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Palliative Oncologic Care Curricula for Providers in Resource-Limited and Underserved Communities: a Systematic Review

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Abstract

Familiarity with principles of palliative care, supportive care, and palliative oncological treatment is essential for providers caring for cancer patients, though this may be challenging in global communities where resources are limited. Herein, we describe the scope of literature on palliative oncological care curricula for providers in resource-limited settings. A systematic literature review was conducted using PubMed, Embase, Cochrane Library, Web of Science, Cumulative Index to Nursing and Allied Health Literature, Med Ed Portal databases, and gray literature. All available prospective cohort studies, case reports, and narratives published up to July 2017 were eligible for review. Fourteen articles were identified and referenced palliative care education programs in Argentina, Uganda, Kenya, Australia, Germany, the USA, or multiple countries. The most common teaching strategy was lecture-based, followed by mentorship and experiential learning involving role play and simulation. Education topics included core principles of palliative care, pain and symptom management, and communication skills. Two programs included additional topics specific to the underserved or American Indian/Alaskan Native community. Only one program discussed supportive cancer care, and no program reported educational content on resource-stratified decision-making for palliative oncological treatment. Five programs reported positive participant satisfaction, and three programs described objective metrics of increased educational or research activity. There is scant literature on effective curricula for providers treating cancer patients in resource-limited settings. Emphasizing supportive cancer care and palliative oncologic treatments may help address gaps in education; increased outcome reporting may help define the impact of palliative care curriculum within resource-limited communities.

Keywords Palliative care · Education · Oncology · Low- and middle-income countries · Indigenous populations · Resource-limited

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Introduction

Of the 19 million adults in need of palliative care at the end of their life, nearly 80% reside in low- and middle-income countries (LMICs) and 34% have cancer [1]. The urgency to expand palliative care services in LMICs stems partially from estimations that these countries will also bear the majority of the increasing cancer incidence over the next two decades [2–4]. Yet, palliative care disparities are not unique to LMICs. Within developed countries, cancer incidence and palliative care disparities persist for geographically isolated and socially vulnerable populations [5–9]. Therefore, the provision of oncological and palliative care and the training of healthcare providers in both disciplines are relevant to millions of patients with cancer around the world, especially those diagnosed with advanced stages of disease.

Palliative care and cancer care are distinct yet closely interrelated. *Palliative care*, which focuses on symptom relief and improving quality of life for individuals with life-limiting illnesses, consists of a myriad of domains ranging from end-of-life care, communication, shared decision making, and advanced care planning to cultural sensitivity and psychosocial assessment [10]. Symptom relief options may also include *palliative oncological treatments* such as surgery, radiotherapy, chemotherapy, and endocrine therapy. Although these treatment options are frequently undertaken with curative intent, these interventions can also provide durable reduction of devastating symptoms, such as pain and bleeding [11–16]. *Supportive care* for patients with cancer, which focuses on the prevention and management of symptoms caused by cancer and its treatment-related side effects, shares many important principles with palliative care, but has traditionally been delivered within oncologic specialties [17–19]. *Palliative oncology*, which ideally encompasses all of the above facets, requires interdisciplinary involvement of physicians, nurses, social workers, nutritionists, therapists, chaplains, pharmacists, and dedicated community and family caregivers. In patients with advanced cancer, palliative oncological care becomes increasingly important to maintain a balance between treatment, its associated morbidity, goals of care, and symptom control to optimize quality of life.

Many local, national, and international efforts are underway to provide education in palliative care and oncology in resource-limited areas [20–23]. However, education for these two disciplines, which originated in the context of subspecialty medicine, only began actively integrating in the past decade. A systematic literature review of all published reports incorporating palliative care into oncology disciplines between 1948 and 2013 found only 101 articles, the majority of which were published on or after 2010 [24]. Only 45 of these articles addressed educational strategies for integration, mostly by incorporating palliative care didactics within oncology fellowships or continuing medical education. The extent to which supportive care and palliative oncologic treatment strategies are integrated into palliative care education for healthcare providers is not well defined.

It is even less clear how education programs adapt the principles of palliative oncology to underserved settings, which are in the greatest need of both services but often lack access to sub-specialized care. As resource-stratified oncology treatment guidelines are increasingly developed [15, 16, 18, 25], implementation will require education emphasizing creative approaches and thoughtful adaptations of these standards. Education topics may include task shifting to non-specialist providers [26], navigating disparities in access to radiotherapy and systemic cancer therapy, working with inconsistent availability of opioids and supportive medications or supplies, and addressing marginal housing and inadequate nutritional supplementation. As palliative care and oncology capacity increases and adaptations are developed for resource-limited settings, it is imperative to develop effective education strategies, measure the success of implementation, and share knowledge through dissemination in literature.

We anticipated that reports on the integration of palliative care and oncology education might be sparse in underserved settings. Therefore, we conducted a systematic literature review to obtain the most comprehensive assessment of the content and impact of palliative oncology education programs for healthcare providers working in resource-limited communities.

Methods

Inclusion Criteria

Prospective cohort studies, case reports, and published narratives were eligible for this review. Articles were required to contain outlines or descriptions of original curricula design for palliative care for resource-limited populations. Resource-limited populations were defined as indigenous populations, rural, uninsured or underinsured, or urban poor in developed countries, or any population in LMICs defined by the World Bank. Only full-text articles written in English were included.

Literature Search

An information specialist (PT) designed the search criteria for PubMed, Embase, Cochrane Library, Web of Science, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and Med Ed Portal databases. All available literature published prior to July 2017 was included. The search terms included "palliative care," "supportive care," "education" or "curriculum," and "resource-limited populations," "vulnerable populations," and "underserved populations" as combined keywords and Medical Subject Heading (MeSH) terms (detailed description of search terms and results in Appendix 1). When "oncology" and "cancer" was originally included in the keyword search, less than 20 articles were found. Therefore, "oncology" and "cancer" were excluded from subsequent searches. The original PubMed search was modified in Embase as a combined keyword and Emtree (index) search, and as keyword searches in the remaining databases. The Educational Resources Information Center (ERIC) database and gray literature was also queried with the same search terms (MJX, PT), but no relevant citations were found.

Study Screening and Selection

The article screening and selection process was conducted according to the Preferred Reporting Items for Systematic

Review and Meta-analyses (PRISMA) guidelines (Appendix 2). Two researchers (MJX, DS) independently screened the abstracts and classified each as "include," "exclude," or "uncertain". Abstracts classified as either "include" or "uncertain" were included in the full-text review. Two researchers (MJX, DS) independently conducted full-text reviews for the remaining studies. During full-text review, four additional relevant citations not included in the database search results were found from article reference lists and added to the review. A third researcher (TS) was consulted if necessary to achieve consensus.

Data Collection and Bias

Data extraction from each full-text article was performed independently by two researchers (MJX, DS). A data extraction form was used to designate summary measures of interest, which included the following: country of origin, target audience, curricula design, description of education topics, attention to oncologic needs, evaluation metrics, and evaluation outcomes. Biases were assessed for each study.

Results

Search Results

The results of article screening and selection are summarized in Fig. 1. The initial search identified 565 abstracts, of which 81 were duplicates and removed. The remaining 484 records were screened by title and abstract. The majority of articles were excluded (429), as they were not relevant to the search topic. The resulting 55 full-text articles were reviewed for eligibility. During full-text review, four unique articles not previously identified by the database search were identified as relevant source citations and included in the full-text review. Of all full-text articles reviewed, articles were additionally excluded if they did not describe original palliative care curricula for healthcare professionals (33) or were abstract-only and not available in full text (12).

Study Characteristics

Fourteen articles were included in data extraction and full-text review (Table 1, Appendix 3) [27–40]. The articles were published from 2004 to 2017 and referenced education programs in Argentina (2), Uganda (2), Kenya (1), Jordan (1), the USA (3), Australia (1), Germany (1), or multiple countries (3). Nine articles described palliative care curricular models in LMICs, four focused on rural or indigenous populations in Australia and the USA, and one described an international palliative care conference with attendees from both LMICs and developed countries.

Target Audience

Palliative care curricula targeted a wide spectrum of healthcare professionals. Eight articles proposed curricula for physicians, nurses, and students. Two articles specifically addressed palliative care learning for nurses, two articles focused on palliative care education for physicians, and two articles described curriculum for physicians, nurses, psychologists, social workers, chaplains, and other supportive care providers. No article specifically targeted medical or radiation oncologists. The smallest education programs were fellowships accepting 1 or 2 fellows per year [36]. The largest education programs hosted a total of 368 participants through telehealth platforms [30].

Curriculum Design

Among the included studies, all but two required in-person training. Six studies were also able to incorporate online or telehealth education into the curricula. The programs varied in length from 2 days for educational conferences to 2 years for formal palliative care fellowships.

Didactics were the most commonly used teaching strategy for 10 of the 14 curricula examined. However, other methodologies were also employed. Four studies describe mentorship or site rotation learning strategies [25, 28, 31, 32]. Three studies utilized experiential "hands-on" learning that involved role-playing exercises or simulation modules [28, 34, 36]. Additionally, Micheli et al. used social networking tools and forums as a source of continued exchange and discussion beyond their formal training sessions [34]. O'Conner et al. introduced drama and theatrical performances as a means of educating healthcare professionals about death, dying, and the burden of caring in palliative care, and Wager et al. introduced music and art therapy demonstrations [35, 39].

Education Topics

Palliative care curriculum topics varied widely across different programs (Fig. 2). Thirteen of the 14 programs include descriptions of core palliative care principles. O'Conner et al. utilized drama to initiate discussions about death and dying, but did not cover education about general palliative care [35]. Several specific key topics included pain and symptom control (10/13), communication with family members and survivors (8/13), psychosocial and spiritual care (7/13), and oncologic treatment and clinical practice (7/13). Several articles emphasized decision-making methods, cultural sensitivity, and leadership skills.

Only two descriptions of education curricula mentioned adaptations of general palliative care principles for resource-limited populations [27, 38]. Virani et al. describe the End of Life Nursing Education Consortium (ELNEC) program for

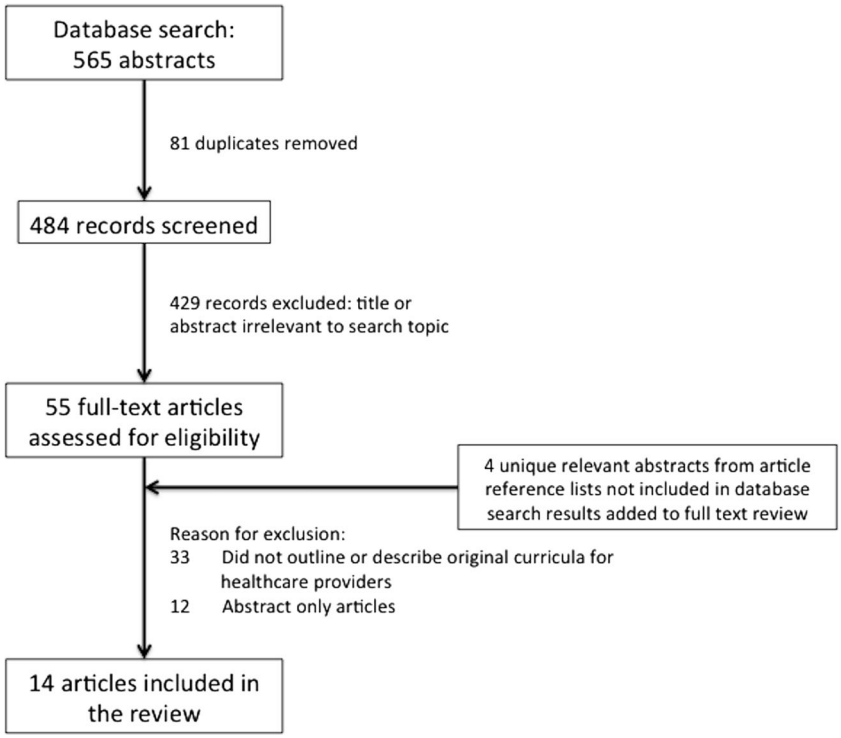

Fig. 1 Flow diagram of article selection process

public and safety-net hospitals, which was adapted from the original ELNEC curriculum to include training about cultural differences, limited English proficiency, extremely limited resources, underinsured status, homelessness, and substance abuse [38]. Arenella et al. described adaptations of the Education in Palliative and End-of-Life Care for Oncology (EPEC-O) to include issues pertinent to American Indian/Alaskan Native populations (AI/AN), such as tribal family structures, traditional Indian medicine concepts, and collaborations with traditional healers [27].

Although the Breast Health Global Initiative recommended both palliative and supportive care education for all care settings [29], we found that only one education program included supportive care education [30]. Doorenbos et al. describe the Native People for Cancer Control Telehealth Network education series, which taught rural healthcare providers about cancer treatment paradigms, symptom management, survivorship issues, end-of-life issues, and psychological aspects of cancer unique to AI/AN people.

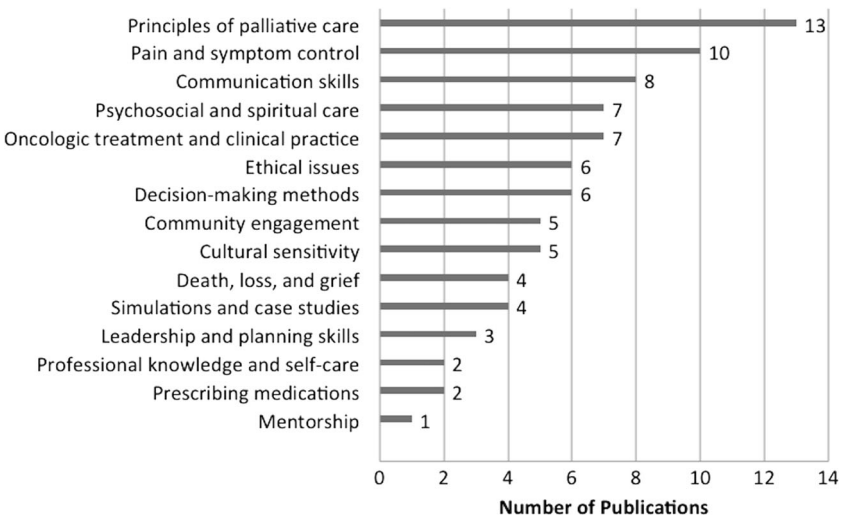

Fig. 2 Educational topics described by articles included in systematic review

Table 1 Overview of curricula. LMICs = low- and middle-income countries. AI/AN = American Indians/Alaskan Natives. ELNEC = End of Life Nursing Education Consortium. P/SN = public and safety-net

Reference, country	Audience	Delivery modality	Teaching strategy (program length)	Topics emphasized
Arenella et al. 2010, USA	Physicians, nurses, interdisciplinary providers	CD-ROMs and in--person seminar	Didactics, video vignettes, seminar discussions (3 seminars, 2.5 days each)	Pain and symptom management, communication issues, advanced care planning, palliative care needs of AI/AN based on current disease prevalence, traditional tribal family structures, traditional Indian medicine concepts, and collaboration with traditional healers
De Simone et al. 2004, Argentina	Physicians, nurses, students, social workers, psychologists	In-person	Group study, experiential learning (10 months)	Communication skills, dealing with emotions, pain and symptom relief, and family matters
Distelhorst et al. 2014, LMICs	Physicians, nurses	N/A	N/A	Supportive care resources, evidence-based pain management strategies, strategies in psychosocial and spiritual assessment, communication skills, and cultural sensitivity
Doorenbos et al. 2011, USA	Physicians	Online	Didactics (10 months)	Psychological issues in AI/AN with cancer, pain/symptom management, cancer management (including lymphoma and pediatric cancers), and pharmacological management of pain
Downing et al. 2016, Uganda	Nurses	In-person, online	Didactics, mentorship (2 years)	Conflict management, leadership skills, mentorship, self-care, and local- and national-level project implementation
Jagwe et al. 2007, Uganda	Physicians, nurses, and students	In-person	Didactics, site-based rotations (9 months)	Morphine prescription, addiction, site rotations at Hospice Africa Uganda, palliative care or HIV site, and home institution
Malloy et al. 2016, Kenya	Physicians, nurses	In-person	Didactics, text, audio (1 week)	Introduction to palliative nursing care, pain and symptom management, ethical and legal issues in palliative nursing, cultural and spiritual issues, communication, loss/grief/bereavement, and final hours

Table 1 (continued)

Reference, country	Audience	Delivery modality	Teaching strategy (program length)	Topics emphasized
Micheli et al. 2009, multiple	Physicians	Online and in--person	Didactics, experiential learning, social networking tools, forums	Cultural perspectives, pain, and symptom management
O′ Conner et al. 2003, Australia	Physicians, nurses, and students	In-person	Theatrical performances	Death and dying, burden of caring, euthanasia
Shamieh et al. 2015, Jordan	Physicians, nurses, and students	In-person	Didactics, experiential learning (3-day course, 1–2-year residency)	Inpatient palliative care, interventional procedures, and co-management with cancer treatment
Steedman et al. 2014, Nigeria, Uganda, India, Bangladesh, Myanmar, and Jordan	Physicians, nurses, and students	In-person	Didactics	Leadership training, interdisciplinary palliative care, opioid availability advocacy, interdisciplinary palliative care
Virani et al. 2014, USA	Nurses	In-person, online	Didactics (2.5-day ELNEC program), mentoring (monthly), online palliative care education (2-year subscription), annual grantee meetings, workshops	Overview of palliative care nursing in P/SN hospitals, pain and symptom management, communication, ethical/legal issues, loss/grief/bereavement, final hours, leadership within P/SN facilities, integration of best evidence into policy and practice, and models of excellence. Topics specific to P/SN hospitals: cultural differences, limited English proficiency, extremely limited resources, underinsured, homelessness, and substance abuse
Wager et al. 2012, Germany	Physicians, nurses, students, social workers, psychologists	In-person	Didactics, workshops, rounds, music, and art therapy demonstrations (7 days)	Symptom control, ethical/spiritual issues, and organization of pediatric palliative care in different countries

Table 1 (continued)

Reference, country	Audience	Delivery modality	Teaching strategy (program length)	Topics emphasized
Wenk et al. 2012, Argentina	Physicians, nurses, and students	In-person, online	1. Medical student electives (6–25 h) 2. Concurrency for physicians (2–3 years) 3. Residencies for physicians, nurses, and psychologists (2–3 years) 4. University-affiliated courses (variable) 5. Online learning offered in Buenos Aires (3 months) 6. Bus-round course (15–20 h)	Theoretical and practical case-based scenarios, discipline-specific modules for oncology, geriatrics, neurology, and pediatrics

Importantly, there were no studies that discussed decision-making for palliative oncologic treatments such as surgery, radiotherapy, or chemotherapy.

Evaluations and Outcomes

Of the 14 studies, only five (36%) reported curriculum evaluation metrics (Table 2). These included overall participant satisfaction [30, 39] and/or objective measurements of change in education, research productivity, or clinical practice [27, 28, 38]. Participant feedback was measured on Likert scales or free-text surveys and demonstrated high levels of satisfaction with overall content and curricula utility. De Simone et al. documented increases in morphine prescribing and fivefold increases in education and research work among course graduates [28]. Arenella et al. found that 57% of course graduates started new palliative services and 79% of survey responders reported using their new knowledge in daily work. Pre- and post-conference knowledge assessments showed short-term increase in scores at 2 weeks that declined at 4 months [27]. Virani et al. documented dissemination of knowledge; 100% of participants presented palliative care information to colleagues, 73% presented education modules within their facility, and 47% presented palliative care information within their community [38]. Increased participation in clinical and research activities was also seen, with 13.3% writing articles and newsletters, 73% reading palliative care publications, and 40% becoming involved in palliative care committees and task forces. The ELNEC education program also used online tools to track the scope of impact, documenting 5157 views of the 8 ELNEC modules, totaling 920 users across 16 public hospitals.

Bias

Thirteen studies were narratives or descriptions of palliative care education programs and subject to publication and reporting bias. One report was an expert consensus paper and therefore subject to cognitive bias. No studies reported unsuccessful or unsustainable education programs, which also reflected reporting bias.

Discussion

Optimal cancer care for patients living in resource-limited environments involves familiarity with palliative care, supportive care, and palliative oncologic treatment options. This systematic review of palliative oncology curricula for providers in underserved settings identified 14 relevant publications. Few studies reported outcomes, but the results were optimistic and showed increased community engagement, education, and research activity among participants. We found a lack of published curricula on supportive care, palliative oncologic treatments, and treatment decision-making, as well as heterogeneous curriculum reporting frameworks. To improve uniformity in reporting, we propose a list of essential elements of palliative oncology curricula in resource-limited settings and emphasize assessments of efficacy and adaptability (Table 3).

The importance of formal palliative care education for practitioners working among resource-limited populations is becoming increasingly recognized. Of the 14 included studies, all were published within the last 20 years, and 10 of these were published after 2010. Nine articles focused on palliative care education in LMICs and four focused on resource-limited

Table 2 Reported evaluation metrics and outcomes. ELNEC = End of Life Nursing Education Consortium

Reference, year, country	Evaluation metrics	Evaluation outcomes
Arenella et al. 2010, USA	Satisfaction rates, assess knowledge/confidence gained, and pre- and post-conference assessments (case-based, multiple choice tests)	Conference met or exceeded expectations for 95% 65% reported they were likely to change their practice as a result of what they had learned Pre- and post-conference assessments of one seminar showed increase post-seminar scores at 2 weeks (average 71%) that declined at 4 months (average 58%) 79% respondents reported using new knowledge in daily work 57% started new palliative services
De Simone et al. 2004, Argentina	Satisfaction rates, involvement in education, research work in palliative care	90% increased satisfaction and improved quality in practice Educational involvement: 5× increase Research work in palliative care: 3× increase
Doorenbos et al. 2011, USA	Satisfaction rates, and usefulness of Information	Overall satisfaction 3.60/4 Usefulness of information 3.59/4
Virani et al. 2014, USA	Satisfaction rates, rate of uptake and dissemination, rates of education, and research activity	Course stimulating and thought-provoking 4.85/5 Overall conference rating 4.76/5 Participants felt they could still effectively teach palliative care content at 6 and 18 months post-course ($p = 0.028$) 100% presented ELNEC information to staff/colleagues 73% presented ELNEC modules within their facility 47% presented ELNEC to community 13% wrote articles/newsletters 73% began reading palliative care publications 60% attended other palliative care development programs 40% became involved in palliative care committees or task forces 19,892 nurses educated in ELNEC modules 536 members of interdisciplinary team received ELNEC education 5157 view of 8 online ELNEC modules
Wager et al. 2012, Germany	Reasons for attendance	64% of participants to gain further knowledge 33% to network

populations within developed countries. While attention toward LMICs is important, equitable access to palliative care remains a relevant issue even in developed countries [7–9, 41]. Whether at public and safety net hospitals in large urban catchment areas [38] or in rural settings [27, 30, 34], healthcare practitioners are challenged to adapt palliative care principles for their patients who may be socially vulnerable, irrespective of a cancer diagnosis.

A wide variety of education strategies were described in the literature we reviewed. The majority of articles were descriptive narratives of educational activities such as formal didactics, conferences, medical school electives, rotations, teaching rounds, and fellowship programs accessible to practitioners in LMICs. Education and resources were supported by large palliative care organizations such as Worldwide Palliative Care Alliance, the International Association for Hospice and Palliative Care Association, Hospice Education Network, the National Cancer Institute, Pallium Latinoamérica, and Hospice Africa Uganda. Telehealth and online education modules were successfully employed and may represent strategic solutions for dissemination of information to practitioners with logistical or geographic limitations. The plethora of curricular objectives presents a challenge to thoughtfully match educational topics to the most effective strategies. For example, communication and cultural aspects of decision-making might require experiential forms of learning, as didactics alone may not change practice patterns among care providers [42].

Although the specifics of educational content were not always reported, it appeared that most programs emphasized core palliative care concepts. These included pain and symptom management, communication skills, cultural sensitivity, and ethics [10]. Few reports described educational modules designed specifically for resource-limited settings. The

Table 3 Proposed essential elements of reporting on palliative and supportive cancer care curriculum for resource-limited settings

Audience
- •Clearly defined target audience
- •Number of participants

Curriculum design
- •Course objectives
- •Methodology (in-person, online, didactics, experiential learning)
- •Course duration

Educational topics
- •Describe palliative care topics based on domains defined by Bickel et al. [32]. For example:
  - ○ Pain and symptom management
  - ○ Cultural sensitivity
  - ○ Psychosocial impact of disease
  - ○ Grief, loss, and bereavement
  - ○ Communication and establishing goals of care
- • Describe cancer-specific topics. For example:
  - ○ Types of cancers
  - ○ Cancer-related symptoms
  - ○ Efficacy and availability of palliative oncologic treatments
  - ○ Supportive care during cancer treatment
  - ○ Survivorship and follow-up care
- • Describe adaptations for resourced-limited communities. For example:
  - ○ Tailoring oncologic treatment regimens
  - ○ Limited/inconsistent access to medications or supplies
  - ○ Insurance and/or financial stressors
  - ○ Transportation and access to health care services and specialists
  - ○ Access to caregiver support
  - ○ Impact of structural vulnerability
  - ○ Housing and employment status
  - ○ Mental health and substance abuse issues

Metrics for evaluating outcomes
- • Clearly defined qualitative assessments. For example:
  - ○ Participant satisfaction
  - ○ Perceived improvements in skill or understanding
  - ○ Motivation for changing clinical practice
- • Clearly defined quantitative assessments. For example:
  - ○ Increased knowledge base in patients or providers
  - ○ Changes in analgesic prescriptions, opioid availability, or prescribing patterns
  - ○ Changes in referral patterns for appropriate treatment
  - ○ Increased educational or research participation
  - ○ Changes in patient outcomes (pain, presence of advanced directive, quality of life, or satisfaction)

Sustainability
- • Plan for programmatic sustainability (finances, educators, publicity)
- • Plan for dissemination of knowledge
- • Suggestions for adapting curriculum to other environments

ELNEC program incorporated topics such as navigating the care of patients with limited English proficiency, underinsured status, homelessness, and substance abuse and the Arenella et al. program discussed cultural knowledge specific to AI/AN such as understanding tribal family structures and traditional Indian medicine concepts [27]. While training programs originating in LMICs may have embedded similar topics into their curricula, these details were not available within the articles.

Educational topics more specific to oncology, such as supportive cancer care and decision-making about palliative oncologic treatments, were rarely described. The Native People for Cancer Control Telehealth Network was the only program that taught rural providers about survivorship and symptom management in the context of cancer [30]. Additional supportive cancer care topics could include skin care, wound care, gastrointestinal symptom care, physical therapy, nutritional support, and dental care to address common side effects from cancer treatment using low cost materials. Resource-stratified decision-making aids about whether, when, and how to initiate consultation for palliative oncologic treatment may be particularly valuable, but we did not find any formal or standardized curriculum about this topic. To address this gap in education about palliative oncology, we aim to partner with our affiliated public hospital, global partnership sites, palliative care department, and oncology disciplines to design a palliative and supportive care curriculum for healthcare providers working with cancer patients in resource-limited communities (Table 3).

Given the many organizations working toward improving palliative and cancer care education, we found a disproportionately small volume of published literature on curriculum metrics and evaluations. Of the five reports on outcomes, only three included both subjective and objective metrics, but these demonstrated measurable community engagement and propagation of education and research. There are many possible explanations for the low number of studies reporting educational outcomes, including lack of incentive, lack of funds or administrative support for data collection, or lack of familiarity with outcomes-based research. In addition, measuring the success of an educational program is challenging. It is not clear whether qualitative feedback is sufficient, and also unclear which quantitative metrics are most important, feasible, or relevant.

Implementation science, which focuses on translating knowledge into measured behavioral change, will likely play an important role in developing palliative oncology education [43]. The principle of iterative evaluation necessitates defining robust evaluation metrics that have heretofore been limited in published literature. The resulting data that describes an educational program's effect on providers, patients, healthcare systems, and communities can support the benefits of medical education and thus enable stronger

advocacy, dissemination, and justification for continued investment and growth.

This systematic review has several limitations. The review methodology was limited by the universality of the search terms and quality of article indexing. Although we attempted to include all related definitions of "resource-limited" and "underserved," there is no consensus MeSH term for this population. Only full-text and English articles were included, but it is possible that a number of abstracts were only presented at conferences and never published as full peer-review literature, or published in another language. Additionally, educational material may be available through a wide variety of alternative media including web modules and specialty-led conferences, or contained within large palliative care organization resource databases. Although gray literature was searched, it is possible that the search terms were not broad enough to capture the full extent of these Web-based resources. Lastly, many palliative care and education organizations may not have a practice of synthesizing their educational material or findings in peer-reviewed publications; therefore, this systematic literature review is subject to publication bias.

Conclusion

The integration of palliative care and cancer care is important for both developed and developing countries. This is the first systematic review to describe the scope of curriculum aimed at teaching healthcare providers the unique adaptations required for palliative oncologic care in resource-limited populations. We found 14 relevant reports. The content and duration of education programs varied widely, with lack of detail regarding supportive cancer care and decision-making for palliative oncologic treatments. In addition, few studies reported quantitative outcomes from their curricula. Thus, we identified a potential need for formal education about palliative oncology in resource-limited settings and propose essential elements for palliative care curriculum reporting.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflicts of interest.

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