Data Supplements

**Supplement 1:**

**Description of the Educational Intervention (ECHO PPC)**

**Leadership Team**

Since 2019, the Hyderabad Centre for Palliative Care (Hyderabad, India) and Two Worlds Cancer Collaboration (Canada) have jointly implemented Project ECHO Paediatric Palliative Care (ECHO PPC), an online education program which focused for PC residents in South Asia. The ECHO PPC leadership team includes physicians and nurses with expertise in PC from India, Bangladesh, and Canada, as well as leaders from the PC residency programs in India and Bangladesh. There is also an ECHO program coordinator who provided technical and administrative support.

**Learning Needs Assessment**

The ECHO PPC curriculum incorporated key learning objectives identified from a literature review, expertise from the course leadership team, and an online needs assessment of participants at the time of ECHO registration. Team members’ experiences with a previous PC ECHO programs was also incorporated. These experiences guided the selection of topics, structure, and design for ECHO PPC, including specific adaptions to ensure relevance and suitability of the content and program structure for South Asia. Appendix B shows the topics included in ECHO PPC. The topics covered are reviewed with residency program directors to ensure that the topics do not substantially overlap with other training or teaching which residents are already receiving.

**Program Structure**

The first iteration of the program was completed in 2019-2020 and included 27 online training and discussion sessions. In the original program, each session included didactic teaching session with question and answer session (45 mins), followed by a case presentation (10 mins) and interactive discussion (20 mins), which is the format most commonly used in Project ECHO (Arora et al., 2017). For the second iteration (2021-2022), the program structure was modified to a flipped classroom design, with participants watching a recorded video of a didactic lecture prior to the live session. The structure of the live sessions then incorporated virtual breakout rooms (30 mins) where participants discussed structured questions related to the didactic lecture topic, followed by case presentation (10 min) and case discussion (20 mins). Sessions occurred from 7:30-8:45pm Indian Standard Time.

**Learning Resources**

Participants were provided with videos, presentation slides and articles via a shared online database and thought a social media chat group. The social media platform which was used was familiar and readily accessible to participants (WhatsApp). Residents were required to complete an online formative (after 6 months) and summative final examination, each consisting of 15 multiple choice and 15 short answer questions. Residents were provided with immediate feedback about their examination results, including their scores and the correct answers with rationale and references.

**Typical Timeline for ECHO PPC with Flipped Classroom Design,** adapted from Doherty *et al*. (2021)

|  |
| --- |
| **Preparation (before live ECHO session)** |
| **Section** | **Duration** | **Description** | **Purpose**  |
| *Video*  | 20-25 mins | * Video link provided to participants, for recorded didactic lecture
 | * Encourage preparation outside of the live session, use of live session for discussion
 |
| **During live ECHO session** |
| **Section** | **Duration** | **Description** | **Purpose**  |
| *Introduction*  | 2 mins | * Facilitator welcomes participants
 | * Create community among participants and faculty
 |
| *Brief Didactic Lecture and Discussion* | 15 mins | * Short presentation summarizing key points from video
* Participants are encouraged to ask questions related to presentation or video
 | * Highlight key points from the video
* Allow participates to clarify any questions from the video
 |
| *Breakout Groups* | 25 mins | * Participants break into groups of 6-8 with 1 faculty member and answer discussion questions related to the topic
 | * Provide opportunity for all learners to participate and interact with expert faculty, apply their knowledge to discussion questions
 |
| *Report of Breakout Groups* | 5 mins | * All groups return to main ‘room’ and each group is assigned to present their responses to one of the questions
 | * Provide opportunity for sharing and discussion between groups
 |
| *Case Presentation* | 10 mins | * Participant presents a clinical case using a structured template
* 2-3 discussion questions are proposed by presenter related to the case
 | * Apply new knowledge to clinical scenarios
 |
| *Case Discussion*  | 15 mins | * Clarification about the case
* Discussion of key case questions is led by the facilitator who may call on participants to encourage active participation
 | * Participants can share their experiences and practical solutions related to clinical practice
* Encourage learning linked to the actual health care situation and challenges
 |
| *Summary and Conclusion*  | 3 mins | * The facilitator summarizes key points from the session
 | * Repeated exposure to key points
 |
| **After Live Session** |
| *Post-session* |  | * Key learning points, clinical resources (articles, book chapters, guidelines), presentations, and video recording of session are with participants
 | * Support review of learning by residents
 |

## *List of Session Topics in ECHO PPC*

|  |  |
| --- | --- |
| 1 | Welcome Session and Orientation to the Course, General intro to paediatric PC |
| 2 | Which children need PPC and what are the difference between Adult and Paediatric PC |
| 3 | Paediatric Pain Management |
| 4 | Paediatric Pain Assessment |
| 5 | Management of GI Symptoms |
| 6 | Management of Neurological Symptoms-spasticity/dystonia and delirium |
| 7 | End of life care in paediatric PC |
| 8 | How to train nurses and common nursing issues  |
| 9 | Pain assessment and management in non-cancer conditions, non-verbal children |
| 10 | PC Emergencies (specific to peds) |
| 11 | Play Therapy |
| 12 | Grief and Bereavement in Children |
| 13 | Legacy and Memory Making |
| 14 | Siblings |
| 15 | Talking to children about serious illness/breaking bad news |
| 16 | Emotional impact of illness for children  |
| 17 | Common Infections and immunizations |
| 18 | Weight, malnutrition, and fluid management |
| 19 | Overview of developmental milestones and how to assess for delays |
| 20 | Caring for children with HIV/AIDS |
| 21 | Basics of Genetic Counselling |
| 22 | Cerebral Palsy and Physio/Rehabilitation considerations |
| 23 | Complex Care Paediatrics in PC |
| 24 | Seizures and General Neurological Issues |
| 25 | General Neonatal Comfort measures, pain management in NICU Setting |
| 26 | Perinatal PC (ethical challenges) |
| 27 | Compassionate extubation and withdrawal of life sustaining supports |

**Supplement 2: Interview Guide**

Introduction

o Greetings, Ice breaker and general conversation (incl. thank participant for agreeing to interview)

o Researcher introduction, Research objective and procedure of interview explained.

o Consent confirmed (explicit mention of recording).

Demographic questions – (See Table 2 for items collected)

Motivation and Self-Awareness:

• Why did you choose to participate in ECHO?

• What are some of the most valuable things that you learned from participating in ECHO?

Participation

• How did you feel while participating in ECHO sessions?

• Prompt: Did you feel stressed, anxious, excited, eager, etc?

o Prompt: Why did you feel stressed, anxious, etc?

• Did you feel comfortable speaking during ECHO sessions?

o Did you feel comfortable typing questions in the chat?

• Did you ask or answer a question or make a comment during an ECHO session?

o Why or why not?

Learning from ECHO

• What did you envision that you would learn from ECHO prior to participating?

• What are the most valuable things that you actually learned from participating in ECHO? about Palliative Care?

• If these two were different (expected vs actually learned), why do you think that this was?

• As a health care provider, what do you see as your role and responsibility in learning of new medical information?

Social Connections

• One of the goals of ECHO is to create a community of practice, meaning a group of health professionals that interact and learn together, was this part of your ECHO experience? Why or why not?

• Have you been in touch with any other participants from ECHO, outside of ECHO sessions?

o Probe: What enabled or prevented you from contacting others?

o Probe: What types of things did you talk about the other participant? (Difficult case, sharing information/articles, referring a patient, other)

• Do you feel comfortable reaching out to ECHO participants for learning, advice, or collaboration? Why or why not?

• How did you feel if other participants contacted you for learning, advice, or collaboration?

• What are your perceptions of your ECHO colleagues at the beginning and end of your participation in ECHO?

o Did this change over the course of your participation in ECHO?

Learning Resources:

• Have you used any of the learning resources which are sent after the sessions?

o Why or why not?

• What prompted you to access any of these resources? (Ask for specific resources)

Facilitation:

• What is the role of the facilitators for the session?

• How did the facilitators impact your learning?

• How did you feel the facilitator responded to any questions or comments that you made?

Emotional Resilience

We know that it can be difficult to work in Palliative Care, we want to explore now how ECHO can impact your stress and burnout (\*define burnout)

• Has participating in ECHO affected your stress levels?

o In what ways?

• Have you been able to increase your professional social interactions through ECHO?

o If so, how has this helped your stress or feelings of burnout?

Impact on Clinical Practice

• How has project ECHO impacted your job performance at work?

o If so, can you tell me how?

o If not, why do you think this is?

• Are you more confident performing tasks in your work environment?

• Have you applied anything that you have learned in your practice? (Be specific, ask for examples)

How do you feel when performing tasks now vs before participating in ECHO sessions?

• Do you feel a difference in the outcomes of your work?

Participation Factors

• What encouraged you to keep attending sessions?

• How could we encourage participation in similar initiatives in the future?

Barriers

• How could ECHO be improved to provide a better learning experience?

• What obstacles did you encounter during your participation in this program?

• What made it possible or easy for you to join the sessions?

Overall Summary/Impressions of ECHO

• Following this discussion, what was the biggest benefit in participating in ECHO sessions?

• What was the biggest obstacle to participating?

• If you were to take part in another ECHO session, what would be the one thing you could change or add to the project?

Thank you for your time and involvement.

End by reviewing the purpose of study and ask participants if there is anything else they wish to add or feel may have been missed or if they have last minute thoughts before interview is completed.

Supplement 3

Interpretive Design (ID) Methodology; Steps as outlined by Thompson Burdine *et al.* 2021

|  |  |  |
| --- | --- | --- |
| Item | Description | Location in Manuscript |
| Title | Using Project ECHO to deliver a tele-mentoring and teaching program on palliative care in South Asia: developing an interpretive description of a participants’ experiences with a community of practice for learning  | title |
| Background | Background reviews the available literature, highlighting the various and changing nature of learners and teachers experiences with learning online.  | Background |
| Research Aim | Research aim is clearly aligned with ID methodology, seeking to contribute to knowledge about learning experiences with a flipped classroom design for online learning.  | Background |
| Sample Selection | Sample selection described, includes purposeful sampling, with maximum variation | Methods (Sampling and recruitment) |
| Data Collection and Analysis | Study participants were interviewed individually. “Semi-structured individual interviews were conducted using open-ended questioning based on an interview guide, probing question allowed the interviewer to explore responses in greater detail” | Methods  |
| Application of ID | ID approach is described in the Methods section, highlighting how this approach was suitable for studying patterns and shared realities, including integration of study team members experiences into analysis.  | Methods |
| Coding and Organization | Data analysis is described, including the role of the researcher as an insider “the researcher brought a well-developed understanding of ECHO program to the research, which supported the development of research questions grounded in a rich understanding of the context” | Methods |
| Constant Comparative Analysis | Description of the iterations over time, which describe how ideas change over the course of analysis, reflections and interpretation“analysis proceeding in an iterative manner from specific codes and categories to more general ideas and themes which emerged from the data.” | Methods |
| Rigour | Reflexivity is described (interview note-taking) and a transparent description of the research steps taken from the start of a research project to the development and reporting of findings is provided in the manuscript | Methods |