning, leading to concern amongst trainees about their ability to meet ARCP requirements. The effect of this, coupled with multiple concerns around PPE, Families, transmission of COVID to home, own health, psychological distress, vicarious trauma, healthcare rationing and quarantine/self-isolation, significantly increased the presence of burnout amongst physicians and trainees; an effect that has been well documented in previous pandemics, [14] [15] [16]. One survey from Yorkshire [17] specifically mentioned the positive effect peer support and online networking and non-judgmental listening had on relieving anxiety and burn out. Project ECHO therefore has the potential to be an effective tool that allows combined pastoral care through talking therapies

such as debriefs to mitigate moral distress and prevent moral injury alongside teachable moments.

There are other issues around delivering teaching across a large area, including formal training for specific aspects of IMT roles. As an example, IMT's experiences of completing ReSPECT forms; 90% of IMTs have experience in completing ReSPECT forms, yet only 20% had undergone formal training to do so [18]. This suggests that teaching is dependent on "workplace based" learning, and reliant on supervisors or experienced peers being available at the right time. With an increased emphasis on service provision, delivering such training face-to-face is difficult. One pre pandemic CMT paper [19] looked at Supporting the transition to becoming a medical registrar; this course demonstrated similar outcomes in confidence and recommendations as Project ECHO, demonstrating that ECHO is comparable with face-to-face training but with lower trainee, faculty and institutional costs and significantly greater capacity.

Strengths and limitations

A key strength of this report is the good cohort size, high attendance rate, set methodology and the potential to replicate for other curriculum areas and training grades.

However, this study has limitations, some of which we aim to remediate in the next year of Project ECHO IMT YH. This includes lack of paired data and limited response rate. Self-reported confidence may not directly translate into clinical competence and the benefits reported do not necessarily translate into improved clinical outcomes. There is, however, evidence [20] [12] [6] that suggests that indirect outcomes such as improving cultural competencies, reduction in health disparities and healthcare provider self-confidence improves patient experience and improves healthcare communication performance.

Implications for practice/education

We have described an effective, flexible, and well-attended teaching programme for trainees. Project ECHO flexibility means that it can be delivered from anywhere, person with internet access. There is scope for increasing the number of topics delivered and for expanding the trainees receiving this training. This creates opportunities to maintain training through extreme events (for example a pandemic), to reduce our carbon footprints, reduce everyone's travel time, and maintain or even increase attendance and satisfaction. Delivering bite-sized teaching and allowing flexible recoument of time means a smoother ward environment, maintain service delivery.

Implications for research

Further research should consider face-to-face teaching satisfaction in comparison with Project ECHO. Furthermore, the cost saving, and efficiency implications warrant further quantification, particularly with respect to the impact on travel, time away from base units, and ability to offset multiple short sessions as whole days off in lieu. This need to be ascertained in order to justify expansion of Project ECHO to other areas and learner groups.

Project ECHO has revolutionised teaching of palliative care across Yorkshire, with the authors independently delivering 90% of the palliative training in YH. The area also includes CoMPaSS (a low fidelity simulation course practising conversations around death and dying

in the last year of life). A primary implication for further research locally is relationship between CoMPaSS and Project ECHO.

In addition, YH have a particularly high international medical graduate (IMG) cohort, and Echo has the potential to improve understanding and communication around death and dying in the UK. Given that communication is one of the prominent reasons for GMC referrals and IMGs are disproportionately affected by such referrals [21] ECHO has the potential to support improving communication and introduction to the NHS for IMG's; the remote delivery method adds a particular benefit here. Further investigation is required to ascertain the effectiveness of Project ECHO in the IMG group.

Most importantly, studies need to assess the impact of project ECHO curriculum delivery on patient centred outcomes and measurable knowledge. Appropriate patient- related outcomes might include satisfaction with communication, symptom relief, impact on families and lifestyle. Trainee outcomes might include the impact on stress and burn out, workplace-based assessments, College examinations and ARCP outcomes.

CONCLUSION

In conclusion, Project ECHO was used to deliver the IMT palliative care curriculum in Yorkshire and the Humber, and complete attainment of all CiP8 requirements was achieved for all trainees who attended 5/6 sessions. This was a highly rated program that trainees valued for increasing knowledge and confidence, palliative care clinical skills and patient care and reducing fear around death and dying. By creating a virtual community of practice, we enabled supervision from palliative medicine consultants for over 9 hours for each trainee. Figure Legends for Figures Tables and Supplementary Material

Figure 1: Pre-course self-reported confidence.

Figure 2: Post-course self-reported confidence. (Note different number of respondents in each figure).

Figure 3: Impact of Project ECHO on career choice.

Figure 4: Self-reported IMT teaching elements that the trainees feel will positively affect patient care (left) and clinical skills (right). Reported as a percentage of 79 respondents.

Appendix 1: Pre-ECHO Survey on confidence levels of CIP8 descriptors and Application of the survey findings to developing sessions that maintain ECHO values but deliver the curriculum

Appendix 2: Pre ECHO-Questionnaire

Appendix 3: Post Project ECHO Questionnaire

Conflict Of Interest Statement

The authors certify that they have no Conflict of Interest in the subject matter or materials discussed in this manuscript.

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Contributor statement

All authors contributed

Main author contributed to all stages of the work – planning, writing, conducting and reporting of the work

Dr Taylor was primary editor and Proof reading for reporting the work
Dr Kyeremateng is primary ECHO structure lead, and involved in planning and conduct
Dr Hammond developed and created funding and infrastructure for ECHO and was involved in planning of the work
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