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Research article

Reimagining a children's palliative care educational programme for registered nurses in response to the COVID-19 pandemic

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ABSTRACT

Background: Children with life-limiting conditions are a unique population with multiple health and social care needs. Key literature indicates the need for education to support registered nurses providing care, including palliative care, to these children. In response to the COVID-19 pandemic, a palliative care programme was converted to an online programme, adopting a blended approach between national and regional facilitators.

Objectives: To assess nurses' satisfaction with a re-designed palliative care programme centred around the care of children with life-limiting conditions, including their perceptions of the online format.

Design and methods: A descriptive correlational design and online survey was used to explore the participants' perception of the content and online delivery of the Care of the Child with a Life-Limiting Condition programme. Nine sessions, comprised of five national and four regional webinars, were delivered.

Results: Attendees registered (n = 169) from throughout the Republic of Ireland, with 130 attending all webinars. Attendees stated online delivery of education increased their accessibility to highly qualified experts. The short, concise nature of sessions was well received. Online delivery and recorded sessions contributed to convenience with the ability to access and process information in attendees' own time being welcomed. However, the negative impact of losing face-to-face interactions was noted, including the opportunity to build relationships with colleagues caring for children with life-limiting conditions.

Conclusions: Results suggest that the redesigned online programme contributed to participants' knowledge, encouraged participation and increased accessibility. An e-Learning model enables specialised education to be more equitable and accessible, ensuring regional areas are not disadvantaged due to geographical remoteness from tertiary educational centres. However, the lack of face-to-face contact was acknowledged as a hindrance to socialisation and networking. When developing future programmes, focus should be put on creating opportunities for networking and social development to compensate for the lack of face-to-face contact.

1. Introduction

Children with life-limiting conditions are described as having a progressive and fatal condition or illness in which progress cannot be reversed with treatment or intervention, and where they are unlikely to survive beyond early adulthood (Health Service Executive and Royal College of Physicians in Ireland, 2017). Based on epidemiological data derived from the United Kingdom (Fraser et al., 2020), the Irish health service, the Health Service Executive (HSE) (2020), have estimated that there are 8311 children (0–18 years of age) in Ireland with a life limiting condition. These children have specific and evolving needs over the trajectory of their conditions and interact with healthcare professionals in primary, secondary and tertiary healthcare settings as they traverse through the healthcare system. Education is a crucial factor in supporting these healthcare professionals to provide safe, person-centred care for children with life-limiting conditions and their families in...
community and acute care. This paper describes the adaptation and evaluation of an existing education programme for healthcare professionals caring for children with life-limiting conditions into a nationally available online approach.

2. Background

The United Nations Convention on the Rights of the Child recognizes the need for those working with children and young people, to have received appropriate training to provide child specific care (Children’s Rights Alliance, 2010). In the Republic of Ireland (ROI), specialist paediatric palliative care consists of a single, acute based, tertiary paediatric palliative care service based in Dublin, comprised of consultants and clinical nurse specialists (Whitla et al., 2020). There is no specialist paediatric palliative service established within the community sector. The specialist service provides advice and support to community services caring for children with life-limiting conditions, but these children and their families are primarily supported by the child’s general practitioner, local paediatrician and adult community palliative care teams within their local community (Health Service Executive, 2020; Whitla et al., 2020). This situation is unlikely to change, with the expectation that the number of children requiring palliative care will exceed the existing capacity of trained and experienced paediatric palliative care specialists (Friedrichsdorf et al., 2019).

However, community palliative care services describe a sense of working in isolation, with little interactions with specialist team members (Marston et al., 2018). Within an Irish context, there are reservations amongst some adult healthcare teams that providing palliative care to children in the community is outside their scope of practice (Health Service Executive, 2020). Given these concerns, it is imperative that education and training is provided to support these services, offering a broad-based and accessible approach in understanding the needs of children with life-limiting conditions and their families, emphasizing key principles of management, and encouraging collaboration across health care teams to provide quality care (Aidoo and Rajapakse, 2018; Marston et al., 2018).

Paediatric palliative care education has been found to be more effective when it avoids a one-size fits all approach and is instead tailored to the needs of participants (Slater et al., 2018; Widger et al., 2018). Limited access to expert educators, minimal time to engage with education and training, affordability, and accessibility have been identified as common barriers to accessing paediatric palliative care education (Daniels and Downing, 2018; Marston et al., 2018). These barriers echo the findings of the Evaluation of the Children’s Palliative Care Programme in the Republic of Ireland, with staff shortages and reduced training budgets identified as further barriers (Jordan and Fullerton, 2016). Internationally, there has been a notable change in the delivery of education, particularly in relation to increasing accessibility. The International Children’s Palliative Care Network (ICPCN) has developed an internationally available educational programme consisting of e-learning and face to face elements, for professionals providing palliative care to children. Evaluation of these training programmes has shown improved knowledge, skill and attitudes when providing palliative care to children (Marston et al., 2018). These e-learning courses have been incorporated into established children’s palliative care programmes, being highly rated as clear, understandable, and useful (Daniels and Downing, 2018). In Australia, the Quality-of-Care Collaborative Australia (QuoCCA) evaluated their national children’s palliative care programme in terms of accessibility and delivery of content (Slater et al., 2018). This programme included broad paediatric palliative care principles, in addition to content which was tailored to the particular health needs of each region’s cohort of children requiring palliative care and was developed in conjunction with local champions. The programme demonstrated improvements in attendees’ knowledge, and a particular strength was its interactive approach which incorporated storytelling, parent experiences and case studies (Slater et al., 2018).

2.1. Care of the Child with a Life-Limiting Condition education programme

In the Republic of Ireland, the Care for a Child with a Life-Limiting Condition programme (CCLLC Programme) is delivered nationally by the Centre of Children’s Nurse Education (CCNE) based in a tertiary paediatric hospital system located in Dublin. The CCLLC programme was devised to create an awareness of the principles and practices of a palliative care approach amongst healthcare professionals caring for children with life-limiting conditions and their families in the community. The programme has two levels (Jordan and Fullerton, 2016):

- Level A: a 1-day introduction for health care professionals working caring for children with life-limiting conditions requiring palliative care.
- Level B: an advanced course specialising in particular education for healthcare professionals who are frequently confronted by palliative care situations.

Prior to the COVID-19 pandemic, the CCLLC programme was evaluated in terms of delivery, accessibility and regional specific content. In 2021, responding proactively to the COVID-19 pandemic and the continued demand for palliative care education, the CCLLC Level A programme was converted to an online programme of eight sessions, delivered as a partnership between the CCNE and regional Centres of Nursing and Midwifery (CNME). The one-hour sessions were delivered twice-weekly throughout February 2021 by national and regional facilitators involved in caring for children with LLC. Table 1 outlines content of the programme. The webinars were recorded and available for two weeks following the live session, with the exception of the parent session, ‘The Lived Experience’, due to the sensitive and personal nature of the content and following consultation with the parent involved. A particular feature of this adapted programme was the inclusion of sessions which were delivered by healthcare experts within the regions. The purpose of the national and regional webinars was to enable participants to access education and resources reflective of the clinical pathway of the children with LLC within their service.

The aim of this study was to evaluate a redesigned, blended education programme for nurses caring for children with life-limiting conditions across a range of healthcare settings addressing national and

| Table 1 |
| --- |
| **Course title** | **Facilitator** | **Audience** |
| Introduction to palliative care for children | Clinical nurse specialist in palliative care | National |
| The lived experience | Parent of a child with LLC | National |
| Pain and symptom management of Children with LLC | Paediatric consultant in palliative care | National |
| Self-Care for professionals | Psychologist | National |
| Shared decision making | Consultant paediatrician | National |
| Caring for a child with a life-limiting condition | Children’s nurse coordinator for Children with Life-Limiting Conditions | Regional |
| The dietician’s role in supporting the child and family | Paediatric dietician | Regional (CNME) |
| Health & social care for professionals in support the child and family | Clinical specialist in neonatal physiotherapy & neonatal development, paediatric dietician, paediatric occupational therapist and medical social worker | Regional (CNME) Mayos & Roscommon/ CNME Donegal |
| Supporting the child and family | Medical social worker | Regional |
3. Methods

3.1. Study design

A descriptive correlational design was used to explore the participants' perception of the content and online delivery of the CCLLC Level A programme. Evaluation of the programme was conducted through an online survey, distributed via email to all participants following completion of all the live or recorded webinars.

3.2. Sample

This study used a non-probability, purposive sampling method. Each CNME/CCNE advertised the CCLLC Level A programme within their own geographical area through targeted flyers, email, social media, and service users. A total of 169 learners registered for the CCLLC Level A programme with 130 completing all eight webinars.

3.3. Data collection

A short online evaluation (approximately 5 min), compromised of thirteen closed and four open questions, was devised by the programme coordinators. The closed questions in this survey were measured using five-point Likert scales (Excellent 1, Very good 2, Good 3, Fair 4, Poor 5 or Strongly Agree 1 – Strongly Disagree 5) to rate elements of the programme including the content, online delivery, the relevance of the programme, their overall rating of the programme and the extent to which it met their expectations. Respondents were also asked to rate their own level of knowledge about caring for children with life-limiting conditions before and after the programme. The open-ended questions sought the respondents’ perceptions of the overall CCLLC programme, the barriers to attending, its benefit to practice and their suggestions for improvement and future development of the programme. Completion of the programme evaluation was voluntary and anonymous with no identifying demographics requested from participants. Reminders were sent out to all participants two weeks and four weeks following delivery of the final webinar.

3.4. Data analysis

Data were summarized descriptively, using percentages and proportions of responses to Likert style questions. Differences between pre and post self-reports of knowledge and experience in the subject matters were analysed using a t-test. The significance level was set at 0.05. Analysis was carried out using Microsoft Excel 365 (version 2017).

Responses to the open-ended questions were analysed using a process of content analysis, which involved reviewing the individual responses to each question, and coding and categorising the data based on repeated patterns of presentation. The categories of data were then reviewed by the research team and through critical discussion were organised into themes.

3.5. Ethical consideration

Advice was sought from the Research Ethics Committee of the organisation to determine if ethical approval was required. It was determined that institutional ethical approval was not required because the study involved evaluation of an education programme and is part of the continuous improvement of that programme. Furthermore, the survey was anonymous, voluntary and did not include the collection of any identifying data about participants.

4. Results

Eighty-eight participants completed the online survey, representing a 68 % response rate.

4.1. Demographic characteristics

Table 2 outlines the participants’ current area of employment upon undertaking the CCLLC Level A programme. Of the 169 people from across the CCNE and CNMEs who registered to attend the programme, 130 people attended all nine live sessions (Table 3). The average attendance at the live sessions was 134 (range 130–142).

4.2. Statistical analysis

Participants were asked to rate the programme overall on a 5-point scale from poor to excellent, 100 % of participants rated the programme between ‘good’ and ‘excellent’ with 65 % of participants rating the programme as ‘excellent’. When asked if they would recommend the programme to a friend, 100 % responded ‘yes’. Participants were asked to rate a series of statements on a 5-point scale from ‘Strongly disagree’ to ‘Strongly agree’ (Table 4).

A paired-samples t-test was conducted to evaluate the difference between participants’ estimation of their knowledge and experience of caring for a child with a life-limiting condition before and after participation in the programme. There was a statistically significant increase between the score before the programme (M = 2.98 SD = 0.87) and after the programme (M = 1.94 SD = 0.42), t(88) = 0.00, p < .05. Overall, there was a 1.03-point increase in score pre and post programme (Table 5).

4.3. Analysis of open-ended questions

The majority of participants (51–69, 58 %–77 %) used the four open-ended questions in the evaluation to give their feedback on the programme and their experience of the webinar model of delivery. This feedback is captured in the themes of: Access to subject matter experts, Learning from parents, Flexibility of the webinar model, Challenges of a webinar model. These themes are summarized below, and illustrative quotes taken from the participants’ direct responses are presented in Table 6. The code of P1, P2, P3… is used to denote individual respondents.

4.3.1. Access to subject matter experts

The participants’ responses highlighted the value of including content delivered by subject matter experts in the field of children with life-limiting conditions and paediatric palliative care. This afforded the attendees the opportunity to learn from specialist healthcare professionals, and also increased their awareness of the numerous healthcare professionals, across diverse multi-disciplinary roles, that support the child with life-limiting conditions and their families. This increased visibility of services and structures within the Irish healthcare system, enabled participants to understand the complex path of the child and their family, from acute to community services. This awareness also helped to reassure participants of the value of their own role in caring for

| Table 2 | Demographic characteristics of participants. |
|---------|-------------------------------------------|
|         | Total | Community services | Acute Services | Agency |
| CCNE    | 68    | 28                 | 19             | 21     |
| CNME Donegal | 37 | 21                 | 12             | 4      |
| CNME Mayo and Roscommon | 64 | 44                 | 18             | 2      |
| Total   | 169   | 93                 | 49             | 27     |
The importance of including the voice of the family in paediatric healthcare perspective brought to attention the challenges faced by families of children with life-limiting conditions. Participants acknowledged the positive, with participants stating that the inclusion of the parents’ voices.

### 4.3.2. Learning from parents

Participants responses to the parent-led webinar were unanimously positive, with participants stating that the inclusion of the parents' perspective brought to attention the challenges faced by families of children with life-limiting conditions. Participants acknowledged the importance of including the voice of the family in paediatric healthcare education, emphasizing the unique perspective provided by the families' voices.

#### 4.3.3. Flexibility of the webinar model

The online delivery of the CLLC level A programme evaluated well, with participants commenting on the flexibility to attend from work or home which was afforded by the webinar model. The short, concise sessions were well received by participants, with several acknowledging the limited impact the sessions had on their working day. A particularly positive feature of the programme was the availability of the recorded webinars for a period of time after each live session. This allowed participants to view these at a time and place convenient to them, particularly if other commitments prevented their attendance at the live session, and to also pause and reflect on the content. While overall the

### Table 3

| Session                                                                 | Region         | Combined attendance |
|------------------------------------------------------------------------|----------------|---------------------|
| Introduction to palliative care for children                           | National       | 142                 |
| Caring for a child with a life-limiting condition                       | Regional       | 130                 |
| The lived experience                                                   | National       | 131                 |
| Pain and symptom management of children with LLC                       | National       | 136                 |
| The dietician’s role in supporting the child and family                | Regional       | 130                 |
| Health & social care for professionals in support                      | Regional       | 130                 |
| the child and family                                                   | National       | 141                 |
| Self-care for professionals                                            | National       | 135                 |

#### Table 4

| Theme                                                                 | Strongly agree | Agree | Neither agree or disagree | Disagree | Strongly disagree |
|----------------------------------------------------------------------|----------------|-------|---------------------------|----------|------------------|
| The programme content was clear and understandable                    | 60 %           | 40 %  | 0 %                       | 0 %      | 0 %              |
| The programme content was evidence based                              | 66 %           | 33 %  | 1 %                       | 0 %      | 0 %              |
| The programme content met my expectations                             | 63 %           | 36 %  | 1 %                       | 0 %      | 0 %              |
| The use of (video conferencing) was effective                         | 46 %           | 43 %  | 8 %                       | 2 %      | 1 %              |
| The use of PowerPoint Presentations was effective                     | 51 %           | 48 %  | 1 %                       | 0 %      | 0 %              |
| The use of case studies was effective                                  | 70 %           | 28 %  | 1 %                       | 0 %      | 0 %              |
| There was adequate opportunity for discussion and asking questions    | 59 %           | 36 %  | 3 %                       | 1 %      | 0 %              |

#### Table 5

| Excellent | Very good | Good | Fair | Poor |
|-----------|-----------|------|------|------|
| 9 %       | 22 %      | 49 % | 19 % | 1 %  |
| 23 %      | 66 %      | 11 % | 0 %  | 0 %  |

#### Table 6

| Question Theme | Participants' responses |
|----------------|-------------------------|
| Access to subject matter experts | The insight from a parent was invaluable, I learned so much from gaining an understanding of parent’s thoughts and wishes and experiences during such a difficult time and it made me think about how I can best support parents in my role (P46) Keep the parents in the programme, as their story very important to hear, and it keeps us professionals alert and sensitive to what is important in the care of these wonderful children and their families (P69) |
| Flexibility of the webinar model | The programme was delivered for a short duration twice weekly, which ensured I could continue with my daily work (P13) ... able to watch back and take notes or reflect (P23) Homeschooling 4 children, working as a nurse...I was able to catch up on what I missed at a later time (P28) Work commitments prevented me from attending all the talks live. However, having the recorded facility was innovative in allowing me to attend all talks around my fulltime days/night schedule (P39) |
| Losing the face-to-face connection | It is great that more people can attend but I do miss the personal interactions. (P90) Would prefer to attend in person as the discussion may be more fluid or would give the opportunity to network with colleagues (P91) |
| Accessing and navigating the webinars | I had to ask to access the first two [recorded sessions] as the time had lapsed, I didn’t realise they would lapse so quickly (P33) I had huge problems initially accessing [online platform]. Without wonderful help from the administrators...I would not have managed to access the module. (P75) Zoom on first day was full, was not let in. (P78) |
online model evaluated well, participants did acknowledge the negative impact of losing face to face interactions including the opportunity to build relationships with colleagues across the area of children with life-limiting conditions.

4.3.4. Challenges of a webinar model

Participants also provided insight into the barriers that prevented them from attending all eight webinars live. These were primarily related to managing the competing commitments of work, shift patterns, and home life. The demands of home-schooling also featured as a barrier to attending, and this reflects that the programme was delivered at a time in Ireland when, due to the COVID-19 pandemic, schools were largely closed with most students being home-schooled. The participants' own internet connectivity and the capped attendance at the live sessions were also cited by some as barriers to accessing the online webinars. Some participants cited the difficulty in accessing and navigating the platform which managed and hosted the education programme and referred to the assistance of the support personnel in enabling them to access the education.

5. Discussion

Children with life-limiting conditions are frequently cared for by adult community palliative care teams in the community (Health Service Executive, 2020; Whital et al., 2020) or by healthcare professionals in acute hospitals with varying levels experience and confidence in caring for these children. Therefore, specialised paediatric training programmes and access to professional support are needed to ensure optimal and effective care for these children and their families (Children's Health Ireland and Health Service Executive, 2021; Ramsden et al., 2021). Tailored comprehensive programmes not only increase healthcare professionals' confidence in caring for children with life-limiting conditions, but also increase the family's confidence in their healthcare providers (Clancy et al., 2020; Farrelly et al., 2019).

Online delivery of the CCLLC Level A programme created a platform and increased visibility of the qualified professionals and services available to the participants in their own regional area. It is not uncommon for community nurses to experience professional isolation, especially when working in rural settings (Ramsden et al., 2021). Literature has shown that online delivery of nurse education for community nurses can increase channels of communication with clinical experts in their fields, giving the rural workforce a sense of security while reducing their sense of isolation (Ramsden et al., 2021; Samuelson et al., 2015). This was evident in the results with participants acknowledging the loneliness associated with working in their regional communities.

Increased accessibility to qualified professionals and services has bigger implications for the continued development of education and training in paediatric palliative care. The relatively small number of children receiving palliative care in the Republic of Ireland (Health Service Executive, 2020) can limit the potential growth and development of services and expertise. Collaboration with national and international experts in paediatric palliative care, with a speciality in life-limiting conditions, can open up and promote sharing of knowledge, skills and training, thus helping build a more effective service for children and their families (Daniels and Downing, 2018; Marston et al., 2018).

Online delivery of the CCLLC Level A programme was well received by participants. A noticeable advantage of the programme was the participants' ability to access information in their own time and place of choosing. E-learning has been well documented in the literature for its convenience and flexibility (Morgan et al., 2021; Suliman et al., 2021; Jowsey et al., 2020). It is a mode of education that is particularly suitable to community nursing, where nurses work unsociable hours, across large geographical areas, and therefore are more amenable to learning outside of the traditional 9-5 h (Upchurch, 2020). The short 1-hour structure appealed to participants. This was unsurprising as short periods of teaching are noted to be easily digestible, where information is kept succinct and focused on the topic (Chicca, 2021; Morgan et al., 2021; Jowsey et al., 2020). E-learning also increases access to education for a wider cohort of learners than could attend an in-person event, as there is no class limit on the number of participants that may attend a session (Ramsden et al., 2021; Upchurch, 2020). This was exemplified in the online CCLLC Level A programme which had in excess of 100 attendees at each live session, when contrasted to the maximum of 45 attendees which could be facilitated in the previously held face-to-face sessions.

While attendance at the live online sessions was high, the participants gave insights into some of the challenges to attending the full series live, particularly work commitments and home life issues. This correlates with the recent literature on online learning which has illuminated the stress caused to healthcare professionals when trying to balance these commitments with education attendance, and the subsequent impact on learners' capacity to finish education programmes (Schuler et al., 2021; Jowsey et al., 2020). Thus, having the option for learners to view the recorded sessions at a time convenient for them is a valuable means of improving access to education and supporting learners to engage.

However, despite the positive feedback associated with online learning, participants did miss the peer-to-peer interaction that naturally occurs when attending in-person education sessions. This was expected as the classroom is perceived by learners to be richer in opportunities to stimulate learning, create interaction between learners and facilitate the sharing of experiences (McWatt, 2022; Suliman et al., 2021), none of which are easily replicated in an online situation (Suliman et al., 2021). In a longitudinal study of Italian post-graduate nursing students' experience of transitioning to online learning over the first year of the COVID-19 pandemic, Sarli et al. (2022) found that as online learning became established and normalised, the participants described the value of creating different pathways to facilitate communication and interaction, for example, through technology. Education providers need to consider incorporating strategies into programmes which help to foster a sense of community and interaction amongst learners, for example, live question and answer sessions. This is particularly important in programmes such as the CCLLC programme where the contact time in each session is brief and spread out over a number of weeks. This requires careful facilitation because, despite the value of interactive live sessions which incorporate questions from the attendees, both for those present and those who listen to the recordings, the knowledge that a live session is being recorded may inhibit learners from asking questions (McWatt, 2021).

Another barrier to full completion of the programme, identified by some participants, was limited internet access. Poor connectivity issues are unfortunately endemic in certain areas in Ireland, particularly rural areas. This is due to the incomplete implementation of the National Broadband Plan in Ireland (Farrelly et al., 2019). Some participants experienced difficulties in accessing and navigating the online platform and classroom management system used for this programme. Participants can have widely varying levels of technological ability, and it is important that learners have access to an informed resource who can support them to access the education programme, for example, a learning technologist who can assist with navigating the learners' technical issues (Suliman et al., 2021; Jowsey et al., 2020). This resource, in addition to an operations manager who supported learners who had registered with their regional CNMEs, were important to ensure the education programme was accessible to all attendees. It is critical that when designing and developing an e-learning programme, that these support roles are factored into the plans and the costs and are involved in helping to develop the programme.
6. Limitations

It is important to examine some limitations inherent to this piece of research. Limited demographic information was collected which affected the potential to explore if the findings were influenced by attendees’ role or the particular division in which they were registered on the national nursing register maintained by the Nursing and Midwifery Board of Ireland. Participant’s age, prior learning and educational qualifications were also not collected.

As this study implemented a descriptive correlational design, and not an experimental design, there was no measures taken pre attendance of the CCLLC Level A programme. All measures were taken post attendance, and as such could be influenced by the content received in the programme. In addition, the data collected consisted of self-reported measures of pre and post knowledge of the topics covered in the CCLLC Level A programme. We cannot say whether this self-reported improvement equates to an actual improvement in knowledge.

7. Conclusion

The care of a child with a life limiting condition is complicated and requires specific knowledge and skills. The limitations to both travel and in-person education imposed by the COVID-19 pandemic created the opportunity to redesign an established education programme for healthcare professionals caring for children with limiting conditions. These changes led to the programme content being delivered solely online by parents and national and regional subject matter experts.

The evaluation of this programme was largely positive with participants reporting an improvement in their knowledge and highlighting the importance of hearing the parent’s voice, having access to and the opportunity to discuss issues with national specialists in this field, and the availability of the recorded sessions after the live events. An e-Learning model provides an opportunity for specialised education to be more equitable and accessible and can help to ensure that regional areas are not disadvantaged due to their geographical remoteness from tertiary educational centres. Furthermore, this equitable distribution of educational resources allows better integration of specialised services for children as well as strengthening relationships and collaboration between multi-disciplinary teams across the primary, secondary and tertiary interfaces. This study also highlights the limitations imposed by an e-learning model, particularly in relation to the difficulty in replicating the networking which occurs within a face-to-face setting. While education in healthcare is now increasingly returning to the classroom, online education will continue to play an important role in supporting healthcare professionals to access specialised education. Therefore, when developing future programmes, attention must be paid to creating opportunities for healthcare professionals to interact and share their experiences and learning, and to create networks which will support them in the care of children with life-limiting conditions and their families.

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CRediT authorship contribution statement

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Declaration of competing interest

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References

Aidoo, E., Rajapakse, D., 2018. End of life care for infants, children and young people with life-limiting conditions: planning and management: the NICE guideline 2016. Arch. Dis. Child. Educ. Pract. Ed. 103 (6), 296–299. https://doi.org/10.1136/archdischild-2017-317267.
Chicca, J., 2021. Screencasts as a way to enhance online learning environments in nursing. Teach. Learn. Nurs. https://doi.org/10.1016/j.tel.2021.07.007.
Children’s Health Ireland and Health Service Executive, 2021. Leading the way: a national strategy for the future of children’s nursing in Ireland 2021–2031. Available at: https://healthservice.hse.ie/filelibrary/annmd/leading-the-way-a-national-strategy-for-the-future-of-childrens-nursing-in-ireland.pdf. (Accessed 24 September 2021).
Children’s Rights Alliance, 2010. The United Nations Convention on the Rights of the Child. Children’s Rights Alliance, Dublin.
Clancy, M., Taylor, J., Bradbury-Jones, C., Phillimore, J., 2020. A systematic review exploring palliative care for families who are forced migrants. J. Adv. Nurs. 76 (11), 2872–2884. https://doi.org/10.1111/jan.14509.
Davies, A., Downing, J., 2018. Increasing access to children’s palliative care education through e-learning: a review of the ICPCN experience. Int. J. Palliat. Nurs. 24 (7) https://doi.org/10.12968/ijpn.2018.24.7.351.
Farrelly, T., Flaherty, S., Healy, H., 2019. The challenges to public health nurse practice in rural Ireland. Public Health Nurs. 36 (3), 341–347. https://doi.org/10.1111/phn.12595.
Fraser, L.K., Gibson-Smith, D., Jarvis, S., Norman, P., Parslow, R., 2020. Estimating current and future prevalence of life-limiting conditions in children in England. Palliat. Med. 35 (9), 1641–1651. https://doi.org/10.1177/0269216320975308.
Friedrichsdorf, S.J., Remke, S., Hauser, J., Foster, L., Poster, A., Kolste, A., Wolfe, J., 2019. Development of a pediatric palliative care curriculum and dissemination model: education in palliative and end of life care (EPEC) pediatrics. J. Pain Symptom Manag. 58 (4), 707–720. https://doi.org/10.1016/j.jpainsymman.2019.06.008.
Health Service Executive, 2020. Clinical governance and operational arrangements for supporting a model of care for children with life limiting conditions towards the end of life in the community in Ireland, final report and recommendations. Available at: https://www.hse.ie/eng/services/publications/children/operational-and-governance-framework-for-children-with-life-limiting-conditions.pdf. (Accessed 1 October 2021).
Health Service Executive and Royal College of Physicians in Ireland, 2017. A national model of care for paediatric healthcare services in Ireland. Chapter 39: paediatric palliative care. Available at: https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/paediatric-palliative-care.pdf. (Accessed 24 September 2021).
Jordan, J., Fullerton, D., 2016. Evaluation of the Children’s Palliative Care Programme CPIC: A jointly funded programme of work arising from Palliative Care for Children with Life-limiting Conditions - a national policy. Available at: https://hospitalfoundation.ie/wp-content/uploads/2016/11/Evaluation-of-the-Childrens-Palliative-Care-Programme-2016.pdf. (Accessed 24 September 2021).
Jowsey, T., Foster, G., Cooper-Ioelu, P., Jacobs, S., 2020. Blended learning via distance in remote human anatomy education. Anat. Sci. Educ. 14 (6), 721–738. https://doi.org/10.1002/ase.2136.
Farrelly, T., Flaherty, S., Healy, H., 2019. The challenges to public health nurse practice in rural Ireland. Public Health Nurs. 36 (3), 341–347. https://doi.org/10.1111/phn.12595.
Fraser, L.K., Gibson-Smith, D., Jarvis, S., Norman, P., Parslow, R., 2020. Estimating current and future prevalence of life-limiting conditions in children in England. Palliat. Med. 35 (9), 1641–1651. https://doi.org/10.1177/0269216320975308.
Friedrichsdorf, S.J., Remke, S., Hauser, J., Foster, L., Poster, A., Kolste, A., Wolfe, J., 2019. Development of a pediatric palliative care curriculum and dissemination model: education in palliative and end of life care (EPEC) pediatrics. J. Pain Symptom Manag. 58 (4), 707–720. https://doi.org/10.1016/j.jpainsymman.2019.06.008.
Health Service Executive, 2020. Clinical governance and operational arrangements for supporting a model of care for children with life limiting conditions towards the end of life in the community in Ireland, final report and recommendations. Available at: https://www.hse.ie/eng/services/publications/children/operational-and-governance-framework-for-children-with-life-limiting-conditions.pdf. (Accessed 1 October 2021).
Health Service Executive and Royal College of Physicians in Ireland, 2017. A national model of care for paediatric healthcare services in Ireland. Chapter 39: paediatric palliative care. Available at: https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/paediatric-palliative-care.pdf. (Accessed 24 September 2021).
Jordan, J., Fullerton, D., 2016. Evaluation of the Children’s Palliative Care Programme CPIC: A jointly funded programme of work arising from Palliative Care for Children with Life-limiting Conditions - a national policy. Available at: https://hospitalfoundation.ie/wp-content/uploads/2016/11/Evaluation-of-the-Childrens-Palliative-Care-Programme-2016.pdf. (Accessed 24 September 2021).
Jowsey, T., Foster, G., Cooper-Ioelu, P., Jacobs, S., 2020. Blended learning via distance in pre-registration nursing education: a scoping review. Nurse Educ. Pract. 44 https://doi.org/10.1016/j.nepr.2020.10.077.
Marston, J., Boucher, S., Downing, J., 2018. International children’s palliative care network: a global action network for children with life-limiting conditions. J. Pain Symptom Manag. 55 (2), 104–111. https://doi.org/10.1016/j.jpainsymman.2017.03.024.
McWatt, S.C., 2021. Responding to Covid-19: a thematic analysis of students’ perspectives on modified learning activities during an emergency transition to remote human anatomy education. Anat. Sci. Educ. 14 (6), 721–738. https://doi.org/10.1002/ase.2136.
Morgan, D.D., Lister, C., Wainsall, M., Devery, K., Rawlings, D., 2021. ‘It’s given me confidence’: a pragmatic mixed-methods evaluation exploring the perceived benefits of online end-of-life education on clinical care. BMC Palliative Care 20 (57). https://doi.org/10.1186/s12904-021-00753-y.
Ramudden, R., Colbran, R., Christopher, E., Edwards, M., 2021. The role of digital technology in providing education, training, continuing professional development
and support to the rural health workforce. Health Educ. 122 (2), 126–149. https://doi.org/10.1108/HE-11-2020-0109.

Samuelson, S., Willén, C., Bratt, E.L., 2015. New kid on the block? Community nurses’ experiences of caring for sick children at home. J. Clin. Nurs. 24 (17-18), 2448-2457. https://doi.org/10.1111/jocn.12825. In press.

Sarli, L., Artioli, G., Bogotto, S., Labelli, E., Pittella, F., Guasconi, M., De Simone, R., De Luca, E., Clelia, S.R., 2022. From classroom training to e-learning: a journey through the quality of learning life of nurse students in post-graduate education: a longitudinal qualitative study. Acta Biomed 93 (2), e2022192. https://doi.org/10.23750/abm.v93i2.13086.

Schuler, M.S., Brown Tyo, M., Barnett, K., 2021. Nursing student perceptions of required online educational programs utilized outside the classroom. Nurse Educ. Today 105 (105048). https://doi.org/10.1016/j.nedt.2021.105048. In press.

Slater, P.J., Herbert, A.R., Baggio, S.J., Donovan, L.A., McLarty, A.M., Duffield, J.A., Pederson, L.C., Duc, J.K., Delaney, A.M., Johnson, S.A., Heywood, M.G., Burr, C.A., 2018. Evaluating the impact of national education in paediatric palliative care: the Quality of Care Collaborative Australia. Adv. Med. Educ. Pract. 9, 927–941. https://doi.org/10.2147/AMEP.S180526.

Suliman, W.A., Abu-Moghli, F.A., Khalaf, I., Zumot, A.F., Nabolsi, M., 2021. Experiences of nursing students under the unprecedented abrupt online learning format forced by the national curfew due to COVID-19: a qualitative research study. Nurse Educ. Today 100. https://doi.org/10.1016/j.nedt.2021.104629.

Uprichard, K., 2020. E-learning in a new era: enablers and barriers to its implementation in nursing. Br. J. Commun. Nurs. 25 (6), 272–275. https://doi.org/10.12968/brjn.2020.25.6.272.

Whitla, L., Devins, M., Molloy, E.J., Twomey, M., O’Reilly, M., Balfe, J., 2020. Children’s palliative care; the identified learning needs of paediatricians. Ir. Med. J. 113 (6), 95 (PMID: 32816430).

Widger, K., Wolfe, J., Friedrichsdorf, S., Pole, J.D., Brennenstuhl, S., Liben, S., Greenberg, M., Bouffet, E., Siden, H., Husain, A., Whitlock, J.A., Leyden, M., Rapoport, A., 2018. National impact of the EPEC-pediatrics enhanced train-the-trainer model for delivering education on pediatric palliative care. J. Palliat. Med. 21 (9), 1249-1256. https://doi.org/10.1089/jpm.2017.0532.