

**Advance Care Planning: Training Healthcare Professionals on the Physician Order for
Life-Sustaining Treatment**

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Author Note

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Abstract

Background: An evidence-based project was performed to train and increase skills among healthcare providers to perform advance care planning. Training decreases barriers and improves attitudes and confidence to perform advance care planning. Advance care planning can include the Physician Order for Life-sustaining Treatment, an out-of-hospital order that directs emergency medical services of a patient's wishes. Internal evidence found that many providers are unfamiliar with the Physician Order for Life-Sustaining Treatment form. The Theory of Planned Behavior was used to guide the project.

Objectives: To improve advanced care planning processes in a healthcare organization.

Design: A quality improvement project was performed at a medical center with outpatient provider groups. Virtual training was provided by the Arizona Hospital and Healthcare Association on the Physician Order for Life-Sustaining Treatment. Participants completed a three-part survey to measure skills for advance care planning after a training event.

Setting/Subjects: Five ($n=5$) American palliative and primary care providers at a medical center.

Measurements: The East Midlands Evaluation Toolkit is a validated survey tool that measures confidence and competence in advance care planning after training.

Results: Descriptive statistics, Friedman's test, and the Kruskal-Wallis test were used for data analysis. Results provided evidence to the healthcare facility that there is a significant need to train their healthcare professionals on advance care planning.

Conclusions: Recommendations are made to focus research on larger studies looking at the types of advance care planning, and differences in disciplines and specialties.

Keywords: advance care planning, Physician Order for Life-Sustaining Treatment, palliative care, primary care

Advance Care Planning: Training Healthcare Professionals on the Physician Order for Life-Sustaining Treatment

Advance care planning (ACP) is important and can affect end-of-life (EOL) issues for many individuals. Advance care planning and documentation is a means of providing healthcare professionals (HCP), families, and loved ones a guide for providing someone's desired care as they get closer to death. Healthcare professionals can have EOL discussions with patients that have chronic diseases but are not having these conversations consistently. Healthcare professionals have barriers that affect ACP implementation, but challenges can be overcome with policy, practice, and behavioral change. Theoretical and innovative frameworks guided an evidence-based practice (EBP) project that improves ACP processes in a rural medical center. Data analysis results show significant improvement in ACP after education and indicate the need for organizations to consider this practice.

Background and Significance

Advance Care Planning

People with chronic diseases are often taken to the hospital and have unwanted and costly procedures performed due to a lack of planning or healthcare providers not being aware of patients' wishes. One-third of people, with or without a chronic disease, have done ACP (Yadav et al., 2017). Advance care planning is defined as making decisions in advance about a person's preferences so that their family and HCP can honor their wishes (National Institute on Aging, n.d.). Advance care planning includes documents like the living will, durable medical power of attorney (MPOA), and out-of-hospital provider orders. Out-of-hospital provider orders include the out-of-hospital Do Not Resuscitate (DNR) which is used often in hospice patients or the Physician Order for Life-Sustaining Treatment (POLST) form. The POLST form is intended to

be used when a provider can say “yes” to the surprise question, “Would it surprise me if this person passed away in the next year or two?”. Only recently has there been a statewide database in Arizona for advance directives and there is still a limitation on who can access it. Hospitals and private providers often have a copy of advance directives that patients have submitted to their file, but emergency services rarely have a copy in hand when they arrive at a person’s home to provide emergency services. The original intention of the POLST form was to have a written order from the person’s provider intended to guide emergency personnel in the direction of care that the patient wanted at home before they arrive at the hospital. In 2004, the National POLST taskforce created standards for the POLST form that is now being used in several states as a complement to the living will to better serve patients with advancing illnesses (National POLST, 2021). In patients with kidney disease (KD), 66% of patients had a surrogate documented but 10% or less had a POLST or living will that was documented by a provider other than their general practitioner (Buggs et al., 2020).

When a patient does not have ACP in place it can redirect care from a patient’s preferences and can be costly. Advance care planning can decrease costs related to inpatient utilization (Bond et al., 2018). The lack of ACP can increase costs for both the patient and healthcare system which contradicts national healthcare goals and the Quadruple Aim. In 2016, total Medicare spending on KD was nearly \$115 billion, and less than half of the people have an advanced directive (Saran et al., 2019; Yadav et al., 2017). Kidney disease is progressive and is among the top ten causes of death in Americans. Many of these people have not done ACP and do not have a documented EOL plan which is important so that their family and people involved with their care can honor the patient’s wishes. Providers with patients and their families should

identify the need for ACP and EOL discussions, engage in those discussions, and then document them for later reference to make ACP effective.

Purpose and Rationale

Everyone should have ACP in place, and it is especially important for those with advancing age and disease. Due to evolving technology, the elderly population is growing in number and includes patients with chronic diseases. Advance care planning is becoming more common in ambulatory settings and with yearly Medicare wellness exams. Despite this, there are still gaps in the process. The high-risk populations should not miss the opportunity to have ACP conversations so their EOL wishes can be honored. Providers and nurses outside of the hospital sometimes assist patients with ACP but this is not done regularly or methodologically. Organizations should have structured training on ACP so that HCP can have valuable conversations with patients. This is important for patient-centered care and to reach the Healthy People 2030 goals of increasing communication between patients and HCP (Office of Disease Prevention and Health Promotion, n.d.). The purpose of this paper is to provide the current research on ACP training for HCP and assess the significance of this related to chronic disease, and if possible, chronic KD. Furthermore, this paper will explore an evidence-based ACP practice change in this population.

Epidemiology

Healthcare professionals should address ACP in primary, specialty, and acute care settings for all patients and should have a special focus on patients with chronic diseases. This population is important because 60% percent of Americans have a chronic disease and in Arizona, approximately 63% of patients older than 65 years old have two or more chronic conditions (Centers for Disease Control and Prevention [CDC], 2021; National Center for

Chronic Disease Prevention and Health Promotion [CDPHP], 2021). Kidney disease is increasing nationally and 90% of the nearly 37 million people in the United States are unaware that they have the disease (CDC, 2019). This population should have ACP needs addressed due to the high risk of healthcare costs and mortality rates.

Internal Evidence

Critical care nurses, palliative care providers, and the former ethics director at a rural medical center have identified the need for organization to improve ACP conversations to include the POLST when performing ACP discussions (J. Logan, personal communication, October 2020). Patients that have KD, especially those receiving dialysis, are an under-identified population, and quality of life (QOL) should be addressed in these patients because of their symptom burden (S. Downing, personal communication, March 2021). Currently, ACP is not consistent throughout the facility or among the HCP and most of these individuals are unfamiliar with the POLST form or its use. The organization has recently merged with a larger organization and the administration has identified that POLST is very well integrated into the parent organization and standardization is necessary. Lastly, countless new residents are moving to the area from nearby states where the POLST form is being used regularly with ACP.

PICOT question

This evidence led to the PICOT question. In healthcare providers caring for adults with KD (P), how does education on advanced care planning (I), compared to no education (C), affect advanced care planning completion rates (O)?

Evidence Synthesis

Healthcare Professionals and Kidney Disease

Patients with chronic diseases like KD want to partake in ACP conferences with HCP. Despite this, many HCP find that interactions with family and patients can often be a barrier to ACP discussions (Flo et al., 2016; Littlewood et al., 2019; Luckett et al., 2017; Phillips et al., 2018). Patients with chronic diseases, including patients with KD on dialysis, want their providers involved with ACP planning but often are not ready for discussions because they are not sick enough, they're not ready for EOL talks, or they do not realize the disease is progressive (Danziger et al., 2020; Phillips et al., 2018; Simon et al., 2015). In KD, 96% of nephrology-focused HCP feel that there should be ACP programs specifically for dialysis patients (Luckett et al., 2017).

Education and Training

Education for HCP that includes nurse practitioners is recommended to increase the skills needed to perform ACP. Dube et al. (2015) found that 79% of nurse practitioners felt that education would enrich ACP conversations. Training improves HCP confidence, attitudes, comfort, skill, and readiness to have ACP discussions (C. Chan et al., 2019; Dube et al., 2015; Glaudemans et al., 2018; Luckett et al., 2017; Pearse et al., 2021). Advance care planning educational programs for HCP are encouraged and have been shown to help overcome difficulties with ACP barriers (H. Chan et al., 2020; Dube et al., 2015). Provider and HCP training is recommended to include skills for ACP and disease-specific conversations in specialties like nephrology (Luckett et al., 2017; Simon et al., 2015).

Current Practice

Providers are expected to perform ACP, but obstacles are preventing them from having consistency in their practices. Many clinicians find that they have not had enough training on ACP (C. Chan et al., 2019; Dube et al., 2015; Littlewood et al., 2019; Luckett et al., 2017).

Although it is recommended, there are no current guidelines for ACP training in primary care (American Medical Association [AMA], 2021; Committee on Approaching Death: Addressing Key End of Life Issues, 2015; Meghani & Hinds, 2015). It is also proposed that shared decision making, early intervention, frequent reevaluations, and anticipatory guidance for possible health status changes where dialysis may need to be initiated or withdrawn should be discussed with patients with advanced KD (Davison et al., 2015). Providers find that time (actual time or time during the patient's disease course), stakeholder engagement, education, or lack of policy are obstacles to ACP (Dube et al., 2015; Phillips et al., 2018; Simon et al., 2015; Tilburgs et al., 2018). Thus, providers are having difficulty performing ACP consistently.

Advance Care Planning

Providers have impediments to ACP, but these can be improved so patient wishes can be fulfilled. Lockett et al. (2017) found that nephrologists are hesitant to address ACP due to topic discomfort, lack of ACP policy, or little experience. Healthcare professionals can address decreased knowledge, family or patient engagement, and system problems by gaining or sharing education, including patients and families in the discussions, and recruiting nurses to help (Glaudemans et al., 2018). Additionally, researchers found that documentation was helpful for both completion and retrieval of ACP (Dube et al., 2015; Glaudemans et al., 2018; Simon et al., 2015; Stepan et al., 2019; Tilburgs et al., 2018). A large retrospective cohort study that included patients with chronic illnesses found that when ACP was documented, 78% of the patients passed where they had chosen, outside the hospital, which was significantly higher than people that did not have preferences documented (Orlovic et al., 2020). Rural communities are no exception to this evidence.

Search Strategy

To answer the PICOT question, an exhaustive search of the literature was completed. Four databases were thoroughly searched – PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsychInfo, and the Cochrane library. The database searches show that there is limited high-level research but found that grey literature showed that more quantitative studies are being completed on the subject of education for HCP specifically caring for patients with KD for ACP (Buggs et al., 2020; Danziger et al., 2020). Grey literature was not included in the final evidence yield and synthesis.

The databases were searched by keyword, title/abstract, and Mesh/Boolean terms. Population terms included: *providers, physicians, nurse practitioners, primary providers, specialty providers, palliative care providers, primary care, PCP, healthcare providers, healthcare workers, healthcare professionals, medical professionals, advanced practice nurses, doctors, nurses, chronic KD, end-stage renal disease (ESRD), KD, renal disease, or chronic disease*. Intervention terms included: *education or teaching program* and comparison terms included: *no education, current practice, or barriers*. Outcomes were specified using: *advanced care planning documentation, advance care planning completion, advance care planning, ACP, living will, advanced directives, medical power of attorney (MPOA), physician order for life-sustaining treatment (POLST), medical order for life-sustaining treatment, or out of hospital-physician order*. Inclusion criteria consisted of: healthcare personnel (any), chronic diseases including KD, education or teaching, barriers or facilitators, and any type of advance care planning or documentation. Research that focused on pediatrics, diseases that weren't chronic, or did not fit the PICOT question was excluded. Filters used were dates of publication of up to 10 years, age of greater than 19 years, English language, and limiters of clinical trials, meta-analysis, randomized control trials (RTC), and systematic reviews. The search resulted in 231

articles between the databases. Titles and abstracts were reviewed for the relevance of the PICOT question.

The details of what each database yielded are shown in Appendix C. After abstracts and articles were individually reviewed for relevance, 33 articles were chosen for appraisal. The articles with the highest levels of evidence were included in the evaluation tables (Appendix A). The evidence produced level I evidence (four articles), level IV evidence (four articles), and level VI evidence (two articles).

Critical Appraisal and Synthesis

The research was appraised for quality using rapid critical appraisal tools (Melnyk & Fineout-Overholt, 2019). A synthesis of the research is presented in Appendix B. Overall, the quality of the research was moderate but appropriate to the research question. There were three systematic reviews and one scoping literature review. Four studies were lower-level quantitative studies, and two studies were qualitative research. Bias, most commonly selection bias, was present in seven of the studies.

The evaluation tables show a description of each article (Appendix A). Most of the studies were international except for one conducted in America only. The theoretical and conceptual frameworks were heterogeneous. Overall, the primary population was HCP with two studies focusing on patients with chronic disease. The characteristics of each population were varied. Sample sizes were adequate in quantitative literature except for one study and saturation was achieved in qualitative studies. There were no patterns noted in the statistical analysis and measurement tools, but this is understandable with the diversity of design and methods of each study. The major weakness of the literature is the lack of blinding and randomization, the use of non-validated tools, and the moderate quality of the research.

Despite the average quality of the research, the strength lies in the themes and how they show areas for possible improvement to current ACP practice. The commonality is seen among independent variables, dependent variables, and population which is shown in the synthesis table (Appendix B). The HCP population was primarily providers and nurses. The research studied ACP education and training for HCP. It also focused on ACP prevalence, implementation, barriers, and facilitators of ACP in the presence of chronic diseases including KD. Patient perceptions of ACP were additionally reviewed. Education or training on ACP for HCP was often poor or absent and this helped or halted ACP with patients. The amount of time that HCP had to engage in ACP conversations determined whether these talks ensued. The timing when HCP had EOL talks during the disease process and the relationships between patients, families, and providers were important for success. Stakeholder and leadership engagement affected positive ACP activities. Documentation availability and electronic health records were important to patients and HCP for ease of ACP and future retrieval. Finally, providers were often seen as a variable for whether there was a successful ACP completed.

Influencing the Project

The evidence shows that HCP feel they lack the adequate education to perform ACP with their patients and desire to have more training. Advance care planning training was shown to increase HCP confidence and improve skills to have ACP conversations. Stakeholder and leadership engagement was important for success. Time and documentation should be considered when improving ACP processes. Patients want to have ACP conversations with their providers. For these reasons, the ACP training project was created.

Theoretical and Implementation Framework

Theory of Planned Behavior

A person's belief about behavior can be improved by their attitude, confidence, and other core factors that can predict whether an individual will change their behavior. The theory of planned behavior (TPB) was used to describe the behavioral concepts for the proposed EBP project that show behavioral change after training, and the model is shown in Appendix D (Ajzen, 1991). This framework was chosen because if a healthcare system changes a process or a policy, but participants resist change, the process will fail. The TPB is a theoretical framework that links a person's beliefs to a behavior change. Ajzen (1991) described the major concepts of TBP as *attitudes, subjective norms, perceived behavioral control, intention, and behavior*. Attitudes are personal beliefs that a person has about a behavior. Subject norms are the pressure that the individual has to perform the behavior and perceived behavioral control is the ability to perform a behavior due to having the confidence to perform that behavior (Ajzen, 1991). A behavior can be predicted by how attitudes, subjective norms, and perceived behavioral control lead to intentions. An intention is what a person is willing to do to achieve a behavior change. These elements can predict whether a behavior will be adopted. The behavior is more likely if a person has positive views of the behavior and it can also be altered if events occur that change the person's beliefs before the behavior change is achieved (Ajzen, 1991).

The Ottawa Model for Research Use

In addition to the theoretical framework, an EBP implementation strategy was used. The Ottawa Model for Research Use (OMRU) guided the execution process of an EBP project. The OMRU is a planned action model for continuity-of-care innovations that are used for large practice or organizational changes (Graham & Logan, 2004). The OMRU model is shown in Appendix E. The OMRU has three assumptions: the process is completed over time, improving patient health outcomes is always a final goal, and external factors such as society and healthcare

environments and their effects must be considered (Graham & Logan, 2004). The steps to the OMRU and how it aligned with the project are defined in the following sections.

Getting Started

Initially, organizational leaders in the hospital system and the individual practices were identified as the decisional authorities to make the change, and the change agents were identified (Graham & Logan, 2004). The Chief Executive Officer (CEO) approved the project. The palliative care and gerontology director and primary care section leader were supportive of the project and helped to initiate meetings with the potential participants. The organizational ethics committee members who have a great influence on ACP interpretation also supported the project.

Clarifying the Innovation

This step included defining the innovation (Graham & Logan, 2004). The innovation was defined as an ACP policy change and a practice change after HCP training for ACP. The intervention included a training session on ACP and POLST.

Assessing the Innovation, Adopters, and the Practice Environment

Negative impacts will be assessed and resolved early (Graham & Logan, 2004). The project facilitator assessed barriers and identified potential change adopters. The facilitator explained the gaps in the current practice to the organization's administration and the ethics committee. The current culture was assessed and the likeliness for change was low but possible. Organizational culture and availability of resources are considered (Graham & Logan, 2004). Organizational resources were limited but available. Current policies and expectations were reviewed and documented.

Selecting and Monitoring the Implementation Intervention

Planning for the implementation started by addressing the areas where barriers were seen (Graham & Logan, 2004). Healthcare professional participants were educated on the ACP interventions, barriers, and alternatives. An example of a barrier that was identified in the literature was time, so the facilitator identified a way to increase the amount of time available for ACP conversations. This included educating HCP that they could initiate conversations and have staff finish them and help with ACP paperwork including POLST. This would decrease the amount of time that the provider was spending with the patient for this conversation while getting comparable reimbursement and still benefiting patients with ACP conversations. The project facilitator was present during all educational and training sessions to evaluate the intervention, encourage change, and answer questions.

Monitoring the Adoption

Decisions on measurement and data collection were completed next so that adoption could be evaluated and reasons for hesitancy identified (Graham & Logan, 2004). The facilitator conducted email correspondence and onsite visits to assess practices. It was identified early that the practice change was not being readily adopted so the facilitator offered ways to improve practices and identify ideal patient populations. A population that was suggested for the primary care participants to focus on were patients that were being seen for a hospital follow-up because these patients often had a recent change in health status. Palliative care providers had more opportunities to initiate ACP during goals of care discussions and were encouraged to include POLST at that time.

Evaluating the Outcomes

During the final step, outcome measures, time frames, and data collection tools will be defined (Graham & Logan, 2004). The facilitator assessed how each of the stakeholders was

affected by the ACP process changes by analyzing survey comments, aggregate data, and ACP with POLST completion rates.

Methods

Ethical Considerations

The project was approved by the Arizona State University Institutional Review Board (IRB). The organization did not have an IRB, so approval was received by the organizational project mentor and palliative care director. Informed consent was received from each participant before partaking in the project. The ethical principles of beneficence, non-maleficence, autonomy, confidentiality and data protection, and integrity were also used to guide the project.

Stakeholders, Setting, and Population

Stakeholders included the facilitator and a palliative care/gerontology director and together they organized the process and are among the most knowledgeable about the EBP project, ACP, and the POLST form. The Arizona State University project mentor was also a stakeholder and gave insight into the project progression. In addition, the medical center's ethics committee, six additional palliative care providers, and their staff are affected because they have the most knowledge of end-of-life preferences and the issues that surround these. They are also resources for their patients and other stakeholders.

The organization is a medical center in the rural southwest United States. The medical center has a hospital with two campuses with outpatient primary and specialty services. The medical center serves mainly four small towns and some of the towns have an increased number of retired elderly people. Stakeholders for the EBP project involved providers and patients in the hospital, outpatient practices, and the community.

The populations most impacted by the EBP project will be patients with chronic diseases and their families, as well as primary practice providers and their staff. This is because their health status, provider recommendations, wishes, and family opinions will be the defining the future of their healthcare and desired QOL. The healthcare organization includes six primary care clinics which are a mixture of family practice and internal medicine practices and a palliative care group. In total, 40 providers from primary and palliative care in seven outpatient practices were the target population for the project.

Project Description and Timeline

The project intervention was a training class for the *Introduction to POLST* that was presented by the Arizona Hospital and Healthcare Association (AzHHA) who is also the leader of the Arizona POLST taskforce. The complete timeline for the project from proposal to completion was from August 2021 until January 2021 with the final data analysis being completed in April 2022. The project proposal was given to the administration in August of 2021, project interventions were presented at two virtual meetings via Zoom on September 14th and 17th, 2021. Each session was held during lunchtime breaks so provider clinics were not disrupted. After attending a training session, the participants were instructed to collect aggregate data on any ACP with POLST conversations they had. Aggregate data collection and participant support by the facilitator were given from the intervention training until the final survey was given in December 2021. Data analysis was completed from January until April of 2022.

Instrumentation, Data, and Analysis Plan

Instrument

Healthcare professionals were trained on ACP and POLST. The intervention was measured by calculating the provider's comfort to have ACP discussions. The East Midlands

Evaluation Toolkit (EMET) is a 27 question survey that assesses HCP competence and confidence to perform ACP (Whittaker et al., 2018). Whittaker et al. (2018) defined confidence as the person's awareness to complete a goal and term competence as the skill to complete the task. There are three tools in the toolkit. The EMET tools are all the same but intended to be given at different times of the assessment, so they are labeled differently. Initially, "Tool A" was given at pretraining which was sent to the providers before the ACP training sessions. The second survey, "Tool B", was given after the training session. The final survey, "Tool C", is optional but should be given six to 12 months post-training but, in this case, was used three months post-intervention.

The five domains, or core competencies, that the EMET tool measures are communication, assessment and care planning, symptom management, ACP, and overarching values and knowledge. The tool measures the HCP's self-reported interaction with the patient and/or their family. The description of the five core competencies is: The ability to communicate with patients and their families during the dying process; the assessment and care planning of a holistic plan; the ability to maintain the patient's comfort and symptoms; having ACP discussions while maintaining ethical and legal standards; and knowing oneself and how their values may interfere with ACP interactions (Whittaker et al., 2018). The EMET tests the overall ability to perform ACP as well as assesses each core competency related to ACP.

The assessment tool showed to have a test to test reliability over four years with a Pearson's r overall value of 0.840 and internal consistency of greater than 0.8 Cronbach's alpha in communication, assessment and care planning, symptom management, ACP, overarching values and knowledge (Whittaker et al., 2018). Whittaker et al. (2018) found the tool to be valid

with a small number of imperfections after pooling 16 trainers from multiple organizations after 23 different end-of-life training sessions.

Data Collection

The participants completed the three surveys from the EMET. The presurvey was given to the participants before the training interventions in September 2021. The post-survey was given after the participants attended the *Introduction to POLST* class. After the training session, members were given POLST forms and an aggregate data collection form. They were advised to use the POLST form when they were having ACP conversations with the patients if they qualified by the “surprise question”. They were instructed to collect data on these patients that included the patient’s age, whether a POLST only or a POLST and advance directive were completed at the time, why they chose to use the POLST in the specific situation, and whether there was a presence of chronic disease. If the patient had KD, they were asked to record what stage of KD the patient had. No personal health information was to be collected on the patients. The facilitator continued to have onsite and email correspondence with the participants during the aggregate data collection phase. The final survey was given on two separate days in December 2021 aligning a three-month intervention date.

Data Analysis Plan

Statistical analysis was conducted using SPSS Intellectus software (Intellectus Statistics, 2021). Data analysis was used to answer the research questions: (a) for adults with KD, does ACP training for HCP improve confidence and competence for ACP conversations, (b) is there a difference between HCP types and specialties, and (c) what were the demographics and specific disease-related reasons the patient had ACP with POLST? The outcome variable was confidence and competence to perform ACP after a training event. Descriptive statistics was used to analyze

the data of ACP and each of the five domains of ACP with five levels of agreement being strongly agree to strongly disagree. The Friedman's test and Kruskal-Wallis test were used to examine the differences between the participants responses in the three survey tools of the EMET and the differences between provider type and specialty. This project is like an exploratory pilot study to generate a hypothesis. For the purpose of this study, due to the importance of detecting small to moderate differences with a small sample size (p values > 0.05 but < 0.10 are referred to as a trend); therefore, significance was tested at the $p < 0.10$ (Fugate Woods et al., 1997). Aggregate data was collected from the participants on any patients that they performed ACP with POLST on and free text comments were collected by the facilitator.

Funding

The medical center is a non-profit organization and the funding for the training intervention was provided by the medical center's foundation. The training session was given and the bill for \$400 was submitted for reimbursement from the palliative care department of the medical center. POLST forms that were delivered to the providers were funded by the project facilitator and the cost was minimal.

Results

Outcomes and Statistical Significance

Descriptive Statistics

Descriptive statistics were calculated for the total score of the outcome variable and each domain (communication, assessment and care planning, symptom management, ACP, and values and knowledge) for each of the three surveys. The observations were calculated for the total score of the outcome variable of ACP from the three surveys along with the individual five

domains. The summary statistics of average score, standard deviation (SD), and range can be found in Table 1.

Table 1

Summary Statistics Table for Interval and Ratio Variables

Variable	<i>n</i>	M	SD	Min	Max
Total.prepost3m	5	332.00	24.34	301.00	356.00
PreCommunication	5	21.40	1.95	19.00	24.00
PostCommunication	5	22.20	2.59	19.00	25.00
3mCommunication	5	21.20	1.64	20.00	23.00
PreAssessment_and_Care_Planning	5	22.80	2.17	20.00	25.00
PostAssessment_and_Care_Planning	5	25.80	3.27	22.00	30.00
3mAssessment and Care Planning	5	25.80	3.27	22.00	30.00
PreSymptomManagement	5	21.40	1.52	20.00	23.00
PostSymptomManagement	5	21.80	2.05	20.00	24.00
3mSymptomManagement	5	21.80	2.95	19.00	25.00
PreACP	5	18.20	1.30	16.00	19.00
PostACP	5	18.80	1.79	16.00	20.00
3moACP	5	17.40	1.52	16.00	19.00
PreOverarching_Values_Knowledge	5	23.00	2.00	20.00	25.00
PostOverarching_Values_Knowledge	5	23.40	2.07	20.00	25.00
3mOverarching_Values_Knowledge	5	22.80	2.59	20.00	25.00

Friedman Rank Sum Test

A Friedman rank sum test was conducted to examine whether the medians of each survey (pre, post, and three-month) of the EMET tool were equal or if there was a significant change from one to another in the overall score for ACP. The Friedman rank sum test was also conducted on each of the five domains of ACP: Communication, assessment and care planning, symptom management, ACP, and overarching values and knowledge. The Friedman test is a non-parametric alternative to the repeated measures one-way ANOVA and does not share the ANOVA's distributional assumptions (Conover & Imam, 1981; Zimmerman & Zumbo, 1993). Post-hoc interpretations were run on any of the significant results to identify in which surveys the significant differences were present.

The results of the Friedman test indicated significant differences in the total score median values of the three surveys. Additionally, there were significant differences in the survey median values of both the assessment and care planning and the ACP domain. There were no significant differences in the median values of the pre, post, or three-month surveys for the domains of communication, symptom management, or overarching values and knowledge. Table 2 presents the results of the Friedman rank sum test.

Table 2*Friedman Rank Sum Test*

Variable	Mean Rank	χ^2	df	P value
PreSurvey	1.20	5.20	2	.074
PostSurvey	2.20			
3mSurvey	2.60			
PreCommunication	1.70	1.20	2	.549
PostCommunication	2.30			
3mCommunication	2.00			
PreAssessment_and_Care_Planning	1.00	10.00	2	.007
PostAssessment_and_Care_Planning	2.50			
3mAssessment_and_Care_Planning	2.50			
PreSymptomManagement	1.70	.93	2	.627
PostSymptomManagement	2.20			
3mSymptomManagement	2.10			
PreACP	1.90	6.62	2	.037
PostACP	2.70			
3moACP	1.40			
PreOverarching_Values_Knowledge	1.80	.62	2	.735
PostOverarching_Values_Knowledge	2.00			
3mOverarching_Values_Knowledge	2.20			

Note: Levels of $p < 0.1$ level indicate significance

Pairwise (post-hoc) comparisons were examined between each combination of significant variables. The results of the multiple comparisons indicated significant differences, based on an alpha value of .10, between the following variables: The pre and three-month survey, the pre and post-assessment and care planning survey, and the pre and three month post assessment and care planning surveys. Pairwise comparisons were examined between each combination of the

domain ACP variables. The results indicated that none of the individual pairwise comparisons were significantly different. Table 3 presents the results of the pairwise comparisons of the significant findings of the Friedman's Rank Sum test.

Table 3*Pairwise Comparisons for the Rank Sums*

Comparison	Observed difference	Critical difference
Presurvey-Post.Survey	5.00	6.73
Presurvey..S.-3m.Survey	7.00	6.73
Post.Survey-3m.Survey	2.00	6.73
PreAssessment_and_Care_Planning- PostAssessment_and_Care_Planning	7.50	6.73
PreAssessment_and_Care_Planning- 3mAssessment_and_Care_Planning	7.50	6.73
PostAssessment_and_Care_Planning- 3mAssessment_and_Care_Planning	0.00	6.73
PreACP-PostACP	4.00	6.73
PreACP-3mACP	2.50	6.73
PostACP-3mACP	6.50	6.73

Note. Observed differences > critical differences indicate significance at the $p < 0.1$ level

Kruskal-Wallis Test

A Kruskal-Wallis rank sum test was conducted to assess if there were significant differences in total EMET scores between the disciplines of the participants. The Kruskal-Wallis test is a non-parametric alternative to the one-way ANOVA and does not share the ANOVA's distributional assumptions (Conover & Imam, 1981). The results of the Kruskal-Wallis test were not significant based on an alpha value of .10, indicating that the mean rank of total scores for ACP was similar for each discipline of medical doctor, physician assistant, and registered nurse. Additionally, the results were not significant for ACP scores for each specialty of primary care and palliative care. Table 4 presents the results of the Kruskal-Wallis rank sum test.

Table 4*Kruskal-Wallis rank sum test for total scores for ACP by discipline and specialty*

Discipline	Mean Rank	χ^2	<i>df</i>	<i>P value</i>
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Medical Doctor	3.17	2.67	2	.264
Physician Assistant	4.50			
Registered Nurse	1.00			
Specialty				
Primary Care	2.50	0.35	1	.554
Palliative Care	3.33			

Note: Levels of $p < 0.1$ level indicate significance

Aggregate Data and Participant Comments

There was limited execution of performing ACP with POLST in the three months following the intervention. One palliative care provider performed POLST in an in hospital setting with the assistance of the facilitator during a goals of care meeting with a patient. Aggregate data on the patient showed that the patient was a 68-year-old female with alcoholic end-stage liver disease and the provider indicated that the POLST was used because the patient wanted aggressive care. None of the other participants used the POLST during ACP conversations on patients after the intervention. One HCP indicated that they had POLST conversations on “an outpatient basis a few times” and that they were “able to speak with family members on the patient’s condition and recommend palliative care or hospice in a number of cases and mostly went well”. Another HCP commented, “lack of time available”, “increased demand during pandemic”, and “hoping to still implement POLST into the group practice eventually”. Another comment on the final survey was, “seeking out advance directives as a fundamental part of each consult” and “if there are none, we utilize our medical social workers to assist the patients”.

Impact of the Project

The results show that organizational policy change should be considered to include better processes for patient education and assistance for ACP. The proposed system change will include the ACP policy to include the POLST form. In the state of Arizona, the advanced directive will

override the POLST form if there is a contradiction. To decrease the possibility of this happening, the policy will advise providers completing the form to update the advanced directive and the POLST at the same time and include surrogates. It will designate the POLST form as an extension of the advanced directive and is to be honored upon using the emergency department or having admission to the hospital as an expression of the patient's wishes.

With this new process and policy for ACP with POLST, all employees and providers that use the medical center will be aware of the POLST form and its relation to patient wishes. The new policy will make everyone aware of ACP, differences in forms, what the POLST form is and when it is used, and lastly, when the POLST form should be reviewed and updated. All of this will be with the final goal of improved patient care and honoring patients' wishes at the EOL.

Sustainability

After approval from the organization and implementation of the new policy, a monitoring process including chart audits will be structured so that the process change continues to be successful which will include an ACP leader that is available for assistance. At this time, education will be revisited so that all employees are familiar with the new process. Yearly education will be given to preserve knowledge of the ACP process by those who do not have ACP conversations and to retain skill for those HCP that do have ACP conversations. The new procedure will be system-wide both inside the hospital and in all the medical group practices to maintain sustainability. All of this will be with the final goal of improved patient care and honoring patients' wishes at the EOL.

Discussion

Summary

The results of this EBP project are important for the future of healthcare for several reasons. The project results show us that ACP training for HCP significantly improves assessment and care planning and ACP after training so healthcare organizations should consider offering training for their healthcare professionals. The decreased use of the POLST forms indicates that training for HCP can improve comfort to perform ACP but may need a mandate or incentive to get buy-in. The type of training should be evaluated before offering to see if a more interactive ACP training session is beneficial. In this project, a registered nurse was the only ancillary staff that was involved with the training. As mentioned by one of the participants, including social workers may increase the use and understanding of POLST to them and to their patients or the providers that they assist. The project was completed in 2021 which is about a year and a half after the COVID pandemic started. Many of the primary care HCP were not having in person visits with their patients due to restrictions. The types of patient exams that were conducted also may have not provided an opportunity to have the ACP conversations as they would have in a pre or post covid clinic schedule.

Limitations and Challenges

There were several limitations and challenges to the project. The TPB guided the project well but possibly could have been more effective if subject norms were higher. The providers all had a preconceived attitude about ACP before the training. Additionally, they each had different levels of confidence (behavioral control). The literature shows that training can improve attitudes, confidence, and skill to perform ACP. At the current facility, the subject norm (pressure to adapt) is relatively low due to most people being unfamiliar with the POLST process and low organizational interest at implementation time. The organization is recently merged with

a larger company where POLST is very well integrated into its processes. This makes the possibility of subject norms increasing in the future likely.

Other limitations were also present. The first is the small sample size. There was limited organizational interest at some levels which likely affected the small participant pool and possible outcomes. The AzHHA POLST taskforce offers several different ACP training events. The most limited training event was the *Introduction to POLST* class. The organization's three-hour interactive *Difficult Conversations* class offers live situations to practice using the POLST form and having ACP conversations so that HCP can become more proficient. This class was initially presented to organizational administration as the intervention and was rejected due to time. The organization also decided not to mandate or incentivize the education. There was few POLST forms used post intervention, so this may have affected how the participants viewed the new process or how it would express their patient's wishes. It is unclear whether there were ACP conversations during that time without POLST, so it is unknown whether overall ACP conversations were limited or if the POLST form alone was limited.

Parallels in the Literature

There are several parallels with this project and current literature on ACP. Healthcare professionals expressed that time was a barrier to completing ACP (Dube et al., 2015; Flo et al., 2016; Glaudemans et al., 2018). The facilitator explained to the participants how to increase their "time" by involving their staff but more detailed teaching on staff involvement may need to be shown to the providers. This could expand to billing also because ACP conversations are reimbursable by Medicare (DiBello, 2021). Time could be increased by utilizing staff which has a two-fold benefit because longer conversations has higher reimbursement when billing for ACP. Education on this may need to be expanded on in the future. Some administration in the

organization was hesitant to the initial scale of the proposed project. This and the impending merger that the organization had may have decreased any stress for the HCP to complete the project. Organizational and systematic support can be a barrier or a facilitator to ACP (Dube et al., 2015; Flo et al., 2016). Overall, the results showed that ACP training improved the competence and confidence (or ability and intent) to perform ACP after training. This is consistent with the current literature that training improves knowledge, attitudes, comfort, readiness, and likeliness to perform ACP (C. Chan et al., 2019; H. Chan et al., 2020; Dube et al., 2015; Flo et al., 2016; Glaudemans et al., 2018; Luckett et al., 2017; Pearse et al., 2021). The growing research on the subject shows that ACP should be focused on the in the future.

Future Recommendations

This EBP shows us the need for larger studies that compare the differences between primary care, palliative care, types of ACP training, and complex system support. Despite the small sample size, there was enough statistical significance to show that future studies should include larger studies on the subject. There were no significant differences between the disciplines or specialties of the HCP, but it would be interesting to see if there were more disciplines or specialties if this would still be the case. In addition, due to the limited use of the POLST form after the intervention, clinical significance was difficult to assess.

Conclusion

Advance care planning that includes the POLST form represents patients' wishes at EOL and should be considered in patients with chronic diseases. The evidence shows that when HCP are trained on ACP conversations, their comfort and skill to have these conversations improve. Theoretical and innovative frameworks guided a change in a complex rural organization. The results of an EBP project shows that ACP training significantly improves confidence and

competence to perform ACP. Organizations should consider supporting education and decreasing barriers for their HCP to increase ACP conversations between HCP and their patients. These changes will help influence better care of our elderly patients, especially those with chronic disease, at the end of their life.

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Appendix A

Table 1

Evaluation Table of Quantitative Research

Citation	Theory/ Conceptual Framework	Design	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
<p>C. W. H. Chan et al. (2019). A SR of the effects of ACP facilitators training programs</p> <p>Country: USA, Australia, UK, Canada, Korea</p> <p>Funding: None</p> <p>Bias: selection</p>	<p>Inferred: Theoretical framework of knowledge, attitudes, and behaviors</p>	<p>Design: SR of RCT and QE studies with control</p> <p>Purpose: Evidence for the effectiveness of ACP programs.</p>	<p>n= 4025 participants N = 10 studies 2 RCT, 2 QE (pre-posttest), 1 prospective NRCT/QE, 5 cohort</p> <p>DS: MEDLINE, CINAHL, PubMed, EMBASE, Cochrane library, JBI, EBP, PsychInfo, Health and</p>	<p>IV: ACP training program for HCP</p> <p>DV1: Improving HCP knowledge for ACP</p> <p>DV2: Improving HCP attitudes for ACP</p> <p>DV3: Improving HCP competence for ACP</p>	<p>Original studies used: validated tools – DSA, FIHPPSMHD, BNC, PP, EOL performance scale</p>	<p>PRISMA guideline</p> <p>3 reviewers</p> <p>Appraisal tool: EPHPP</p> <p>Study appraisal quality = 2 strong, 2 moderate, 6 weak</p>	<p>Findings: ACP training increased: DV1 knowledge DV2 attitudes DV3 communication, confidence, comfort, and experience DV4 didn't address ACP frequency</p>	<p>LOE = I</p> <p>Strengths: High quality, small sample</p> <p>Weaknesses: Blinding is not consistent. No Meta-analysis</p> <p>Conclusions: ACP training has a positive effect on HCP</p> <p>Feasibility: ACP training programs increase HCP skill, knowledge,</p>

Key: **ACP** - Advance Care Planning, **AD** - Advanced Directive, **AGNP** - Adult Gerontology Nurse Practitioner, **BNC** - Bad News Conversations, **CC** - Critical Care, **CE** - Continuing Education, **CI** - confidence Interval, **CINAHL** - Cumulative Index to Nursing and Allied Health Literature, **CKD** - Chronic Kidney Disease, **DNR** - Do Not Resuscitate, **DS** - Database Searched, **DSA** - Decision Support Analysis, **ECP** - Elderly Care Physician, **EMR** - Electronic Health Record, **EOL** - End-of-Life, **EOLCDQ II** - End of Life Care Decision Questionnaire II, **EPHPP** - Effective Public Health Practice Project appraisal tool, **ERIC** - Institute of Educational Sciences, **F** – Female, **FIHPPSMHD** - Factors Influencing Health Professionals Providing Support for Patients Preparing to Make Health Decisions, **FNP** - Family Nurse Practitioner, **GP** - General Practitioner, **GSFCH** - Gold standards frame-work for care homes, **HCP** – health care personnel, **IM** - Internal Medicine, **JCEHP** - Journal of Continuing Education for Health Professionals, **LOE** - Level of Evidence, **M** – Male, **MH** - Mental Health, **MM** - Mixed Methods, **MMAT** - Mixed Methods Appraisal Tool, **MS** - Medical Students, **NH** - Nursing Home, **NHMRC** - National Health and Medical Research Council, **NOHRD** - The Netherlands Organization for Health Research and Development, **NP** - Nurse Practitioner, **NRCT** - Non-Randomized Control Trial, **OB** – Obstetric, **OR** - Odds Ratio, **PC** - Primary Care, **Peds** – Pediatrics, **POLST** - Physician Order for Life Sustaining Treatment, **PP** - Patient Preferences, **PRISMA** - Preferred Reporting Items for Systematic Reviews and Meta-Analysis, **PT** – Patient, **PWD** - People with Dementia, **QE** - Quasi-experimental, **QL** – Qualitative, **QN** – Quantitative, **RP** - Role Playing, **SR** - Systematic Review, **SW** - Social Workers, **TBP** - Theory of Planned Behavior, **UK** - United Kingdom, **USA** - United States of America

Citation	Theory/ Conceptual Framework	Design	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
bias/original studies			Psychosocial Instruments. Population type: HCP – 3 hospital, 1 IM, 2 CC, 2 MS Inclusion: HCP working with a terminal illness Exclusion: Community or home PT, neonatal, or pediatric	DV4: Improving frequency of ACP Training program: program, workshops, in-person or online, RP				and attitudes for ACP
H. Chan et al. (2020). Association between training experience and	Stated: TBP	Design: Cross-sectional Purpose: Identify the relationship between ACP	n = 250 Convenience sample Population type: HCP	IV- ACP training DV- (attitudes) conducting ACP	Survey created by experts (Palliative Care & ACP). Likert scale.	SPSS 25.0 Descriptive Statistics Chi-square test, independent	Attitudes of HCP readiness for ACP with and without ACP training ($P \leq 0.001$)	LOE: IV Strengths: Variety of HCP, adequate sample size, data analysis

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Citation	Theory/ Conceptual Framework	Design	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
<p>readiness for ACP among HCP: A cross-sectional study.</p> <p>Country: Hong Kong</p> <p>Funding: none</p> <p>Bias: Possible selection bias</p>		<p>education and HCP readiness to perform ACP</p>	<p>(Physicians, nurse, SW)</p> <p>Demographics: Female (66.4%), In-hospital (70.7%) Mean age: 41.8 years Average clinical experience: 17.9 years</p> <p>Site/Setting: Online</p> <p>Inclusion: HCP Exclusion: none noted</p>	<p>Training = didactic alone or with/without web or in-person learning, blended learning, or “local/overseas” placement</p> <p>Attitudes = Relevancy, willingness, and confidence</p>		<p>t t-test, Mann-Whitney U test, & ANOVA, multiple linear regression</p>	<p>HCP with didactic training significantly lower confidence for ACP (P = 0.012)</p>	<p>Weaknesses: Instrument not validated, online survey, convenience sampling.</p> <p>Conclusions: HCP with training</p> <p>Feasibility: Identifies HCP comfort to address ACP training in different formats</p>
<p>Dube et al. (2015). Advance care planning complexities</p>	<p>Stated: Kolcaba’s Comfort Theory</p>	<p>Design: Quantitative Non-experimental descriptive</p>	<p>n = 160 (13% response rate)</p>	<p>Research questions</p> <p>IV – prevalence of ACP</p>	<p>EOLCDQ II</p> <p>Likert Scale for barriers/facilitator</p>	<p>SPSS version 22</p> <p>EOLCDQ II measured with central tendency,</p>	<p>IV – 65% of NP having ACP talks sometimes</p>	<p>LOE: IV</p> <p>Strengths: NP focused study, validated tool</p>

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for nurse practitioners Country: USA Funding: none apparent Bias: none evident		Purpose: To assess ACP discussions and identify barriers and facilitators to these barriers by nurse practitioners	Power analysis 80% Population type: NP Demographics: F (94.7%), white (92.5%), married (77%), 92% between 30 – 65 years, Site/Setting : online survey over 75 days Inclusion: Member of State NP organization Exclusion: none noted	DV1 – Barriers to ACP DV2 – Facilitators to ACP Barriers = personal, system, professional Facilitators = personal, system, professional	1-way analysis of variance (Kruskal-Wallis)	cross-tabulations for NP education, EOL, training, experiences opportunity	79% felt training would increase ACP 72-86% felt like more ACP talks were happening after CE DV1- - time (P > 0.05) - EMR, forms, education, leadership (P < 0.05) DV2 -time – staff, appointment -EMR, forms, education, leadership support ACP themes -lack of knowledge	Weaknesses: Online survey, low response rate, sample=white, married F Conclusions: Training, time, EMR, leadership increase ACP discussions Feasibility: Dated research but NP-specific study on ACP, barriers, and facilitators of ACP

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							-practice issues -culture	
<p>Flo et al. (2016). A review of the implementation and research strategies of ACP in NH</p> <p>Country: USA, Canada, UK, Hong Kong, New Zealand, Australia</p> <p>Funding: Research Council of Norway</p> <p>Bias: possible methodological and</p>	<p>Inferred: Theoretical Domains Framework</p>	<p>Design: Scoping literature review</p> <p>Purpose: To review research and implementation strategies for ACP</p>	<p>n = 1939 participants N = 16 studies</p> <p>DS: CINAHL, Medline, PsychInfo, Embase, Cochrane library</p> <p>Population type: HCP</p> <p>Setting: NH</p> <p>Inclusion: NH PT/family/HCP, QL & QT</p> <p>Exclusion: Home /hospital PT,</p>	<p>IV- ACP Implementation strategy in NH</p> <p>DV1 content of ACP intervention</p> <p>DV2 implementation (target group/training)</p> <p>DV3 outcomes of intervention</p> <p>DV4 study design/methods</p> <p>DV5 barriers/promoters for ACP</p> <p>ACP = conversatio</p>	<p>Original studies (tools):</p> <p>POLST, GSFCH, Let me talk, Let me decide, Advance Directives, Making Health Choices</p>	<p>PRISMA guideline</p> <p>7 researchers with group agreement for article inclusion</p> <p>Themes: 1-Clinical intervention studies 2-Tools with ACP/AD goal 3-ACP process papers</p>	<p>Staff education is most common</p> <p>DV1: learning courses, training</p> <p>DV2: HCP including physicians and NH staff</p> <p>DV3: ACP documentation/stated preferences</p> <p>DV4: ACP implementation studies, MM studies</p> <p>DV5: -barriers: HCP, time, engagement</p>	<p>LOE = I</p> <p>Strengths: Scoping review of QL & QT research</p> <p>Weaknesses: few blinded studies, power analysis not addressed, heterogeneous, ACP tools variable</p> <p>Conclusions: ACP is a process, interventions vary.</p> <p>Feasibility: Education and provider involvement important for</p>

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statistical bias in original studies, selection bias			guidelines, non-English/Scandinavian, no abstract, DNR	ns with family/PT			-promoters: support, education, physician involvement, relationships, early intervention	ACP implementation. ACP interventions increase ACP completion.
Luckett et al. (2017). ACP in chronic kidney disease: A survey of current practice in Australia Country: Australia, New Zealand Funding: none noted	Stated: TPB	Design: Cross-sectional survey Purpose: To identify current practice, barriers, and facilitators	n = 375 Population type: HCP Demographics: nephrology HCP, mean age 48.7 years, 80% F, 91% no religious view, 77% dialysis unit Site/Setting : Online Inclusion: HCP self-	Research questions: IV - current ACP practice DV1- barriers/facilitators to ACP DV2- determine need for and content of CKD specific education	Survey developed by ACP experts (palliative care, nephrology HCP, psychology, and health economist), non-validated, piloted 10 ties with renal HCP	SPSS V23.0 stats software Descriptive statistics, inferential stats for variable relationship (bivariate, multiple variates), Student t-test, Multiple linear regression	IV - 88% no regular ACP but 88% ACP willing; 79% no ACP experience, DV1- 85% recommend a trained designee DV2- ACP conversations significant with HCP (not a nephrologist) (OR 4.96, 95% CI 1.47-14.07) and conform on ACP discussion (OR 1.29-95%	LOE: IV Strengths: target population, variety of renal HCP Weaknesses: online survey, mostly F Conclusions: Nephrology needs CKD focused ACP training Feasibility: HCP/nephrologists need

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Bias: Selection bias			identified as HCP caring for CKD Exclusion: none identified				CI 1.12-1.48), CKD focused training programs may increase ACP (OR 10.88, 95% CI 2.38- 49.47); less likely if >45 years old (OR 0.25, 95% CI 0.08-0.75); or believed it wasn't their role (OR 1.29, 95% CI 1.12- 1.48)	training in ACP for CKD
Pearse et al. (2021). CE outcomes for ACP: A SR of the literature. Country: Australia Funding: none evident	Inferred: Theoretical framework of knowledge, attitudes, and behaviors	Design: SR Purpose: Review evidence and recommend improvements in education for HCP in ACP.	n = 3954 participants N = 45 28 QN, 14 MM, 3 QL DS: CINAHL, ERIC, PubMed, Web of	IV- Continuing education DV1 changes in confidence, knowledge, skill DV2 practice change	Original research instruments for QN (n = 28) included 7 with control groups, 21 used post-tests with 15 of those using a pre-test also; 14 were MM; 3 QL with reflection	SR measurements of articles were done by individual critical appraisal of each article by 3 researchers	DV1 more confidence, knowledge, skill 84% DV2 Changes in practice 44% DV3 response to learning 40% DV4 PT benefit <1%,	LOE = I Strengths: high LOE, HCP specific Adequate appraisal by multiple researchers. Weaknesses: Original

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<p>Bias: No apparent bias in SR, possible selection bias in original studies, possible publication bias in JCEHP</p>			<p>Science, Scopus</p> <p>Population type: HCP</p> <p>Setting: Studies used from UK, Australia, Netherlands, Belgium, Canada, Japan, US.</p> <p>Inclusion: CE for ACP, HCP, QL, QN, MM, Outcomes (HCP = skill, knowledge, PT, clinic), English</p> <p>Exclusion: EOL focus, non-English,</p>	<p>DV3 Response to learning</p> <p>DV4 the benefit to the patient</p> <p>DV5 organization change</p> <p>Continuing Education: didactic teaching or workshops, videos, manuals, RP, computerized learning</p>	<p>Both validated and non-validated tools were used in the original studies</p>	<p>using the NHMRC evidence hierarchy</p>	<p>DV5 organizational approach <1%</p>	<p>studies are heterogeneous (can also be a strength) and have non-validated tools</p> <p>Conclusions: Practice and RP activities helpful. Measured outcomes were limited.</p> <p>Feasibility: ACP CE interventions to improve ACP consistent with PICOT</p>

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<p>Phillips et al. (2018). Advance care planning and chronic kidney disease: What do patients know and what do they want?</p> <p>Country: Canada</p> <p>Funding: None noted</p> <p>Bias: none evident</p>	Inferred: Health Belief Model	<p>Design: Cohort, Non-probability, consecutive sampling</p> <p>Purpose: To explore the knowledge of patients with CKD on: Q1 – supportive care knowledge Q2 – supportive care and psychosocial needs Q3 – EOL preferences in CKD</p>	<p>n = 133 64% response rate</p> <p>Population type: CKD PT</p> <p>Setting: Hospital or community based</p> <p>Demographics: mean age 60-79 years (58.9%), M (56.4%), White (81.2%), dialysis PT (56.4%), high school education, English</p>	<p>IV-CKD PT knowledge of ACP</p> <p>DV1- identify knowledge of ACP</p> <p>DV2 – psychosocial and support need</p> <p>DV3 – EOL preference</p>	Supportive care survey 3 sections - EOL -Demographics -general care -medical care	Descriptive statistics	<p>DV1 - 88% PT did not have provider discuss ACP</p> <p>PT gets info from specialists (58.6%), GP (49.6%)</p> <p>57.1% Never heard of ACP but familiar with hospice (63.9%) and palliative (69.2%)</p> <p>DV1 – 84.2% want prognosis, but 88% had not been informed</p> <p>DV3 – 36.1% want to die at home</p>	<p>LOE: IV</p> <p>Strengths: no apparent bias</p> <p>Weaknesses: population rural, white, English, survey</p> <p>Conclusions: PT wants ACP when ill, symptom management, family care important by HCP.</p> <p>Feasibility: PT wants GP involved with PT and family with prognosis, symptom management, and ACP when</p>

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			<p>Site/Setting : Dialysis treatment center</p> <p>Inclusion: >18 years, CKD stage > stage 4, GFR < 30 ml/min, English, + cognitive</p>				<p>-15% want to die in the hospital -probably or do not want CPR (57.4%) - want ACP discussions, family (80.5%), GP (34.6%), nephrologist (33.8%)</p>	<p>they are ill. Applies to the population of the PICOT question.</p>
<p>Tilburgs et al. (2018). Barriers and facilitators for GPs in dementia advance care planning: A systematic integrative review</p> <p>Country: UK, USA, Belgium,</p>	<p>Stated: Integrated review methodology for theoretical, QL, and QT studies</p>	<p>Design: SR Integrative</p> <p>Purpose: Identify barriers that GPs face with initiating ACP in people with dementia</p>	<p>n = 16 10 QL, 5QT (cross- sectional), 1 MM</p> <p>DS: Embase, Psychinfo, Medline, CINAHL, Cochrane Library</p>	<p>IV- barriers and facilitators of ACP in PWD</p> <p>DV- Initiation of ACP by GP</p>	<p>Original Research: QL and QT research independently run by QL ATLAS software to code and identify themes.</p> <p>Critical appraisal from each article by 2 researchers with MMAT</p>	<p>PRISMA guideline for article selection</p> <p>ATLAS for QL coding</p>	<p>Q1 – Timely ACP Facilitator – cognitive decline (QT), acute illness (QL), 85% GP should initiate ACP Barrier – Timing of ACP (86% - QT), PWD (QL)</p>	<p>LOE = 1</p> <p>Strengths: QL and QT review, common themes</p> <p>Weaknesses: Not culturally diverse, moderate quality research</p>

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Citation	Theory/ Conceptual Framework	Design	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
<p>Germany, Singapore</p> <p>Funding: ZonMw Memorabel program, #79-73305-98-420</p> <p>Bias: none evident</p>			<p>Population type: PWD or family, GPs, HCP,</p> <p>Inclusion: articles for GP barriers or facilitators for ACP in people with dementia</p> <p>Exclusion: Not about dementia, non-empirical</p>		<p>Original studies = moderate quality Perceived barriers scale – used for QT data</p>		<p>Q2 – Stakeholder engagement Facilitator – (QT) shared-decision making PT/GP (mean 2.20 of scale 1-4) Barrier – poor relationships PT/GP, PWD (QL), no sign difference with PWD and family or GP (r= 0.05, r = 0.17). Q3 – Aspects of ACP Facilitator – QOL, EMR, (QL), PWD social decisions housing (mean 1.28, SD 0.7), driving (mean 1.39, SD 0.63) (QT)</p>	<p>Conclusions: GP can do ACP in PC, timely initiation, PT/family engagement, and HCP education/training important for success.</p> <p>Feasibility: GP/HCP relationships and training increase ACP initiation in chronic diseases such as dementia.</p>

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Citation	Theory/ Conceptual Framework	Design	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
							<p>Barriers- EMR, poor ACP knowledge (QL)</p> <p>Q4 – Prerequisites ACP Facilitator – ACP knowledge (QL), PWD less negative ACP (t=2.47, p = 0.015) (QT)</p> <p>Barrier – ACP unpredictable (QL)</p>	

Table 2

Evidence Table of Qualitative Research

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Citation	Theory/ Conceptual Framework	Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
<p>Glaudemans et al. (2019). How do Dutch Primary Care Providers overcome barriers to advance care planning with older people? A qualitative study.</p> <p>Country: Netherlands</p> <p>Funding: NOHRD</p> <p>Bias: selection bias</p>	<p>Inferred: Phenomenological Concept of Experience</p>	<p>Method: Phenomenology, semi-structured interview</p> <p>Purpose: Identify how Dutch HCP overcome barriers to ACP in people > 65 years old</p>	<p>N = 47 n = 14 saturation achieved at 11 Purposive sampling</p> <p>Population type: Dutch HCP</p> <p>Setting: in subject's home, practice, or research center</p> <p>Demographics: Median age 50 years, 10 F, 4 M, 8 GP, 3 GCP, 3 nurses</p>	<p>IV- personal intervention used to overcome ACP barriers</p> <p>DV- complete ACP in elderly patients</p> <p>Barriers = practices, beliefs, attitudes, knowledge, time</p>	<p>Semi-structured interview</p> <p>Tape recorder</p> <p>Interview guide not included</p> <p>2 interviewers</p> <p>Post-interview conference</p>	<p>Interviews transcribed from a recording. MAXQDA software.</p> <p>Independent analysis by 2 researchers</p>	<p>Themes:</p> <p>IV1 Improving expertise/skill- education - research - teaching (peers/patients) - practice</p> <p>IV2 – Approaches to elderly/family - involvement of patient/family - involve nurses</p> <p>IV3 – organization of care/time - age-appropriate teaching tools - delegation</p>	<p>LOE = VI</p> <p>Strengths: Identifies ACP barrier strategies</p> <p>Weaknesses: Small number of respondents, bias</p> <p>Conclusions: Practicing, education, exchange, and reflection overcame barriers. Communication skills opened up talks with patients/family</p> <p>Feasibility: Barrier resolution HCP for geriatric PT</p>

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Citation	Theory/ Conceptual Framework	Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
			<p>Inclusion: HCP with experience in ACP with elderly Exclusion: No experience with ACP in the elderly</p>					
<p>Littlewood et al. (2019). ACP in rural South Wales from the perspective of general practice registrars and recently followed GP</p> <p>Country: Australia</p> <p>Funding: GP synergy</p> <p>Bias:</p>	<p>Inferred: Phenomenological Concept of Experience</p>	<p>Method: Qualitative descriptive, Phenomenology</p> <p>Purpose: To understand GP current involvement, barriers, and facilitators of ACP</p>	<p>n = 13 purposive sampling saturation achieved at 13</p> <p>Population type: GP</p> <p>Setting: Primary care</p> <p>Demograph ics: mean F 25-30, GP in a rural area, born/trained in Australia</p>	<p>IV- current level of ACP</p> <p>DV1- ACP training</p> <p>DV2- barriers of ACP</p> <p>DV3- facilitators of ACP</p>	<p>Semi-structured face to face and telephone interviews</p> <p>One interviewer for all interviews</p>	<p>QSR NVivo 11 software for coding</p> <p>6 interviews coded by 3 researchers for reliability</p>	<p>Themes: IV1 – Poor ACP uptake</p> <p>DV1 – 77% no formal ACP training</p> <p>DV2 – -no ACP (PT) understanding -time -no specialists in the rural area (ex: palliative care)</p> <p>DV3- - PT/GP relationship</p>	<p>LOE = VI</p> <p>Strengths: GP represented</p> <p>Weaknesses: possible selection bias, rural only</p> <p>Conclusions: Lack of provider training and time is ACP barrier</p> <p>Feasibility:</p>

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Citation	Theory/ Conceptual Framework	Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Selection bias, confirmation bias			Inclusion: GP and registrars in South Wales, training < 5 years				-PT right to choose EOL	Rural GP needs support, time, and training for ACP. Applies ACP to PT with chronic disease.

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Appendix B

Table 1

Synthesis table

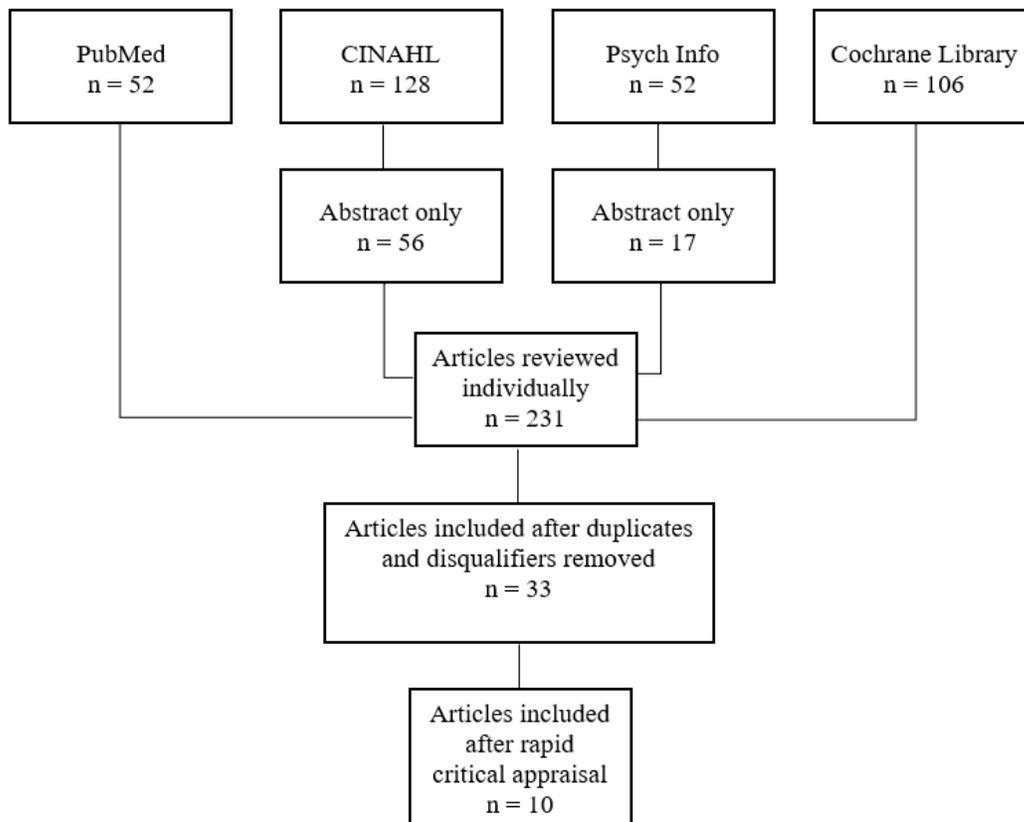
Author	C. W. H. Chan et al. (2019)	H. Chan et al. (2020)	Dube et al. (2015)	Flo et al. (2016)	Luckett et al. (2017)	Pearse et al. (2021)	Phillips et al. (2018)	Tilburgs et al. (2018)	Glaudemans et al. (2019)	Littlewood et al. (2019)
Type of study	QN	QN	QN	QN	QN	QN	QN	QN	QL	QL
Design/method/LOE	SR/I	CS/IV	QN NE/IV	Scoping LR/I	CS/IV	SR/I	Cohort NP/IV	SR/I	Phenom/VI	Phenom/VI
Sample	10 studies 4025 HCP	250 HCP	160 nurse practitioners	16 study; 1939 HCP	375 HCP	45 studies 3954 HCP	133 CKD patients	16 general practitioners	14 HCP saturation 11	13 general practitioners
Bias	X	X		X	X	X			X	X
Country	USA, I	I	USA	USA, I	I	I	I	USA, I	I	I
Independent variables										
Education/Training	X	X				X				
ACP			X	X	X			X	X	X
PT knowledge							X			
Dependent Variables										
Education/Training	↑	↑=↓, ↑	↑, ↑=B	↑, B	↑, ↑	↑		↓	↑	↓↑
Time/Timing			B (T)	B (T, Ti)	B		F (Ti)	B, F(Ti)	B (T)	B
Relationships*				B, F			F	B	F	B
Stakeholder/System			B, F	B		∅		X		
EMR/ACPD			B, F	↑				B, F		
Provider				↑	↑		B, F	B, F		B
Chronic Disease	TI			PWD	CKD		CKD	PWD		
HCP Setting	C	H	Varied	NH	Varied	Varied	DC	PC	PC	PC
Type of HCP	P, N, O	P, N, O	P, N	P, N, O	P, N, O	P, N, O	P	P, N	P, N	P

Key: * = PT/family/provider, ↑ = Increases (knowledge, attitude, comfort, readiness, likeliness of ACP), ↓ = Decreases ACP, **ACP** - Advance Care Planning
ACPD - Advance Care Planning Documentation/completion, **B** = Barrier, **C** = Community or home, **CKD** - Chronic Kidney Disease, **CS** - Cross-sectional
DC = Dialysis center, **EMR** - Electronic Medical Record, **F** = Facilitator, **H** - Hospital, **HCP** - Healthcare Personnel, **I** - International, **LOE** - Level of Evidence
LR - Literature review, **N** - Nurse, **NE** - Non-experimental, **NP** - Non-probability, **∅** = not statistically significant, **O** = other HCP (social worker, manager, medical assistant), **P** = Provider, **PC** - Primary Care, **Phenom** - Phenomenology, **Provider** = General Practitioner, specialty practitioner, Nurse Practitioner = involvement, engagement, relationship, **PT** - Patient, **PWD** - People with Dementia, **SR** - Systematic review, **↑** = lack of ACP training or no ACP experience, **T** = Time, **Ti** - Terminal Illness, **Ti** = Timing, **USA** - United States of America

Appendix C

Figure 1

Search Strategy

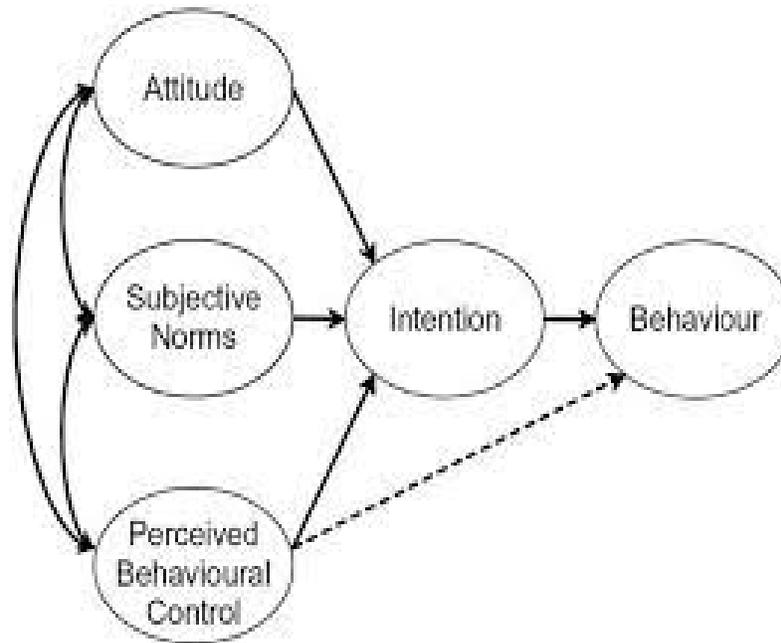


Note: This figure shows the search strategy, screening, and eligibility of the research.

Appendix D

Figure 1

Theory of Planned Behavior model

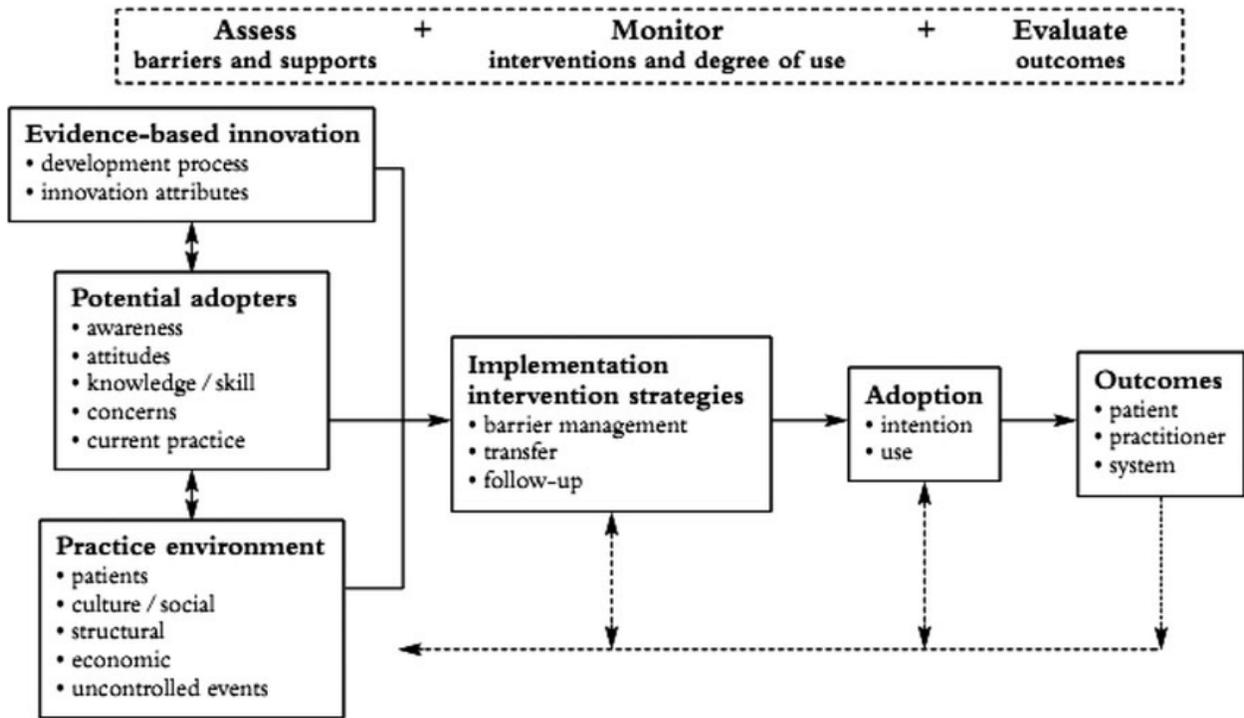


Note: This figure shows the Theory of Planned Behavior and the relationship between the components and intention to change behavior. (Ajzen, 1991, p. 182).

Appendix E

Figure 1

Ottawa Model of Research Use



Note: This figure shows the process of assessment, monitoring, and assessment for the implementation steps of evidence-based research. (Graham & Logan, 2004, p. 100).