Abstract

Context:
Demand for palliative care (PC) continues to increase with an insufficient number of specialists to meet the need. This requires implementation of training curricula to expand the workforce of interdisciplinary clinicians who care for persons with serious illness.

Objectives:
To evaluate the impact of utilizing individual practice improvement projects (PIP) as part of a longitudinal PC curriculum, the Coleman Palliative Medicine Training Program (CPMTP-2).

Methods:
Participants developed their PIPs based on their institutional needs and through a mentor, and participated in monthly meetings and bi-annual conferences, thereby allowing for continued process improvement and feedback.

Results:
Thirty-seven interdisciplinary participants implemented 30 PIPs encompassing seven themes: (1) staff education; (2) care quality and processes; (3) access to care; (4) documentation of care delivered; (5) new program development; (6) assessing gaps in care/patient needs; and (7) patient/family education. The majority of projects did achieve completion, with 16 of 30 projects reportedly being sustained several months after conclusion of the required training period. Qualitative feedback regarding mentors’ expertise and availability was uniformly positive.

Conclusion:
The CPMTP-2 demonstrates the positive impact of PIPs in the development of skills for interdisciplinary learners as part of a longitudinal training program in primary PC. Participation in a PIP with administrative support may lead to operational improvement within PC teams.
Introduction

As demand for palliative care (PC) services continues to increase there remains insufficient numbers of board-certified PC specialists to serve the needs of patients with serious illness\(^1\)\(^2\). In response, there has been an emphasis on implementing curricula for generalist PC training to ensure that all providers who care for persons with serious illness are equipped with fundamental PC skills\(^3\)\(^-\)\(^5\). Interdisciplinary and discipline-specific training exist in a variety of forums including face-to-face conferences, on-line curricula and masters level degree programs\(^6\)\(^-\)\(^12\). One effort undertaken to expand the primary palliative medicine workforce is the Coleman Palliative Medicine Training Program (CPMTP). Since 2012 this longitudinal program has offered PC training to practicing clinicians by utilizing multi-modal educational strategies\(^13\)\(^,\)\(^14\).

One feature of the two-year curriculum included application of institutional practice change in which learners received mentorship in the design, implementation, and evaluation of practice improvement projects (PIPs). \textit{We hypothesize that participation in PIPs would strengthen the engagement of participants and mentors in the program.} This paper discusses the process of embedding PIPs into the CPMTP-2 curriculum (2015-2017), the incorporation of mentors, and the impact these projects had on the learners.

Methods

Participants and PIP Development

Program applications required a short essay describing perceived gaps in PC within their healthcare system that could serve as the focus for a \textit{two-year PIP.} \textit{This amount of time allowed for more feasibility for project completion considering full-time work commitments. In order to promote individual growth and interest, we allowed participants to choose their own topics based}
In addition to new applicants, participants who had completed the CPMTP training in a previous cycle could apply to pursue a new, or build upon an existing, PIP. Once accepted into the program learners attended an open plenary on day one of the training describing the process for developing a successful PIP. They received instruction in how to conduct an institutional needs assessment and when to use common sources of administrative data to evaluate PC performance. The learners documented their project goals, implementation strategies, evaluation plans, and timeline on an intent-to change contract (ICC) that aligned with institutional priorities and adhered to the SMART (specific, measurable, achievable, realistic, timely) method\(^{15}\) (ICC available upon request). They were allowed to design a project solo or work in pairs, if they were from the same institution.

Each learner was assigned a project mentor, who was a local expert in PC, and was responsible for facilitating continuous process improvement and feedback on the PIPs. Mentors introduced their learners to resources on national quality standards prescribed by organizations such as the American Academy of Hospice and Palliative Medicine and Center to Advance Palliative Care, as well as screening tools, dashboard metrics, and evaluation methods. They provided advice on how to work with key stakeholders and collaborate on existing institutional initiatives to streamline resources. Before PIP implementation mentors reviewed and approved the learners’ ICCs. Over the duration of the program they met monthly with their learner by telephone to trouble-shoot barriers and provide feedback on PIP progress. Returning learners who had graduated from the prior training cycle received quarterly mentorship on PIPs from the principal investigators.

The mentors also received support from the principal investigators and other multidisciplinary program leaders through quarterly telephone meetings. During these calls the
mentors reviewed their learners’ progress on the PIP and received advice on how to address challenges with project implementation and the mentorship process.

Project support was also provided continuously throughout the two-year period using smaller breakout sessions during the bi-annual conferences. This allowed robust peer-peer group and group mentor consultation in order to refine the projects using the SWOT method\textsuperscript{16}. The learners were also required to meet bi-annually with their local administrators to discuss their PIPs progress, identify unintended challenges, and assess alignment with institutional priorities. Finally, the learners received guidance at multiple points during the training on writing their project results into scientific abstracts and posters. The two-year training program culminated in a poster session and graduation ceremony at the concluding conference which featured oral presentations by selected top abstracts.

**Analysis**

Project abstracts and posters were reviewed independently by members of the study team to categorize the practice change methods and interventions. They compared category definitions through an iterative process until consensus was obtained. At 6 months post-training, learners completed a survey soliciting qualitative data regarding the quality of mentorship, challenges encountered, lessons learned and sustainability of projects. Study data were collected and managed using REDCap electronic data capture tools\textsuperscript{17,18}. REDCap (Research Electronic Data Capture) is a secure, web-based software platform designed to support data capture for research studies, providing 1) an intuitive interface for validated data capture; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for data integration and
interoperability with external sources. This project was considered exempt through the Institutional Review Board.

**Results**

*Learners and PIP Themes*

Thirty-seven interdisciplinary learners participated in the program, including advanced practice nurses (n=15), chaplains (n=7), social workers (n=5), physicians (n=5), nurses (n=4), and a physician assistant. Of these, eleven were returning learners. In total, 30 unique PIPs were implemented at diverse sites including: thirteen teaching hospitals, eleven community hospitals, three safety net hospitals, two outpatient clinics and one home-based palliative care program.

Twenty-six projects were completed individually and four by a pair. One learner was unable to complete their project due to lack of administrative approval. Another completed a project, but not an abstract due to a leave of absence from work. Some PIPs were implemented across more than one practice setting, such as the inpatient location and an outpatient clinic or a nursing home, or across multiple hospitals within one health care system. Of those that were completed, seventeen projects encompassed practice change in inpatient areas, fourteen in outpatient settings, two in nursing homes, one in home based PC, and one in a community-based hospice.

Analysis of practice change methods resulted in categorization into seven themes, with several projects representing more than one theme: (1) staff education; (2) care quality and processes; (3) access to care; (4) documentation of care delivered; (5) new program development; (6) assessing gaps in care/patient needs; and, (7) patient/family education (Table 1). The majority of practice change methods selected by learners focused on staff education, with communication and PC skills being a major driver of the intervention. In addition to staff
education, several projects emphasized improvements in care quality through implementation of pathways for documenting advance directives and prompting assessment of symptoms. A number of learners also chose to implement projects that addressed increasing access to PC through enhancing referral processes and implementing consult triggers. In contrast, few projects centered on addressing patient needs through direct patient and family education (Table 1). Project titles and learners’ professions are represented in Table 2.

**Qualitative Feedback on Project Implementation, Sustainment and Mentorship**

Twenty-five of the incoming learners (96%) responded to an anonymous post-training survey with open-ended questions about their experience with project implementation, challenges encountered, and sustainability of the interventions. Learners were also asked to provide comments regarding the value of their mentor throughout the process. The eleven returning learners with prior PIP experience and mentoring did not complete this survey.

Comments on lessons learned by the learners were both project-specific (e.g. plan, staffing and metrics) as well as centered on messaging and communication with colleagues, administration, and other stakeholders. Keys to success included narrowing the project focus, partnering with others, and becoming more familiar with metrics and other outcome measures. Learners acknowledged the necessity for leadership engagement and ideal language that should be used to advocate effectively for PC within their healthcare systems (Table 3).

Several challenges were elicited requiring adjustments in project goals and timelines. Some learners faced organizational issues arising from departures of key leaders, loss of resources, and hospital mergers. Others identified gaps in education such as colleagues’ misperceptions about PC, resistance to integrating PC into clinical areas, and effort needed to
improve communication with staff in other facilities. Some learners found it necessary to scale back project goals, or discovered that projects involved more time than expected. They identified changes in electronic medical record platforms or increased time required to extract data from chart review as unforeseen barriers to timely project completion.

Despite these challenges, the majority of projects did achieve completion, and 16 of 30 projects were reportedly being sustained several months after conclusion of the required training period. Of the few PIPs that did not achieve full completion, one project conducted by a chaplain met its goal of assessing unmet spiritual care needs, but could not achieve its desired outcome of increasing spiritual care staffing in PC. Two PIPs were not sustained due to a change in institutional leadership. Another PIP was terminated when financial support ended for a social worker who was employed at a safety net hospital.

Qualitative feedback on mentorship pointed to the value of the mentors’ expertise and availability. Mentors were viewed as assets who helped to fine-tune the scope of the projects and offered important feedback on strategies to advocate within learners’ healthcare institutions. Additional comments praised the value in receiving input from others on goal-setting, educational interventions, and outcome measures. The learners appreciated having time during the bi-annual conferences to review metrics, receive guidance on data analysis, and write an abstract. (Table 4).

Discussion

To our knowledge this is the first longitudinal curriculum in PC that incorporates practice change projects into multimodal educational strategies for training interdisciplinary providers from diverse practice settings. The PIPs were generated based on identified gaps at trainees’
institutions and grew through mentoring relationships between trainees and mentors from differing institutions, with most being from community-based settings. In a field as small as PC, this demonstrates the breadth of mentorship support that may be available beyond the fulcrum of traditional academic medical centers.

The learners developed unique projects based on gaps and institutional priorities, professional interest and feasibility of implementation and evaluation. The most common practice change themes involved staff education and improvement of care quality, a testament to the need to continue to fill workforce gaps and improve patient care through education. Aside from a few exceptions, the majority of respondents stated they were able to successfully complete their projects by the end of the two-year program.

One example of a successful PIP involved a study conducted by a nurse and chaplain to identify barriers to advance directive completion amongst inpatient nursing staff. The pair held educational in-services for nurses with surveys on knowledge and attitudes about advance directives. Learners reported findings to a committee tracking this information, thereby engaging leadership on the important work they were doing. Another PIP led by an advanced practice nurse aimed to increase referrals to PC by regularly presenting and educating interdisciplinary teams at the medical cancer committee and tumor boards on PC services and participating in daily interdisciplinary rounds. These efforts effectively increased PC service utilization. Another project, led by a chaplain, sought to address the feasibility of utilizing a chaplain to lead advance care planning conversations in an ambulatory family medicine practice. Eighty-percent of patients who were approached (48/60) completed advance directives after engaging with the chaplain19. And finally, a social worker developed a screening tool to identify barriers to PC referrals for the undomiciled population admitted to an urban hospital. Of the 494 homeless
patients screened, 52% met one or more of inclusion criteria for PC services, with 15% completing health care power of attorney forms.

The qualitative comments on mentorship are promising and show how critical a well trained mentor is in the development and execution of a PIP. Several benefits of mentorship have been described elsewhere in the literature including enhanced productivity, feeling of empowerment for mentees, and development of leadership skills\textsuperscript{20,21}. The mentors in our program were purposely selected to be non-affiliated with their mentee’s workplace, which offered the extra benefit of an outsider’s unbiased assessment along with knowledge of another system of care delivery. Without an experienced mentor and continued check-ins (monthly and at bi-annual meetings), it may have been challenging for learners to complete their PIPs. Despite some setbacks, the majority of learners were able to successfully complete and maintain their projects months after project completion. Strong administrative support and PIPs that closely aligned with institutional priorities were found to be the strongest predictors of project success.

Healthcare systems are increasingly focused on quality and value which leads to the need for more formal training in quality improvement for professionals in PC\textsuperscript{22}. Our practice change projects had some, but not all, of the features of a traditional quality improvement project\textsuperscript{23}. Instead of using the PDSA cycle for rapid cycle QI\textsuperscript{24} the learners utilized a structured ICC which incorporated goal setting, action steps, anticipated resources, reflection on potential barriers, and an evaluation plan. Similar to the intent of PDSA this document was continuously used to reflect on and revise the PIPs over the duration of the project plan. The curriculum also included instruction on evaluation methods germane to QI such as using process, outcome, and balancing measures. Future work will explore adding QI content to the curricula.
There were several important limitations worth noting. This project was funded through generous grant support which included stipends to trainees and mentors for participation, which may not be feasible in settings without financial incentives. It was also conducted in a large urban and suburban area with access to a large cohort of PC experts. This may impact replication in other areas with less availability of seasoned clinicians to serve as project mentors. However, the evolution of digital access may reduce that barrier. Finally, our evaluation timeline ended six months after project completion; therefore it is unknown how, or if, projects were sustained long-term.

**Conclusion**

The CPMTP-2 demonstrates the positive impact of PIPs in the development of skills for interdisciplinary learners as part of a longitudinal training program in primary PC. Participation in a PIP with administrative support may lay the groundwork for creating a culture of continuous operational improvement within PC teams. This will help PC teams weather turnover of key stakeholders, reduce dependence on single individuals for PC initiatives, and fortify alignment of PC services with institutional goals. Future study may explore the institutional, team and professional characteristics that encourage and support PC improvements independent of a dedicated training program.

**Declaration of Conflicting Interests**

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Funding**
The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported by a grant from the Coleman Foundation.
References


