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New Ways to Impact Primary Palliative Care Practices Using Online Continuing Education

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Abstract

Background: Healthcare professionals trained in palliative care (PC) improve satisfaction and decrease healthcare overutilization for patients with serious illness and their families. A continuing education (CE) series on primary PC aligned to the National Clinical Practice Guidelines for Quality PC was developed by local, interdisciplinary experts for a target audience of rural, primary care healthcare professionals. The modules were accessed on an online learning management system platform.

Objective: The study objectives were to assess differences in participants' knowledge, competence, performance, and ability to improve patient care as well as commitment to change practice after taking each of the CE modules.

Design and Methods: To achieve these objectives, a descriptive design was used with a convenience sample of healthcare professionals who registered for the CE series and completed at least one module. Participants completed demographic questions and an evaluation survey after completing each module.

Results: So far, 158 healthcare professionals have registered for the series with the majority being nurses and social workers. Although the professionals reported having extensive healthcare experience, they did not report having the same level of PC experience. The professionals represent nine different states. All the CE modules increased teamwork skills for most participants. The CE modules on cultural aspects and self-care had the biggest influence on participants' ability to improve patient outcomes. Cultural aspects, care of the actively dying, and advance care planning had the greatest impact on participants' knowledge, competence, and performance.

Conclusion: The primary PC education series improved self-reported skills in teamwork, practice habits, and meeting goals of healthcare professionals from a variety of disciplines and settings. These enhanced primary PC skills will improve the incorporation of PC into a variety of practice settings, by multiple disciplines to enhance access to PC outside of, and potentially referrals to, specialty PC programs.

Palliative care (PC) is an emerging field of healthcare aimed at positively affecting patients living with serious illness and their families. An important factor that influences a health professional's successful delivery of PC may be their knowledge, experiences, and confidence. PC training provided to healthcare professionals improves patients' and healthcare professionals' satisfaction and reduces healthcare expenditures through cost savings and cost avoidance.[1,2]

Keywords: continuing education, enduring material, on demand, online, primary palliative care

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Background

Primary care clinics are often the first point of contact in managing patients living with serious illness. The healthcare professionals often have developed long-term relationships and know the family and background of the patients; this is particularly true in the rural settings.[3] Rural residents have less access to specialty PC services when compared with urban residents.[4,5] At times, healthcare professionals in rural regions must coordinate with specialty professionals to manage more complex or difficult cases. This is especially true for patients living with serious illness given the complexity associated with identifying resources to assist with coordination of care in a rural setting. Common challenges are specialty professionals not being familiar with local resources and patients traveling great distances to access resources.[6]

Continuing professional development is a responsibility of all healthcare professionals; however, there are many barriers impacting rural healthcare professionals' ability to obtain necessary continuing education (CE). These barriers include long travel distances to attend education modules, geographic isolation, lack of financial support, and inadequate staffing.[7] The coronavirus disease 2019 (COVID-19) pandemic further highlighted the difficulty in obtaining adequate CE with limited face-to-face education opportunities available; thus, healthcare professionals were prompted to seek online training and education to meet the requirements of their profession.[4]

In 2018, the South Dakota Palliative Care Network (SDPCN) conducted focus groups with healthcare professionals, patients, and families across the state of South Dakota to better understand the perceptions and needs of PC, especially in rural areas. A key finding of this study was that many patients, families, and healthcare professionals do not understand PC and how it differs from hospice care.[8] To address this finding, the SDPCN received a Rural Health Network Development (RHND) grant which pulled together partners from clinical practice and academia to focus on increasing PC awareness and knowledge[9] with a consistent approach and message, including a standard definition. The first step was the collaborative development of 11 free, online learning modules for CE focusing on primary PC. Primary PC is defined as 'Palliative care that is delivered by health care professionals who are not palliative care specialists . . . [and] are not certified in palliative care'.[10]

Primary care clinicians must be competent in primary PC skills[11] and have a duty to provide primary PC wherever they practice.[12] Primary PC skills are best learned from those who are trained and work as part of a specialty PC team. Fellowship trained physicians, certified advanced practice providers, and their team members have additional knowledge, skill, and expertise in the care of patients living with serious illness and their families. In challenging the norm of offering education only in a face-to-face setting, the RHND grant allowed the project team to develop and offer online CE modules. Participation included CE credits for multiple disciplines and access to additional resources.

Development of the continuing education series

A CE planning committee was formed to meet the requirements of Joint Accreditation Standards for Interprofessional Continuing Education,[13] including representation from multiple disciplines, a variety of practice locations, and different health systems. With a goal of creating accessible, high-quality education, the CE modules were created for rural, primary care healthcare professionals wanting to learn about PC. A significant need for PC training was identified, as PC delivery lacks consistency when incorporated into primary care. The professional practice gaps identified for current healthcare professionals were not knowing:

- The difference between PC and hospice.
- What benefits PC can provide patients and families.
- Having the knowledge and skills to incorporate PC into primary care.

To determine the best design for the educational series on primary PC addressing the mentioned practice gaps, the CE planning committee identified three necessary items for the education: (1) Recruit local experts in the topic area to ensure applicability to the state's frontier and rural areas; (2) Complete disclosures to mitigate conflicts of interest; and (3) Develop evidence-based education. The committee decided to base the CE series on the latest edition of the National

Consensus Project Clinical Practice Guidelines for Quality PC 4th ed (NCP Guidelines).[12] The CE planning committee also determined the large-scale education series desired it to be available from a single access site *versus* education scattered among the individual member organizations would be most impactful. Using the framework of the eight domains from the clinical practice guidelines,[12] the content was divided into CE modules that were approximately 1 h in length. With the intent of creating education relevant for several healthcare disciplines, the type of CE credit offered varied based on the professions the education was targeted to reach (Table 1).

The initial educational delivery design was to have live presentations which would be recorded and available for on-demand learning on an online learning management system (LMS) platform. This decision to offer online on-demand education delivery was changed due to the geographical area of the target audience, which represents the entire state of South Dakota as well as the financial and time constraints it would put on facilities to offer live modules for in-person learning. In addition, the large geographical distances from urban facilities to rural facilities with content experts continued to justify the value of online education delivery.

The goal of the CE planning committee was to have the first live session by July 2021; however, the COVID-19 pandemic offered additional constraints. The presenter for the first session was rescheduled multiple times due to practice obligations. Due to the new demand COVID-19 had placed on healthcare, the planning committee pivoted how the education was going to be offered. Instead of having both live and on-demand education, the change was made to only offer online on-demand education as it allows for the greatest flexibility for speakers as well as the greatest access for the healthcare professionals. The first education offering in the series was launched on 15 September 2021. Ultimately, 10 additional modules were recorded and placed on the LMS platform and offered at no cost with open access at any time for healthcare professionals who want to learn more about primary PC.

An important part of the educational evaluation was functionality of learning and evaluation, which is measured by the commitment to change evaluation section. This evaluation section provides information regarding what participants learn right away and long-term changes participants plan to make to their practice or approach to practice and ultimately, if successful incorporation of those changes into their practice.

Once education was created, the next step was making others aware of the free educational series. Marketing the series started through the SDPCN quarterly newsletter to over 250 members. Marketing was augmented by the directors of the SDPCN presenting to almost 1000 people in the upper Midwest and the CE planning committee members sharing through their own networks, key collaborators in PC, and healthcare settings. The opportunities to share the PC education series expanded as the network grew and the number of available CE modules increased throughout the study.

Objective

The study objectives were to assess differences in participants' knowledge, competence, performance, and ability to improve patient care as well as commitment to change practice after taking each of the CE modules.

Design and methods

A descriptive research design was conducted to achieve these objectives. A convenience sample of healthcare professionals who registered and completed at least one CE module within the primary PC education series was utilized. The study was determined to be exempt by the Institutional Review Board at the health system that manages the LMS platform.

To meet the Joint Accreditation Standards for Interprofessional Continuing Education,[13] the post-evaluation survey completed by participants is a standardized survey template required by the CE department. Based on approximately 12,000 participants per year, the survey questions are analyzed by the CE department annually for continuous improvement. The evaluation survey assesses: (1) Effect on teamwork skills (5-point Likert-type scale from Strongly Agree to Strongly Disagree); (2) Change in knowledge, competence, performance, and ability to improve patient outcomes (Answer choices are: No change, No, Yes); and (3) Meeting professional and personal

Table 1. CE module descriptions for primary PC series.

Module title	Clinical practice domain	Description	Content expert	Release date	CE credit offered
What is PC?	Domain 1: structure and processes of care	Basics of palliative medicine/care	Certified nurse practitioner with a certification in hospice and PC	15 September 2021	Nursing (ANCC), Nursing Facility Administrator (SD Board), Physician (ACCME), Social Work (SD Board)
Advanced care planning what, why, when, & how	Domain 1: structure and processes of care	The factors and impact of advance care planning and recommend next steps	MSW, CSW-PIP with advanced hospice and PC certification	11 January 2022	Nursing (ANCC), Nursing Facility Administrator (SD Board), Physician (ACCME), Social Work (SD Board)
Goals of care conversation	Domain 1: structure and processes of care	Provides a review and describes the multiple factors that impact goals of care conversation and provide next steps	Fellowship trained PC physician	11 January 2022	Nursing (ANCC), Nursing Facility Administrator (SD Board), Physician (ACCME), Social Work (SD Board)
Physical aspects of PC	Domain 2: physical aspects of care	Addresses the physical aspects of palliative care, including common disease processes, screening tools, and symptom management	Certified nurse practitioner with a certification in hospice and PC	17 January 2022	Nursing (ANCC), Nursing Facility Administrator (SD Board), Pharmacy (SD Board), Physician (ACCME), Social Work (SD Board)
Social aspects of care and the importance of a psychosocial assessment	Domain 4: social aspects of care	The multiple psychosocial factors that impact outcomes in palliative care and provide recommendation for assessment and intervention	MSW, CSW-PIP with an advanced hospice and PC certification The second expert at MSW and certified in hospice and PC	17 January 2022	Nursing (ANCC), Nursing Facility Administrator (SD Board), Physician (ACCME), Social Work (SD Board)
Introduction to the incorporation of basic ethics principles into the provision of primary PC	Domain 8: ethical and legal aspects of care	A brief introduction to basic ethics principles in primary PC. Review standard clinical ethics principles and framework to integrate clinical ethics considerations	Medical doctor with over 20 years in primary care. Also, a master's degree in health care Ethics and board certified in Hospice and PC and Family Medicine	17 January 2022	Nursing (ANCC), Nursing Facility Administrator (SD Board), Physician (ACCME), Social Work (SD Board)
Spiritual, religious and existential aspects of PC	Domain 5: spiritual, religious, and existential aspects of care	Provide an understanding of spiritual, religious and existential aspects of palliative care	Doctor of Ministry and an EdD in Pastoral Community Counseling. Board-Certified Chaplain and a published author	22 March 2022	Nursing (ANCC), Nursing Facility Administrator (SD Board), Physician (ACCME), Social Work (SD Board)

(Continued)

Table 1. (Continued)

Module title	Clinical practice domain	Description	Content expert	Release date	CE credit offered
Inequities in PC and hospice care	Domain 6: cultural aspects of care	An introduction to understanding of inequities in palliative and hospice care	PhD prepared RN with advanced education in anthropology American Indian Studies and certified in hospice and PC	12 April 2022	Nursing (ANCC), Nursing Facility Administrator (SD Board), Pharmacy (SD Board), Physician (ACCME), Social Work (SD Board)
Self-care in PC	Domain 1: structure and processes of care	Demonstrates the importance of self-care, an understanding of burnout and compassion fatigue and their relation to PC	A master's prepared clinical psychologist, and in preparation of doctor of philosophy, in mental health	12 April 2022	Nursing (ANCC), Nursing Facility Administrator (SD Board), Physician (ACCME), Social Work (SD Board)
Great Plains Native American Culture (Spiritual/ Psychosocial) Lens on PC	Domain 6: cultural aspects of care	Information about the Great Plain tribes' customs, beliefs, and protocols as it relates to PC. Strategies and guidance on how to apply to the healthcare setting	A master's prepared Mental Health instructor, Certified Chemical Dependency Counselor II, and a trainer in cultural norms, customs, and values of Native American Tribes in the Great Plain region	31 May 2022	Nursing (ANCC), Nursing Facility Administrator (SD Board), Physician (ACCME), Social Work (SD Board)
Care of the actively dying patient	Domain 7: care of the patient nearing the end of life	Depict what caring for a person nearing the end of life, or actively dying and techniques on how to apply to provide whole person care in any healthcare setting	A fellowship trained PC physician	18 July 2022	Nursing (ANCC), Nursing Facility Administrator (SD Board), Pharmacy (SD Board), Physician (ACCME), Social Work (SD Board)

PC, palliative care; MSW, master of social work; CSW-PIP, certified social worker in private, independent practice.

goals as well as influence on practice habits (5-point Likert-type scale from Strongly Agree to Strongly Disagree). Learners are also able to enter comments at the end of the evaluation survey (see Appendix 1).

Data collection

Within the LMS platform, learners were required to register once for the series rather than for each CE module to prevent duplication of data. The registration form contained demographic questions and permission to use their de-identified data in this study (see Appendix 1). Upon completion of the registration form, the learner was sent a code which allowed them to take all CE modules. This code was sent to each learner whether or not they gave permission for their data to be used in this study. Individual CE modules cannot be taken unless they have the code and have registered for the series which facilitated collection of data.

After completion of each CE module, a post-evaluation survey is available to the learner within the CE portal. To earn CE credits, the learner must take this post-evaluation survey, aiding data collection. As part of the initial evaluation, learners identify what changes to their practice they anticipate making and how long it will take to implement. The second phase of evaluation was not required to be completed for the learner to be awarded CE credit. This phase entailed learners being able to select 30, 60, or 90 days at which time the long-term survey was sent to identify what changes to their practice they were able to successfully implement or what barriers they encountered in doing so.

Data analysis

The data for this study were exported from the LMS platform and analyzed for descriptive statistics. The evaluation comments were read for exemplars and constructive feedback of the CE series. Only data from learners who gave permission for their de-identified data to be used in this study were analyzed.

Results

For the period of 15 September 2021 to 30 December 2022, 158 healthcare professionals registered to participate in the primary PC education series. Most of the healthcare professionals were nurses [licensed practical nurses (LPNs), registered nurses (RNs), advanced practice registered nurses (APRNs)] and social workers who worked for the health system that manages the online LMS and practiced in a hospital or clinic setting. The healthcare professionals were mainly Caucasian and 25–44 years old. While 55% of the healthcare professionals reported having 10 years or more of healthcare experience, only 23% reported having 10 years or more of palliative and end-of-life care experience (see Table 2).

When the healthcare professionals registered for the series, they entered their zip codes which were analyzed to determine the geographical impact of the CE series. Participants were from nine states in the United States (see Figure 1).

To discover the rural and frontier *versus* urban locations of the participants, zip codes of the participants from South Dakota were grouped according to the state's 66 counties (see Figure 2). The state is made up of 66 counties. Participants represented 3 urban, 17 of the 25 rural, and 6 of the 38 frontier counties in the state.

Participation in the various modules varied and has been impacted based on how long the module has been available on the LMS platform. The first module to be available on the LMS platform was *What is Palliative Care?*, which has had the most participation with 76 participants. The next 10 modules became available over the subsequent 10 months with varying numbers of registration and completions of the evaluation (see Table 3).

Teamwork skills were positively impacted by the CE series with 90% or more of the participants indicating these skills increased due to the education. While an unanticipated finding, it is a key finding since quality PC is delivered by an interdisciplinary care team. Table 4 shows participants who indicated they strongly agreed or agreed the CE module enhanced their teamwork skills. Most participants reported being able to apply what they learned in the module to work in a team environment, which included being better able to collaborate and communicate with multidisciplinary teams as well as state how teamwork contributes to patient care.

The CE module on *Great Plains Native American Culture* demonstrated the greatest impact on participants' self-reported increase of knowledge, competence, and performance as well as ability to improve patient outcomes. The second highest impact in participants' self-reported increase of knowledge, competence, and performance was related to the CE module on *Care of the Actively Dying*, followed by *Advance Care Planning*. The CE module on *Self-Care* showed the second greatest impact on participants' self-reported ability to improve patient outcomes followed by *Advance Care Planning and Spiritual/Religious Aspects of Care* (see Table 5).

Participants who indicated they agree or strongly agreed to the questions 'How well did this educational offering meet my professional development goals?', 'Is the content of this activity likely to influence your practice habits?', and 'Were your personal objectives met?' are shown in Table 6. Overall, participants indicated the education met their professional development goals (76.9%), will influence their practice habits (91.8%), and felt their personal objectives were met (99.4%).

Table 2. CE series registrants' demographics.

Education registration questionnaire	Nursing	Social workers	APP	Students	Physicians	Pharmacists	Chaplain	Others	Total	
Registration	65	34	19	13	7	3	2	15	158	
Percentage	41%	22%	12%	8%	4%	2%	1%	9%		
Current practice setting	65	34	19	13	7	3	2	15	158	Percentage
Academia	3	1	4	1	1	0	0	0	10	6%
Clinic	13	3	4	3	3	0	0	5	31	20%
Hospice/home health	5	7	0	0	0	0	0	1	13	8%
Hospital	29	15	8	3	3	3	1	1	63	40%
Specialty	4		3	0	0	0	0	0	7	4%
Nursing home	5	2	0	4	0	0	0	0	11	7%
Other	6	6	0	2	0	0	1	8	23	15%
Age	65	34	19	13	7	3	2	15	158	Percentage
<18 years	0	0	0	0	0	0	0	1	1	1%
18–24 years	5	1	0	6	0	1	0	6	19	12%
25–34 years	17	9	9	3	0	1	0	3	42	27%
35–44 years	15	11	4	2	1	0	0	3	36	23%
45–54 years	11	8	3	2	3	0	0	0	27	17%
55–64 years	13	3	3	0	0	1	2	1	23	15%
65–74 years	3	2	0	0	3	0	0	1	9	6%
75 years and older	1	0	0	0	0	0	0	0	1	1%
Describe self/race	65	34	19	13	7	3	2	15	158	Percentage
Caucasian	60	31	18	10	4	3	2	12	140	89%
Asian	1	1		0	1	0	0	0	3	2%
Hispanic	1	0	1	1	0	0	0	0	3	2%
Native American	1	1	0	0	1	0	0	2	5	3%
Black/African American	1	0	0	1	0	0	0	0	2	1%
Other/prefer not to answer	1	1		1	1	0	0	1	5	3%
Healthcare experience	65	34	19	13	7	3	2	15	158	Percentage

(Continued)

Table 2. (Continued)

Education registration questionnaire	Nursing	Social workers	APP	Students	Physicians	Pharmacists	Chaplain	Others	Total	
None/zero	0	1	0	2	0	0	0	1	4	3%
<1 year	2	1	1	1	0	0	0	1	6	4%
1–2 years	1	2	0	2	0	1	0	3	9	6%
3–5 years	7	3	1	2	1	1	0	1	16	10%
6–10 years	13	8	6	3	0	0	0	5	35	22%
10–20 years	16	12	4	1	1	0	1	2	37	23%
20 years or more	26	7	7	2	5	1	1	2	51	32%
PC and EOL experience	65	34	19	13	7	3	2	15	158	Percentage
None/zero	9	7	3	3	0	2	0	7	31	20%
<1 year	6	5	3	1	0	1	0	3	19	12%
1–2 years	8	2	4	5	0	0	0	0	19	12%
3–5 years	12	5	2	0	2	0	0	1	22	14%
6–10 years	13	8	3	2	0	0	2	2	30	19%
10–20 years	10	5	2	2	3	0	0	2	24	15%
20 years or more	7	2	2	0	2	0	0	0	13	8%

CE, continuing education; EOL, end of life; PC, palliative care; APP, advanced practice provider.

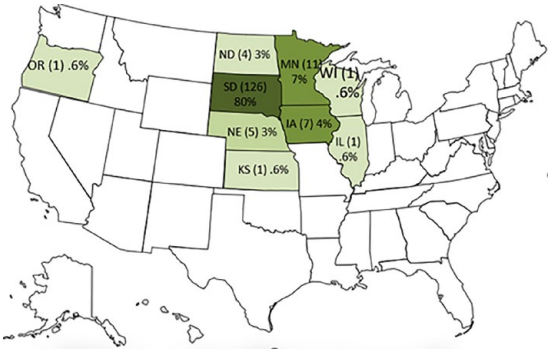

Figure 1. States represented by the healthcare professional participants.

After completing each CE module, participants were asked which areas of practice they were planning to change because of completing the module. Participants were able to select multiple practice areas to change (see Table 7). The changes in practice area with the highest selection were patient education, followed by clinical/patient interprofessional communication and teamwork.

In addition, participants could add free text comments after completing each CE module which further demonstrates how the modules will impact their practice. Many of these comments focused on asking patients or their families more specific questions related to PC (see Table 8).

As part of the evaluation, open-ended questions were available for participants to provide feedback for improvement of future CE modules (see Table 9). Many of the positive comments as well as the areas for improvement focused on the value of having engaging education and

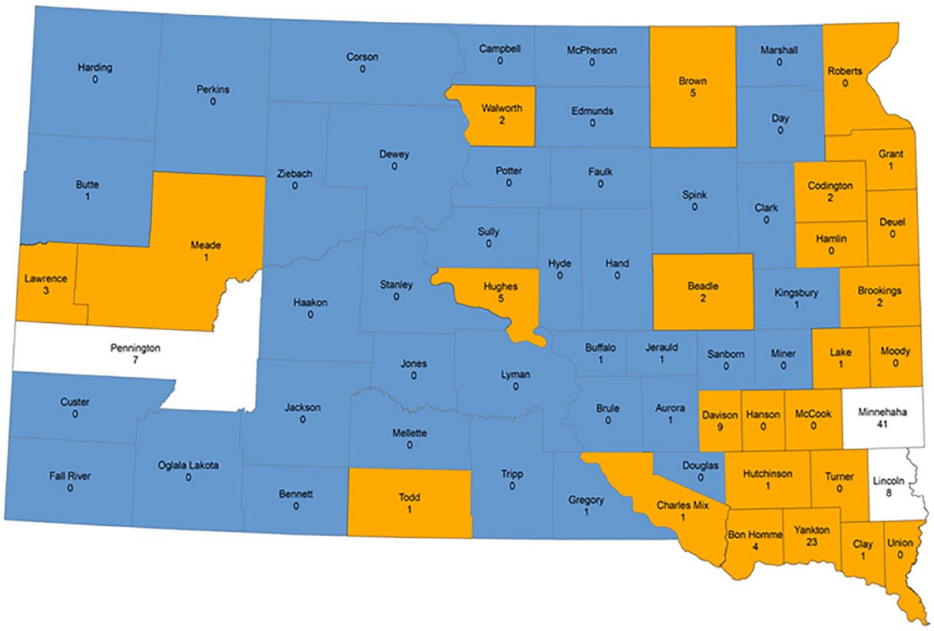

Figure 2. Counties in South Dakota represented by the healthcare professional participants.
Frontier 38 of 66 South Dakota counties are frontier (less than 7 person per square mile).
Rural 25 of 66 South Dakota counties are rural (population under 50,000).
Urban 3 of 66 South Dakota counties are urban (population over 50,000).
Map adapted from county level map created by South Dakota Department of Health based upon US Census Bureau 2020 population estimates.[14]

high-quality presenters. The participants' self-identified commitments to change their practice were varied, but largely focused around increasing communication and awareness of PC with patients and within their interdisciplinary teams. Upon follow up at the selected 30-, 60-, or 90-day time frame, a few participants were already able to self-report they had successfully changed their practice. The majority who were successful in implementing changes were concentrated around increasing PC communication or discussion and including PC content into nursing programs (see Table 9).

Overall, 90% of the healthcare professionals can explain how teamwork contributes to continuous and reliable patient care and 41.4% felt they would be able to improve patient outcomes due to this education. In addition, nearly all participants felt this education would influence their practice habits and it met their personal objectives of participating in the education. Further data collection and analysis will occur; however, these findings are very promising.

Discussion

Alignment of the primary PC education series to the NCP Guidelines[12] promotes access to quality PC by bringing PC knowledge to additional healthcare professionals who will be able to incorporate it into their practice teams. In addition, it fosters consistent standards and encourages continuity of PC across care settings.

The CE planning committee recruited local healthcare experts across different healthcare systems, settings, and disciplines as speakers which promotes shared responsibility across all disciplines for delivery of quality PC. The intention of offering CE credits for several disciplines was effective as participants represented more than six disciplines. Coupling this with the positive impact on teamwork skills by nearly all participants, the primary PC education series promotes interdisciplinary care which is key to quality PC delivery.

The goal of educating rural, primary care healthcare professionals was partially met as two-thirds

Table 3. Number of participants and evaluations per CE module.

	Participants *N*	Completed evaluations *N* (%)
What is PC	76	59 (78)
Advance care planning	20	13 (65)
Goals of care	20	18 (90)
Physical aspects	22	10 (45)
Social aspects	22	14 (64)
Basic ethical principles	27	17 (63)
Spiritual, religious	18	13 (72)
Inequities	21	16 (76)
Self-care in PC	16	12 (75)
Great Plains culture	21	11 (52)
Care actively dying	16	11 (69)
Total	279	194 (70)

CE, continuing education; PC, palliative care.
The first 9 participants who completed the Physical Aspects of Care module had the incorrect evaluation survey attached to their course. Due to this evaluation being different, those participants' evaluation data was excluded from the analysis. Their completion of the course, however, was reported as a participant in the course.

of the rural counties and six frontier counties had healthcare professionals participate. This education series has the potential to address the known PC access gap in rural areas of the state[8] by educating healthcare professionals in those areas in primary PC. This is a foundational step on which to build upon to fulfill the SDPCN's mission to improve access to PC across the state.

An unanticipated finding was that the number of years of healthcare experience was not associated with the number of years of palliative and end-of-life care experience. Their perspective on having less experience in palliative and end-of-life care may be their motivation to participate in the CE series. Due to this reported lack of PC experience, it can be deduced that they are likely practicing outside of a PC setting which was the intended audience for this series. Furthermore, the participants reported the education will likely influence their practice and ability to improve patient outcomes. This is a step toward universal access to PC.

Overall, just under half of the participants self-reported that the CE modules increased their knowledge, competence, and performance. The participants' experience in PC may have contributed to these evaluation results as 56% of participants had 3 years or more of PC experience (see Table 2). They may have been exposed to this introductory information during their healthcare experience; hence, not reporting the CE modules increased their knowledge, competence, and performance along with meeting their professional development goals.

While the majority of participants did not report an increase in their knowledge, competence, and performance, the vast majority (91.8%) reported the education would influence their practice habits. The target audience for this education was broad with the majority having more than 10 years of healthcare experience, which may explain this contradiction. Another explanation is they had an increase in their comfort in applying existing knowledge or being able to apply existing knowledge in a palliative care context after completing the modules. Other possible explanations are the participants' interpretation of the questions and

Table 4. Impact of education on teamwork.

	I intend to *apply the knowledge* and skills I have acquired from this activity to my work when in a team environment	I am better able to *collaborate* with a multidisciplinary team	I am better to *communicate* with other members of a multidisciplinary team as a result of what I learned in this activity	I am better able to discuss how teamwork can *contribute* to continuous and reliable patient care
What is PC	92%	90%	90%	88%
Advance care planning	92%	77%	92%	100%
Goals of care	95%	95%	95%	95%
Physical aspects	90%	90%	90%	80%
Social aspects	93%	93%	93%	93%
Basic ethical principles	94%	88%	88%	75%
Spiritual, religious	92%	77%	85%	92%
Inequities in PC and hospice	94%	81%	81%	81%
Self-care in PC	75%	92%	92%	92%
Great Plains culture	100%	91%	91%	91%
Care actively dying	100%	91%	91%	100%
Total average	92.5%	87.7%	89.8%	89.7%

PC, palliative care.

motivation for completing the modules which may influence the evaluation responses.

Lessons learned

The CE planning committee's decision to provide online on-demand education *versus* live education sessions was challenging as it was a shift from the original planned education delivery format. The committee planning members were unsure as to whether this education delivery method would be well-received by healthcare professionals. Ultimately, the flexibility and cost-effectiveness associated with the online on-demand education sessions may have increased access and allowed healthcare professionals who otherwise may not have been able to attend live sessions to obtain the PC education.

Early engagement with the CE planning committee ensured feasibility of the design and roll out of the education related to the technology available for the project. Thinking about the end objective and how the learners would experience the education from start to finish was key. The first technology-related challenge was collecting participant demographic information once, instead of each time a module was completed. Due to the available technology software, one registration page for the entire series was implemented. After completing the registration page, the participant received an email with an all-access code for the series. As a result of this approach, several questions regarding the access code were received from participants. A second technology-related barrier experienced was the follow-up survey as it did not allow customization which prevented the preference to ask targeted long-term follow-up questions in addition to changes made in their practice. Evaluating the availability and limitations of technology or potential vendor partnerships early was another key in determining educational program functional abilities and required technological support.

Extensive discussion surrounding potential resources on which to base the PC education series occurred throughout the early planning

Table 5. Impact of education on self-reported clinical performance.

	Activity increased my knowledge	Activity increased my competence	Activity increased my performance	This will improve my patient outcomes
What is PC	49%	41%	47%	37%
Advance care planning	62%	46%	54%	46%
Goals of care	39%	44%	44%	39%
Physical aspects	60%	30%	40%	40%
Social aspects	29%	21%	29%	29%
Basic ethical principles	44%	38%	38%	25%
Spiritual, religious	46%	31%	38%	46%
Inequities in PC and hospice	44%	19%	31%	25%
Self-care in PC	33%	33%	50%	50%
Great Plains culture	73%	73%	55%	73%
Care actively dying	64%	55%	55%	45%
Total average	49.4%	39.2%	43.7%	41.4%

PC, palliative care.

Table 6. Impact of education on professional and personal goals.

	How well did this educational offering meet my professional development goals?	Is the content of this activity likely to influence your practice habits?	Were your personal objectives met?
What is PC	76%	92%	100%
Advance care planning	62%	92%	100%
Goals of care	83%	89%	100%
Physical aspects	80%	90%	100%
Social aspects	71%	79%	93%
Basic ethical principles	63%	81%	100%
Spiritual, religious aspects	96%	93%	100%
Inequities in PC and hospice	75%	94%	100%
Self-care in PC	50%	100%	100%
Great Plains culture	90%	100%	100%
Care actively dying	100%	100%	100%
Total average	76.9%	91.8%	99.4%

PC, palliative care.

Table 7. Impact of education on commitment to change.

Module name	Participant who completed CTC evaluation	Commitment to change (CTC) area (select all that apply)	Diagnosis and screening	Treatment	Clinical/patient interprofessional communication	Quality improvement	Safety	Teamwork	Patient education	Other	The average on a scale from 1 to 10, how confident are you that you will be able to make this change? (1 = Not at all to 10 = Completely)
What is PC	55	92	5	6	15	7	2	22	33	2	7.9
Advance care planning	12	13	0	1	4	1	0	2	5	0	7.3
Goals of care	17	22	0	2	8	1	0	3	8	0	8.0
Physical aspects	10	19	3	6	2	1	0	1	6	0	8.2
Social aspects	13	16	0	1	5	2	0	3	4	1	7.3
Basic ethical principles	15	20	1	1	3	3	0	3	6	3	7.5
Spiritual, religious	12	13	0	2	2	2	0	3	3	1	7.5
Inequities in PC and hospice	14	15	0	2	2	3	0	3	4	1	7.1
Self-care in PC	11	14	1	1	1	1	0	4	3	3	7.6
Great Plains culture	11	15	1	3	5	2	0	1	3	0	7.1
Care actively dying	11	12	0	2	3	1	0	1	5	0	8.2
Total	181	251	11	27	50	24	2	46	80	11	7.6 (Average)

PC, palliative care.
Participants were able to choose more than one commitment to change areas.

Table 8. Participant quotes on discussing PC with patients and families.

- 'I plan to initiate questions of faith support in goals of care discussions with families who are struggling with what decision to make'.
- 'I plan to have a more formal structure to my conversations with patient families who are on the fence about aggressive tx [treatment] vs comfort-oriented end goals'.
- 'Ensure upon admission if a patient is able to make their own decisions. If able, talk with them about what they would want to happen to them if they were not able to make their own decisions and who they would want to make those decisions for them'.
- 'This course will allow me to better discuss Palliative care in an informed matter with medical personnel and my teammates'.
- 'Will now better understand responses, body language, punctuality of NA [Native American] living a traditional life style'.

PC, palliative care.

stages. Study results support the decision to base the series on the latest edition of the NCP Guidelines[12] as it was effective in meeting the goals of the education and providing a comprehensive evidence-based PC CE series for healthcare professionals.

Future directions

During the evaluation at the end of each CE module, participants were required to identify an area of their practice they intended to change related to participating in the education. A long-term evaluation was conducted to determine whether they were successful in implementing their change in practice. The first CE modules have been active for over 1 year with 32 participants responding to the long-term evaluation survey. This results in limited long-term evaluation data. This long-term evaluation will continue to be collected and analyzed. One barrier identified with this method was no mechanism to require participants to complete a long-term evaluation as CE credit had already been awarded. To improve the effectiveness of long-term evaluation surveys, future education should include an incentive as well as a brief discussion of the value of the long-term survey to improve data collection and assessing the long-term impact of the education. In addition, discussion with hospitals on the ability to measure increase in PC referrals or plans of care being completed would be valuable to demonstrate adoption into practice and impact on patient outcomes.

To improve the analysis of the effectiveness of the CE modules, future education evaluations should include surveys that are able to separate evaluations by professions, years of healthcare experience, and palliative and end-of-life care experience. Another area for improvement based on the wide range of PC experience of participants would be to create an assessment for learners to identify which areas of PC they have gaps in to create a custom learning plan. This would decrease education time per person and increase impact on areas with the greatest room for improvement.

The module, *What is Palliative Care?*, has been available the longest and was also the module included in the initial marketing push. Due to the lower participation in other courses as well as the significant participation of only employees who work for the health system that manages the online LMS, current and future marketing strategies should target other health systems, including independent healthcare facilities. These health systems or facilities should create plans to use and market this education to help with adoption and engagement with the content, such as including it as required education for staff. Additional marketing strategies will include focusing on rural and frontier counties of the state, especially those with no participant representation.

Conclusion

The primary PC education series is easy to access, free, and follows the NCP Guidelines[12] which improved self-reported teamwork skills, likelihood of influencing practice habits, and professional and personal goals of healthcare professionals from a variety of disciplines and settings. Hence, the CE series addresses the professional practice gaps identified by the CE planning committee. These enhanced primary PC skills will improve the incorporation of PC into a variety of practice settings by multiple disciplines, which enhances access to PC outside of, and potentially referrals to, specialty PC programs.

Table 9. Participant overall feedback.

Positive Comments	• 'This was excellent, the presenter was very knowledgeable and easy to listen to'. • 'I appreciated being able to see the presenter'. • 'Nicely done. Case studies were helpful along with giving examples of how to have conversations'. • 'A great review on burnout which is so common in this practice. Can apply this info to other aspects of life too'.
Areas for improvement	• 'Increase case-based scenarios'. • 'Speaker was a little dry and monotone; also somewhat difficult to hear volume-wise'.
Commitment to change comments: initial evaluation	• 'I plan to start showing families and patients their illness trajectory for those diagnoses that have tried and true trajectories'. • 'I plan to speak to our Palliative Care director about what if any screening tools are utilized for the inpatient providers to make referrals; if there are none currently in use, I'd like to see what we can do to remedy that'. • 'I plan to start by having a more thoughtful conversation with certain patients'. • 'I plan to do more interviewing and include the resident in medical decision making conversations'. • 'Focus on non-pharm first prior to the recommendation of pharmacological'. • 'Make a habit to take at least 15 minutes out of each day to practice mindfulness'. • 'Being open-minded and using open-ended questions to assess how best to support patients'. • Ask every patient that I work with if they have an advanced directive on file or if they are interested in getting information on how to complete one'. • 'Increase communication with team members to ensure patients are being educated in order to help out as needed'. • 'Be continually mindful of cultural stances when working with this population on these sensitive matters'.
Commitment to change comments: follow-up on implementation	• 'It is becoming easier to discuss the topic in general'. • 'Assisted nursing students understand the importance of advocating for palliative care'. • 'Successfully implemented in the classroom setting'. • 'A higher level of comfort with these conversations'.

Declarations

Ethics approval and consent to participate

The Avera Institutional Review Board (IRB) deemed this study exempt, Avera IRB #1 (IRB00001096).

Consent for publication

The authors confirm this article has not been previously published and is not currently under consideration by any other journal. All authors have reviewed the final draft of the article and consent to its publication.

Author contributions

Charlene Berke: Conceptualization; Data curation; Formal analysis; Funding acquisition; Project administration; Resources; Supervision; Writing – original draft; Writing – review & editing.

Sarah Mollman: Investigation; Methodology; Project administration; Resources; Supervision; Writing – original draft; Writing – review & editing.

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Appendix 1

Continuing education registration form

This educational opportunity is being provided by the South Dakota Palliative Care Network which is supported by federal funding. One of the Network's goals is to provide education on primary palliative care to healthcare professionals. The information provided below will not be shared without your consent.

Please tell us a little bit about yourself.

1. What is your age?
   a. <18 years
   b. 18–24 years
   c. 25–34 years
   d. 35–44 years
   e. 45–54 years
   f. 55–64 years
   g. 65–74 years
   h. 75 years and older

2. To which gender identity do you most identify?
   a. Male
   b. Female
   c. Other _____
   d. Prefer not to answer

3. How would you describe yourself?
   a. Caucasian/White
   b. Hispanic or Latino
   c. Black or African American
   d. Native American or American Indian or Alaska Native
   e. Asian
   f. Native Hawaiian or Other Pacific Islander
   g. Other _____
   h. Prefer not to answer

4. How many years of experience in healthcare do you have?
   a. None/zero
   b. <1 year
   c. 1–2 years
   d. 3–5 years
   e. 6–10 years
   f. 10–20 years
   g. 20 years or more

5. How many years of experience in palliative or end-of-life care do you have?
   a. None/zero
   b. <1 year
   c. 1–2 years
   d. 3–5 years
   e. 6–10 years
   f. 10–20 years
   g. 20 years or more

6. What is your current practice setting? (May select more than one)
   a. Hospital
   b. Clinic
   c. Specialty care
      i. Area _____
   d. Nursing home
   e. Assisted living facility
   f. Home health
   g. Hospice
   h. Academia
   i. Other _____

7. Does your current practice setting use telehealth in any capacity?
   a. Yes
   b. No
      i. Why not?
      Coment _____

8. This educational opportunity is federally funded by Health Resources & Services Administration (HRSA). Aggregate data will be submitted to HRSA as a requirement of the grant and may also be presented/published following the evaluation of our grant activities. Do you agree to having your de-identified data as part of the aggregate data included in the report/presentation/publication?
   a. Yes
   b. No

Evaluation questions for palliative care education series

Please complete the following questions and then submit after reviewing your responses. All questions are required. Once you have completed this evaluation, you will be able to print your CE certificate.

Participant Demographics:

O Physician (MD/DO)
O RN/LPN
O Advanced Practice Providers (CNP, CRNA, PA)
O Pharmacist
O Student
O Other, please specify

Were your personal objectives met?

O Yes
O No
If your personal objectives were not achieved, please explain:

As a result of attending this activity, I am better able to:

{Insert Objective to be evaluated}
O Strongly Agree O Agree O Neutral O Disagree
O Strongly Disagree
{Insert Objective to be evaluated}
O Strongly Agree O Agree O Neutral O Disagree
O Strongly Disagree
{Insert Objective to be evaluated}
O Strongly Agree O Agree O Neutral O Disagree
O Strongly Disagree

As a result of attending this activity:

1. I intend to apply the knowledge and/or skills I have acquired from this activity to my work when in a team environment.
O Strongly Agree O Agree O Neutral O Disagree
O Strongly Disagree

2. I am better able to collaborate with a multidisciplinary team.
O Strongly Agree O Agree O Neutral O Disagree
O Strongly Disagree

3. I am better able to communicate with other members of a multidisciplinary team as a result of what I learned in this activity.
O Strongly Agree O Agree O Neutral O Disagree
O Strongly Disagree

4. I am better able to discuss how teamwork can contribute to continuous and reliable patient care.
O Strongly Agree O Agree O Neutral O Disagree
O Strongly Disagree

Rate the projected impact of this activity on your knowledge, competence, performance, and patient outcomes: competence is defined as the ability to apply knowledge, skills, and judgment in practice (knowing how to do something)

This activity increased my knowledge.
O No Change O No O Yes (describe below)
This activity increased my competence.
O No Change O No O Yes (describe below)
This activity will improve my performance.
O No Change O No O Yes (describe below)
This will improve my patient outcomes.
O No Change O No O Yes (describe below)

For the content presented, how might the format of this activity be improved (select all that apply)?

O Format was appropriate; no changes needed O Include more case-based presentations O Increase interactivity O Other (describe below)

Overall, were the speakers/authors knowledgeable regarding the content?

O Yes
O No

If no, please explain:

Overall, were the presentations balanced, objective, and scientifically rigorous?

O Yes
O No

If no, please explain:

How well did this educational offering meet my professional development goals?

○ 1 (Strongly Disagree) ○ 2 ○ 3 ○ 4 ○ 5 (Strongly Agree)

What were your motivational factors for participating in this educational offering? (select all that apply)

○ Topic Interest
○ Certification Renewal Requirements
○ Initial Certification Requirements
○ Job Requirement
○ Professional Growth
○ State License Renewal Requirements

Avera values you as an employee and is committed to continue to provide its employees with ongoing professional development opportunities.

On a scale of 1–5 Avera's Continuing Education opportunities, like this one, contribute to my continued employment at Avera?

○ 1 (Strongly Disagree) ○ 2 ○ 3 ○ 4 ○ 5 (Strongly Agree) ○ NA

For future educational activities, please describe any clinical, educational, practice management, or other situations that you find difficult to manage or resolve that you would like to see addressed:

Please provide any comments or feedback of this activity:

Topics for future educational opportunities:

Commitment to Change:
Now that you have participated in this CME/CE activity, please take a moment to consider making changes in your practice as a result.

The categories listed below represent potential areas of improvement. You can list up to two specific, measurable changes in each category–one per field.

Here are some examples of specific, measurable changes:

- Regularly screen my patients with diabetes for clinical depression with PHQ-9 questionnaires.
- Teach my medical assistant to perform spirometry correctly by having her view a video and then assessing her skill.
- Set up a registry of patients with diabetes to be able to track those most in need of repeat visits.

After you record these, take a moment to reflect on the difficulty of making the change by indicating your confidence using the rating scale below for each intended change in practice before you SUBMIT your final commitment.

We advise that you limit your overall commitment to no more than three changes toward which you are willing to work over the next several months. You will indicate your preferred timeline for the follow-up to this commitment to change at the bottom of the screen.

Commitment to Change Areas (select all that apply):
○ Diagnosis and Screening
○ Treatment
○ Clinical-Patient or Interprofessional Communication
○ Quality Improvement
○ Safety
○ Teamwork-Roles and Responsibilities
○ Patient Education
○ Other

(Insert Commitment Area Selected to Change ex: Patient Education)
List the specific, measurable change(s) you plan to make:

On a scale from 1 to 10, how confident are you that you will be able to make this change? (1 = Not at all to 10 = Completely):
○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8 ○ 9 ○ 10

Please remind me of this commitment in:
○ 1 Month ○ 2 Months ○ 3 Months

Commitment to Change Follow up Evaluation (Sent to participant based on period selected for implementation of change):

{Areas participant identified to change, including their statement measurable changes they intent to make listed here}

Have you been able to implement the change(s) listed above?
○ Yes ○ No

(If yes answered above, this question displays)
Briefly describe the outcome if implementing the change(s) in terms of how if affected your practice, team or patient outcomes:

(If no answered above, these questions display)

Briefly describe the barriers to implementing the change(s) identified above:

Please remind me of this commitment in:
○ 1 Month ○ 2 Months ○ 3 Months