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The Implementation of a Palliative Needs Screening Intervention in a Neuro Critical Care Unit:

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The Implementation of a Palliative Needs Screening Intervention in a Neuro Critical Care Unit: Review of Literature

BY

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This Doctor of Nursing Practice (DNP) Project is approved as a credible and independent investigation by a candidate for the DNP degree and is acceptable for meeting the project requirements for this degree. Acceptance of this DNP Project does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

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Abstract

Introduction: Palliative care (PC) is essential and yet underutilized in critical care settings. Neuro critical care units (NCCUs) and the populations they serve can benefit from PC's focus on prevention and relief of suffering. Palliative Needs Screening Interventions (PNSIs) are tools used to identify and address PC needs.

Methods: A literature review using PUBMED, Cochrane library, Google Scholar, and Embase found 62 relevant articles. After assessing for support to the PICOT question and strength of the articles, 15 articles were accepted.

Gaps: Few PNSIs have been tested. Consistency between PNSIs and the settings in which they are implemented is lacking. Only select studies have explored the use of PNSIs in neuro specific intensive care units (ICUs) with most research pertaining to ICUs of unspecified types.

Recommendations for Practice: The development and implementation of PNSIs is recommended for all ICUs (including NCCUs) to identify PC needs early and empower care teams to meet these needs. Interventions such as PNSIs can be used to integrate PC into the daily workflow of NCCUs by involving and improving nurses' PC practices and increasing the number of PC referrals and care conferences.

Keywords: palliative care, screening intervention, screening tool, critical care

The Implementation of a Palliative Needs Screening Intervention in a Neuro Critical Care Unit: Review of Literature

Introduction

Neurocritical care (NCC) is a growing and relatively new specialty field of medicine. NCC patients are typically cared for in a neuro critical care unit (NCCU), which is otherwise referred to as the neuro intensive care unit (ICU) but is not abbreviated as such to avoid confusion with the neonatal intensive care unit (NICU). This specialty maintains the responsibility of caring for critically ill patients and the added complexities of managing patients with neurological illnesses. A typical NCCU experiences a high prevalence of poor patient prognoses, life-altering medical events, and family end-of-life (EOL) decision making, resulting in nurses frequently providing EOL care (Bernat, 2015). These patients require a specially trained care team including roles such as NCC nurses, neurointensivists, therapists, pharmacists, patient care technicians, social workers, and chaplains. Collaboration is important between the care team members themselves, and between the consulted specialty services.

While several specialty services and disciplines are involved in the care of NCC patients, few are as vital as palliative care (PC). This medical specialty focuses on the prevention and relief of suffering for all individuals (Zalenski et al., 2017). PC provides several benefits to every patient in the hospital, but this specialty is especially poised to positively impact critical care patients (Mun et al., 2017). The Center to Advance Palliative Care (CAPC) defines PC as “a specialized care for people living with serious illness that focuses on providing relief from the symptoms and stress of the illness” (CAPC, 2020, para. 1). CAPC stresses that PC is a “fundamental shift” in healthcare

delivery and is centered around improving quality of life for patients and family members (CAPC, 2020). For patients and family members in ICUs, their PC needs are often unmet, resulting in poor symptom management and inadequate or no advance care planning (Flaherty et al., 2018).

In the NCC setting, an important provision of PC is delegated to trained PC clinicians who are involved in a patient's care via a consult process from the attending NCC provider. The PC team is specially trained to deliver PC to patients with specific needs by leading advance care planning conversations with patients and family members, partaking in care conferences, and providing PC expertise to the care team (Ikejiani et al., 2018). However, PC is not only provided by PC specialists; this holistic approach to care is beneficial for use by all healthcare workers by using the elements of reduction of suffering and including parameters of quality of life in the care of NCC patients. In addition, the field of NCC is progressively adopting models that integrate the principles of PC into their daily practice, which is shown to be beneficial for patients, family members, and the patient care team (Nelson et al., 2010).

Several studies have examined the question of how to integrate and improve PC practice in the ICU. Research shows that specialized nurse PC education and palliative needs screening interventions (PNSIs) have positive outcomes in PC practices, nurse self-efficacy, and PC consults. A PNSI is an intervention integrated into a unit's practice with the goal of quickly and efficiently identifying PC needs in the unit's patient population. Projects such as the Improving Palliative Care in the ICU (IPAL-ICU) have toolkits with education and customizable PNSIs developed to optimally integrate and improve PC in ICUs (Corrêa et al., 2018; Mun et al., 2017; Venis & Dodek, 2020; Zalenski et al., 2017).

The purpose of this review of literature was to analyze and synthesize available information pertaining to the PICOT question with emphasis placed on the implementation of PNSIs in ICUs. In addition, this literature review examined the nurse's delivery of PC in the ICU and the use of the PC perceived self-efficacy scale as an instrument to measure nurses' PC practices.

The literature review consisted of peer-reviewed, scholarly articles from CINAHL, PUBMED, Cochrane library, Google Scholar, and EBSCO databases. The search used the following keywords: *palliative care, intensive care units, palliative screening, consults screening, improving palliative care in the intensive care unit (IPAL-ICU), nurse self-efficacy, and nurse-driven.* Inclusion criteria included peer-reviewed articles published between 2016 and 2022 and written in the English language. The initial search yielded 62 articles which contained information relevant to the keywords and criteria of the project. These articles were filtered further based on their applicability to the PICOT question of the project. In total, 15 articles were included in the literature reviewed as shown in the evidence table (see Appendix A). The Johns Hopkins Nursing Evidence-Based (JHNEBP) Model (see Appendix B) guided the review of the articles for strength and acceptability with the following evaluations noted by the level and grades, respectively: one IIA, two IIB, four IIIA, seven IIIB, and one IVA. For permission to use the JHNEBP model, see Appendix C.

PICOT Question

The PICOT question guiding this literature review was as follows: In critical care trained NCC nurses (P), how does the implementation of a PNSI developed using education and guidelines from the IPAL-ICU project (I), compared to no established PC

screening (C) impact nurses' self-efficacy in PC practices and the number of PC referrals and care conferences (O) over 2 months (T)?

Evidence Summary

Bedside nurses should be involved in PC communication and decision making along with the rest of the care team, the patient, and their family members. Education on PC practices and interventions such as the PNSI can have a positive impact on the nurse's ability to care for patients and identify PC needs (Anderson et al., 2016; Flaherty et al., 2018). PC screening initiatives such as PNSIs are effective tools to improve PC in a wide range of patients including patients in NCCUs (Clara et al., 2019; Corrêa et al., 2018; Flaherty et al., 2018; Martz et al., 2020; Venis & Dodek, 2020; Zalenski et al., 2017). The use of PNSIs positively impacted rates of PC consultation in hospitals in which they were implemented (Corrêa et al., 2018; Hurst et al., 2018; Kichler et al., 2018). PNSIs can enhance early identification of PC needs which improves patient outcomes and quality of care (Teike Lüthi et al., 2020; Vigstad et al., 2018; Zalenski et al., 2017). The IPAL-ICU is an effective toolkit for improving PC in the ICU setting along with the toolkit's PNSI (Mun et al., 2017; Mun et al., 2018; Nelson et al., 2010).

Nurses' Role in PC

Nurses play a vital role in the direct care of patients in the NCC, communication with family members, and collaboration with the care team. Research shows that nurse engagement in PC discussions and practices is beneficial to PC quality. For example, Anderson et al.'s (2016) observational study examined the surveys of 598 nurses' perspectives on involvement in PC communication. The results indicated that nurses see their involvement in PC as a vital element of the overall quality of care that patients

receive. The study also highlighted the barriers preventing this communication, such as providers not including nurses' opinions and nurses' desire for additional PC conversation training. The study stressed the importance of interventions and education to encourage more PC discussions (Anderson et al., 2016). Flaherty and colleagues' (2018) systematic review and retrospective chart review explored the effects of using a palliative assessment screening tool (PAST). Their findings revealed that the preliminary education in addition to the implementation of the PAST enhanced nurse PC knowledge in caring for severely ill patients (Flaherty et al., 2018).

A PC perceived self-efficacy scale developed and published by Phillips et al. (2011) and used by Dehghani et al. (2020) found a positive correlation between PC education and nurse perceived self-efficacy using this instrument. The PC perceived self-efficacy scale is an instrument that has demonstrated validity in measuring nurses' self-perceived PC skills and can be used in the measurement of nurses' self-perceived efficacy regarding PNSIs. Specifically, the scale measures nurse perceived self-efficacy in delivering PC interventions. This tool is reliable with a Cronbach's alpha of 0.87-0.92 to assess nurse perceived self-efficacy (Phillips et al., 2011).

PC Screening Tools

Several studies have tested the use of PC screening tools and found multiple benefits from their use. Clara et al. (2019) assessed the quality of PC using the Palliative Performance Scale (PPS) finding the use of a Palliative Care Screening Tool (PCST) resulted in improved evaluation of PC needs among older adults. Venis and Dodek's (2020) mixed methods study examined the development and implementation of a personalized PNSI. The results showed the PC screening tool is a feasible and systematic

approach to meet ICU PC patient needs (Venis & Dodek, 2020). Zalenski et al.'s (2017) study examined the impact of creating and implementing a PNSI; the results indicated that PNSIs are significantly associated with higher rates of do not resuscitate code status changes, hospice referrals, and decreased rates of hospital length of stay and direct costs. Flaherty et al. (2018) showed that using a PC screening tool improves the identification of PC needs and leads to better management of symptoms.

IPAL-ICU screening tool. The IPAL ICU project was created by CAPC (2020). The project includes a toolkit with guidelines and educational material intended to improve PC in the ICU setting. The guidelines in the toolkit are effective at developing new initiatives in ICU units, such as PNSIs (Mun et al., 2017). Mun et al. (2018) found that implementation of the IPAL-ICU project provided sufficient guidance to help in the creation of a PNSI. This PNSI then provided the framework to integrate additional PC practices into daily ICU workflow and improve unit PC quality. The IPAL-ICU guidelines are evidence-based and promote increasing the presence of PC in intensive care practices in order to reach the needs of patients and their family members (Nelson et al., 2010). The IPAL-ICU toolkit was used in this project due to its evidence-based development and applicability to the ICU setting in which the intervention was implemented.

PNSIs' Impact on Consults

Implementation of PNSI interventions can improve the frequency and timeliness of PC consultation (Hurst et al., 2018). Kichler et al. (2018) developed and trialed a PNSI, concluding that use of the PNSI led to an improved PC referral process along with an increase in number of referrals. Corrêa et al.'s (2018) retrospective study of 510 ICU

patients reviewed the number of consults before and after implementation of a PNSI. The study found that the PSNI reliably identified patients with PC needs and enabled earlier PC consults as well as an increased rate of PC consults.

Gaps in the Literature

Several gaps exist in the literature surrounding the implementation of PNSIs. Research on the topic of PNSIs is not consistently localized to specific ICUs of unspecified types. In addition, administration of the PNSI is often limited to a set of diagnoses such as chronic obstructive pulmonary disease or specific specialties such as oncology (Kichler et al., 2018). Literature is also not consistent on the content of the PNSI. Each PNSI is generally specific to the unit on which it is implemented and there is a lack of trusted PNSIs that are used universally or with any major consistency across health systems. Lastly, studies regarding PNSIs had little content that is specific to NCC.

In general, research supports the use of PNSIs in ICUs, but no studies draw conclusive results. Further research is needed to improve current knowledge on the validity, reliability, and effectiveness of these practices. Studies with larger sample sizes are required for research to determine the impact of PNSIs on a variety of variables including the ones reviewed in this paper.

Recommendations for Practice

Current research indicates an ongoing need for improved PC in ICUs across the nation (Clara et al., 2019). Providers in ICUs, including ICUs with specialties such as NCC, should consider implementing a PNSI on their unit to improve the use of PC and improve patient and family outcomes (Flaherty et al., 2018; Mun et al., 2017; Teike Lüthi et al., 2020). PNSIs should be implemented in ICUs to improve the integration and

timing of PC consults. PNSIs involve beneficial PC specialists earlier in a patient's hospital stay and more frequently overall. Studies using PNSIs implemented on hospital units saw increases in PC referrals and consults (Corrêa et al., 2018; Kichler et al., 2018; Martz et al., 2020). Hospitals should also consider implementing PNSIs due to their benefits for nursing staff. Current literature indicates the implementation of a nurse-led PNSI has a positive impact on nurse attitudes towards PC practices on their unit and communication with patients and their family members (Anderson et al., 2016).

The implementation of a PNSI using the IPAL-ICU project is also recommended due to the helpful, personalized, and evidence-based guidelines they provide. Tools created using the IPAL-ICU have the added benefit of being customized to the unit. In addition, education included in the IPAL-ICU toolkit is useful in training healthcare workers to prepare them for the implementation of PC interventions and increase their overall knowledge and understanding of PC practices (Mun et al., 2017; Mun et al., 2018; Nelson et al., 2010). The IPAL-ICU project is recommended for NCCUs in order to improve PC practices in these settings.

Conclusion

PC as a specialty and as a discipline is well suited for the critical and complex patients of ICUs (Anderson et al., 2016). The implementation of a PNSI allows for the integration of PC into critical units in order to improve PC for patients and family members (Mun et al., 2017; Venis & Dodek, 2020). Nurse-led PNSIs allow nurses to play an integral role in their implementation, increase early referrals to PC specialists, and contribute to the integration and implementation of quality PC for patients in the NCCU (Clara et al., 2019; Kichler et al., 2018; Martz et al., 2020; Zalenski et al., 2017).

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Appendix A

Evidence Table

Authors & Date	Study Design/Method	Participants, Sample, Setting	Intervention/ Variables studied	Measurement	Data Analysis	Findings/ Recommendations for Practice	Strengths/ Weaknesses	Level of Evidence
Anderson, W. G., Puntillo, K., Boyle, D., Barbour, S., Turner, K., Cimino, J., . . . Pantilat, S. (2016).	Observational Study	598 nurses across 5 different hospitals	Nurses' perspectives on palliative care communication	Survey	Chi-square tests used for comparisons of confidence items with primary shift and ICU type	For successful PC, nurses need education and opportunities to participate	Minimal representation of different hospital settings	IIIB
Clara, M. G. S., Silva, V. R., Alves, R., & Coelho, M. C. d. R. (2019).	Cross-sectional, descriptive, analytical, retrospective, documental study with a quantitative approach	594 medical records were reviewed	Evaluate the use of a palliative care screening tool for recommendation and	Chart review and comparison using a palliative	Kappa test	PNSIs are useful in evaluating & recommending older adults for PC	Low number of medical records for a compara	IIIA

			quality of palliative care.	performance scale			tive study	
Corrêa da Costa Ribeiro, S., Tavares de Carvalho, R., Aparecida Rocha, J., & Daglius Dias, R. (2018).	Observational Retrospective study	510 critical care patients	The use of PC screening criteria to trigger PC consults	Pre and post chart review of patients with and without the screening used	Multifactorial Kohen's Kappa test	PC screening tools improve patient comfort, and reduce invasive and futile care at the end-of-life	Studies did not determine the interrelated data between the different variables.	IIIB
Dehghani, F., Barkhordari-Sharifabad, M., Sedaghati-Kasbakhi, M., & Fallahzadeh, H. (2020).	Quasi-experimental study	A random sampling of 40 individuals	Perceived self-efficacy	Pretest-posttest design	Independent and paired t test	PC education and interventions increase nurses' perceived self-efficacy	Limited time, difficult to quantify variables such as mood when responding to questionnaire.	IIB
Flaherty, C., Fox, K., McDonah, D., & Murphy, J. (2018).	Systematic Review and retrospective chart review	484 patients in a 24-bed	Measurement of a palliative assessment	Measurement of PC consults	n/a	PC education enhances nurses' knowledge	Limmited sample size, no listed	IIIB

		medical-surgical oncology/orthopedic unit	screening tool (PAST) to determine if this screening tool identifies PC needs	and reported patient symptoms before and after implementation of PAST using chart review and patient interview.		about ICU PC practices. PNSIs are effective for interprofessional teams and improve PC and timeliness	data analysis method	
Hurst, E., Yessayan, L., Mendez, M., Hammad, A., & Jennings, J. (2018).	Quasi-experimental design	223 ICU patients (156 in control group, 67 in intervention group)	Implementation of PC screening tool to observe PC consultation rates.	Pre- and post- test chart review	Welch's t-test	Implementing a PNSI increases PC consult rates and decreases the median amount from admission to PC consult	Smaller than desirable number of patient sample study.	IIA
Kichler, C. M., Cothran, F. A., & Phillips, M. A. (2018).	Pre- and post-test analytic design	64 patients	Intervention to determine the impact of a PC referral	Calculations using the LACE index	Paired t-test	PNSIs increase the number of PC referrals for patients hospitalized with COPD	Small sample size	IIIB

			screening tool					
Martz, K., Alderden, J., Bassett, R., & Swick, D. (2020).	Mixed-methods design	112 patients	The use of a PC screening tool to identify patients in need of a PC consult	Retrospective chart review	Pearson x2 test	Patients in ICU settings have a high chance of having unmet PC needs. Identifying patients with these needs using a nurse-driven PNSI can lead to increased PC quality conversations and consults	Study was completed at single hospital with minimal control of selection bias.	IIIB
Mun, E., Nakatsuka, C., Umbarger, L., Ruta, R., McCarty, T., Machado, C., & Ceria-Ulep, C. (2017).	Systematic Review	n/a	The use of the IPAL-ICU guidelines	Assessment for information, strategies, and synthesis and critiquing of tools using Mosby's	n/a	The IPAL-ICU project contains several useful tools and recommendations to improve PC in the ICU setting	The number of meta-analysis was not optimal due to the smaller numbers of RCTs	IIIA

				research critique form				
Mun, E., Umbarger, L., Ceria-Ulep, C., & Nakatsuka, C. (2018).	Explanatory mixed method and quality improvement	198 ICU patients	Implementing palliative care processes into daily ICU workflow	Chart review of PC family meetings, changes in code status, advance directives.	Pearson x2 test	PNSIs are shown to have earlier identification of PC needs and increased PC consults.	Lack of randomization	IIIB
Nelson, J. E., Bassett, R., Boss, R. D., Brasel, K. J., Campbell, M. L., Cortez, T. B., . . . Weissman, D. E. (2010).	Clinical Practice Guidelines	n/a	Examination of clinical initiatives designed to improve PC in critical care settings	Critical review	n/a	The IPAL-ICU provides benefits of an "integrative model" of PC in ICUs in which PC is ingrained in the core principles of the ICU care team's practices.	Few studies with the highest available levels and grades	IVA
Phillips, J., Salamonson, Y., & Davidson, P. M. (2011).	Explanatory mixed method design	405 experienced healthcar	Self-efficacy of PC with education.	Two-factor solution of the	Exploratory factor analysis	*Older article used because this article was the	Validity and reliability of	IIIA

		e professionals from 9 different facilities	Validity and reliability of scale as an instrument.	self-efficacy scale	and internal consistency statistics	foundation of the self-efficacy scale used in this project. Shows the effectivity of the scale used to measure the self-efficacy of nurses' PC.	survey responses. Non-paired study. The applicability to non-experienced workers	
Teike Lüthi, F., Bernard, M., Beauverd, M., Gamondi, C., Ramelet, A.-S., & Borasio, G. D. (2020).	Mixed methods study	Thirty-six nurses and physicians in studies, 28 in assessments	The development and implementation of a PC screening instrument	Questionnaires and in person validity assessments	The Dlphi process	Early identification of patients in need of PC has positive outcomes and distinguishing between primary and specialty PC is helpful.	The study had limmited number of different healthcare professionals included in the study	IIIB
Venis, J., & Dodek, P. (2020).	Mixed-method analysis	30 survey results and 24 nurses at	Care team communication pertaining to PC,	Focus groups and surveys	Inductive approach involving	Developing and implementing a PNSI in an ICU setting is	Limmited sample size, only a small	IIIB

		on an ICU in a tertiary care hospital.	explore how palliative care screening tool effects palliative care.		interpretive description	feasible and acceptable.	group of nurses used in the implementation of the project	
Zalenski, R. J., Jones, S. S., Courage, C., Waselewsky, D. R., Kostaroff, A. S., Kaufman, D., . . . Granovsky, H. (2017).	Retrospective analysis	1923 patients from seven tertiary hospitals representing different demographics in the USA	Utilizing a systematic screening for PC and specialty consultation. Also measured were LOS, direct cost reductions, and 30-day readmissions, code status change	Measurement of variables before and after implementation of the PC screening tool using a covariate balancing propensity score method	T-test and chi-square test as well as binary analysis for outcome such as DNR status change	Early use of a PNSI lead to increased use of DNR orders and hospice referrals, was not associated with 30-day readmissions, and reduced inpatient length of stay and average cost per hospital stay.	Readmission rates were unknown if to other hospital systems. Lack of patient feedback.	IIIA

Appendix B

JHNEBP Model

Evidence Level and Quality Guide

Evidence Levels	Quality Ratings
Level I Experimental study, randomized controlled trial (RCT) Explanatory mixed method design that includes only a level I quaNtitative study Systematic review of RCTs, with or without meta-analysis	**QuaNtitative Studies** **A High quality**: Consistent, generalizable results; sufficient sample size for the study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence. **B Good quality**: Reasonably consistent results; sufficient sample size for the study design; some control, fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence. **C Low quality or major flaws**: Little evidence with inconsistent results; insufficient sample size for the study design; conclusions cannot be drawn.
Level II Quasi-experimental study Explanatory mixed method design that includes only a level II quaNtitative study Systematic review of a combination of RCTs and quasi-experimental studies, or quasi-experimental studies only, with or without meta-analysis	**QuaLitative Studies** No commonly agreed-on principles exist for judging the quality of quaLitative studies. It is a subjective process based on the extent to which study data contributes to synthesis and how much information is known about the researchers' efforts to meet the appraisal criteria. *For meta-synthesis, there is preliminary agreement that quality assessments of individual studies should be made before synthesis to screen out poor-quality studies*[1]. **A/B High/Good quality** is used for single studies and meta-syntheses[2]. The report discusses efforts to enhance or evaluate the quality of the data and the overall inquiry in sufficient detail; and it describes the specific techniques used to enhance the quality of the inquiry. Evidence of some or all of the following is found in the report: • Transparency: Describes how information was documented to justify decisions, how data were reviewed by others, and how themes and categories were formulated. • Diligence: Reads and rereads data to check interpretations; seeks opportunity to find multiple sources to corroborate evidence. • Verification: The process of checking, confirming, and ensuring methodologic coherence. • Self-reflection and scrutiny: Being continuously aware of how a researcher's experiences, background, or prejudices might shape and bias analysis and interpretations. • Participant-driven inquiry: Participants shape the scope and breadth of questions; analysis and interpretation give voice to those who participated. • Insightful interpretation: Data and knowledge are linked in meaningful ways to relevant literature. **C Low quality** studies contribute little to the overall review of findings and have few, if any, of the features listed for high/good quality.
Level III Nonexperimental study Systematic review of a combination of RCTs, quasi-experimental and nonexperimental studies, or nonexperimental studies only, with or without meta-analysis Exploratory, convergent, or multiphasic mixed methods studies Explanatory mixed method design that includes only a level III quaNtitative study QuaLitative study Meta-synthesis	

Appendix B (Continued)

Evidence Level and Quality Guide

Evidence Levels	Quality Ratings
Level IV Opinion of respected authorities and/or nationally recognized expert committees or consensus panels based on scientific evidence Includes: • Clinical practice guidelines • Consensus panels/position statements	**A High quality:** Material officially sponsored by a professional, public, or private organization or a government agency; documentation of a systematic literature search strategy; consistent results with sufficient numbers of well-designed studies; criteria-based evaluation of overall scientific strength and quality of included studies and definitive conclusions; national expertise clearly evident; developed or revised within the past five years **B Good quality:** Material officially sponsored by a professional, public, or private organization or a government agency; reasonably thorough and appropriate systematic literature search strategy; reasonably consistent results, sufficient numbers of well-designed studies; evaluation of strengths and limitations of included studies with fairly definitive conclusions; national expertise clearly evident; developed or revised within the past five years **C Low quality or major flaws:** Material not sponsored by an official organization or agency; undefined, poorly defined, or limited literature search strategy; no evaluation of strengths and limitations of included studies, insufficient evidence with inconsistent results, conclusions cannot be drawn; not revised within the past five years
Level V Based on experiential and nonresearch evidence Includes: • Integrative reviews • Literature reviews • Quality improvement, program, or financial evaluation • Case reports • Opinion of nationally recognized expert(s) based on experiential evidence	**Organizational Experience (quality improvement, program or financial evaluation)** **A High quality**: Clear aims and objectives; consistent results across multiple settings; formal quality improvement, financial, or program evaluation methods used; definitive conclusions; consistent recommendations with thorough reference to scientific evidence **B Good quality**: Clear aims and objectives; consistent results in a single setting; formal quality improvement, financial, or program evaluation methods used; reasonably consistent recommendations with some reference to scientific evidence **C Low quality or major flaws**: Unclear or missing aims and objectives; inconsistent results; poorly defined quality improvement, financial, or program evaluation methods; recommendations cannot be made **Integrative Review, Literature Review, Expert Opinion, Case Report, Community Standard, Clinician Experience, Consumer Preference** **A High quality**: Expertise is clearly evident; draws definitive conclusions; provides scientific rationale; thought leader(s) in the field **B Good quality**: Expertise appears to be credible; draws fairly definitive conclusions; provides logical argument for opinions **C Low quality or major flaws**: Expertise is not discernable or is dubious; conclusions cannot be drawn

1 https://www.york.ac.uk/crd/SysRev/!SSL!/WebHelp/6_4_ASSESSMENT_OF_QUALITATIVE_RESEARCH.htm
2 Adapted from Polit & Beck (2017).

Appendix C

Permission for Use

JHNEBP MODEL AND TOOLS-PERMISSION

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The Implementation of a Palliative Needs Screening Intervention in a Neuro Critical Care Unit: Methodology

BY

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Abstract

Purpose: Palliative care (PC) is an important and yet underutilized discipline in neuro critical care units (NCCUs). The purpose of this project was to integrate and improve PC in a NCCU by implementing a Palliative Needs Screening Intervention (PNSI). A PNSI consists of a list of criteria used to screen patients to identify family and patient PC needs.

Methods: A quality improvement project using a PNSI was implemented in a NCCU. Nurses completed 2 hours of pre-implementation PC education and a palliative perceived self-efficacy scale pre/post-implementation. A PNSI was developed and integrated into the NCCU's daily rounding process.

Results: PNSI and PC education led to an increase in PC consults and statistically significant increases in care conferences and perceived nurse self-efficacy.

Discussion: Statistical and clinical results showed that PNSIs and PC education impact PC practices in a NCCU. PC education is crucial for nurses' PC practices and delivery.

Implications for Practice: PNSIs enhance PC in NCCUs by identifying needs, empowering care teams, and integrating PC into daily workflows. They increase nurse perceived self-efficacy, PC referrals and care conferences, resulting in greater patient and family satisfaction and improving overall care.

Keywords: palliative care, screening intervention, screening tool, critical care

The Implementation of a Palliative Needs Screening Intervention in a Neuro Intensive Care Unit: Methodology

Background/Purpose

In the world of neurocritical care (NCC), patients frequently require complex care and difficult conversations often follow. Due to the increased number of patients with poor prognoses and life-altering events, these conversations often encompass topics such as end-of-life (EOL) care and goals of care. The conversation involving goals of care includes detailing the state of the patient's current care along with options to continue forward, clarifying patient or family wishes on how to proceed with patient cares, and ensuring the goals of the patient and family members are understood by the care team. Often, family members are tasked with making care decisions based on their interpretation of what their loved one would have desired due to the inability of patients to make medical decisions for themselves (Bernat, 2015). To facilitate these conversations, medical disciplines such as palliative care (PC) offer a holistic approach to deliver quality care to patients and family members (Mun et al., 2017). The Center to Advance Palliative Care (CAPC) defines PC as "a specialized care for people living with serious illness that focuses on providing relief from the symptoms and stress of the illness" (CAPC, 2020, para. 1). CAPC stresses that PC is a "fundamental shift" in healthcare delivery and is centered around improving quality of life for patients and family members (CAPC, 2020).

Several tools and interventions exist to help improve PC in the intensive care setting and integrate PC into intensive care unit (ICU) practice. One such intervention is a Palliative Needs Screening Intervention (PNSI). The PNSI is a tool that allows care teams

to screen every patient in the ICU in order to identify PC needs. The screening is typically completed by nurses and results are brought to the care team to address these PC needs. Research shows that a PNSI is an effective tool to improve PC in critical care patients (Clara et al., 2019; Flaherty et al., 2018; Mun et al., 2018; Teike Lüthi et al., 2020; Vigstad et al., 2018).

Significance of the Problem

With the deaths of one in five United States (U.S.) persons occuring in a critical care setting or shortly after their discharge, the use of critical care medicine at EOL is becoming increasingly prevalent (Anderson et al., 2016). Within critical care settings, patients and their family members often have unmet and unrecognized PC needs (Venis & Dodek, 2020). Many of these PC needs occur in patients and family members coping with tremendous burdens that lead to physical and emotional disparities. These patients and family members are in critical need of support during these difficult times. PC is a crucial component of a unit's approach to supporting and caring for patients and family members largely due to its focus on relieving suffering and improving quality of life. However, the delivery of PC care in critical care settings is often underutilized and not consistent due to the variation of critical care practices across the U.S. (Anderson et al., 2016; Martz et al., 2020; Mun et al., 2017).

Evidence Findings

The use of screening tools such as PNSIs is effective for improving and integrating PC in critical care settings. Utilizing PNSIs can increase the recognition and quality treatment of PC needs as well as enhance PC practices such as symptom management for critical care patients (Clara et al., 2019; Corrêa et al., 2018; Flaherty et

al., 2018; Martz et al., 2020; Venis & Dodek, 2020; Zalenski et al., 2017). Studies show that implementation of PNSIs resulted in an increased number of PC consults in critical care settings and consults to PC earlier in a critical care patient's hospital stay (Corrêa et al., 2018; Hurst et al., 2018; Kichler et al., 2018). The use of PNSIs enhances early identification of PC needs and improves patient outcomes and quality of care (Teike Lüthi et al., 2020; Vigstad et al., 2018; Zalenski et al., 2017). Among evidence-based PNSIs is the tool included in the Improving Palliative Care in the Intensive Care Unit (IPAL-ICU) project. This initiative provides an effective resource and toolkit for improving PC quality in the critical care setting. The IPAL-ICU toolkit includes a customizable, evidence-based PNSI which has been implemented in several ICUs and shown positive impacts to PC quality (Mun et al., 2017; Mun et al., 2018; Nelson et al., 2010).

Staff nurses are at the forefront of patient care and should be involved in PC communication and decision making along with the interdisciplinary team, family members, and the patient. Education for bedside nurses on PC practices and interventions such as the PNSI can have a positive impact on the nurse's understanding and delivery of PC services and ability to identify PC needs (Anderson et al., 2016; Flaherty et al., 2018).

Recommendations for Practice

The use of a PNSI in critical care units is recommended in order to recognize PC needs and empower care teams to meet these needs (Flaherty et al., 2018; Mun et al., 2017; Teike Lüthi et al., 2020). By implementing a PNSI, critical care units may improve the timing of PC consults and potentially implement PC practices earlier. The inclusion of PNSIs is also recommended in order to include beneficial PC specialists earlier and

with increased frequency (Corrêa et al., 2018; Kichler et al., 2018; Martz et al., 2020). Nursing staff should be involved in PNSI development and implementation and should take the lead role in initiating the screenings (Anderson et al., 2016).

Gaps

Several gaps exist in the literature surrounding the implementation of PNSIs. Research on PNSIs is not always restricted to critical care areas and is sometimes confined to a set of diagnoses such as chronic obstructive pulmonary disease or specific specialties such as oncology (Kichler et al., 2018). Most studies have a unique PNSI and few PNSIs have been researched by multiple studies. There are few PNSIs used across multiple health systems. In addition, few of these studies examined content that was specific to an NCC.

PICOT Question

The PICOT question that guided this Doctorate of Nursing Practice (DNP) Project was as follows: In critical care trained NCC nurses (P), how does the implementation of a PNSI developed using education and guidelines from the IPAL-ICU project (I), compared to no established PC screening (C) impact nurses' self-efficacy in PC practices and the number of PC referrals and care conferences (O) over 2 months (T)?

Methods

Framework, Theories, and Models

The change theory utilized for this project was the social cognitive theory. This theory is based around the thought that a person's individual experience is molded by individual behaviors, environmental aspects, and the actions of others (Adem & Selma, 2021). The social cognitive theory was used because it provides a framework in which

change can be acquired through considering what changes the behavior of individuals. This change theory was useful in determining the best way to approach the implementation of the PNSI and the education beforehand.

The evidence-based practice model chosen to direct this project was the Johns Hopkins Evidence-based Practice (JHEBP) Model and guidelines. This model uses a problem-solving method to make clinical decisions and its applicability to the needs of practicing healthcare professionals (Philbrick, 2013). The project was framed using the Theoretical Domains Framework. Pre/post implementation questionnaires and the PNSI involved aspects of the emotions, external influences, and social factors, which are all elements of this framework (Cane et al., 2012).

Setting

This project occurred in a large hospital located in the Northern Plains of the U.S. in a 16-bed NCC unit. The community the hospital serves has an estimated population of 230,000, consisting of 84.5% white, 6.2% black or African American, 2.1% American Indian or Alaska Native, 2.5% Asian, and 5.5% Hispanic or Latino (United States Census Bureau, 2021). The unit did not have a PNSI or any similar interventions in place prior to the implementation of this project. The care team on the NCCU is composed of nurses trained in NCC and other staff members, including neurointensivists, physical, speech, and occupational therapists, patient care technicians, social workers, pharmacists, and respiratory therapists. The NCCU serves a population of primarily patients with neurological illnesses but may see critical care patients with a variety of other illnesses as a result of hospital overflow or simply due to patient complexities. The NCC experiences an approximate hospital mortality rate of 16.7% and has an average length of stay (LOS)

of 2.78 days. The most common principal diagnoses seen in the NCC are cerebral infarction (23%), intracranial injury (12%) and occlusion of precerebral arteries (7%) (L. Reurink, personal communication, September 15, 2022). The typical ratio on this unit is two patients to one nurse with an average daily census of 12 patients. Provider coverage is available 24 hours a day and consists of the intensivist group of one physician and one nurse practitioner (NP) as well as night coverage from hospitalist physicians. Each patient admitted to the NCCU has been deemed to have a serious illness and has the potential to receive a PC consult via a consultation from a provider involved in their care (C. Donhue, personal communication, April 10, 2022).

Sample

A convenience sample of registered nurses (RNs) from the NCCU was recruited for this project. The NCCU employs 41 staff RNs with 30 female nurse and 11 male nurses; all nurses but two are employed full-time and years of nursing experience range from 1-8 years (C. Donhue, personal communication April 10, 2022). Nurses employed in the NCCU are trained in critical care.

Intervention Tools

PC Self-Efficacy Scale

The PC perceived self-efficacy scale developed by Philips et al. (2011) was used to measure nurse perceived self-efficacy before the initial education and after implementation of the PNSI. This scale is composed of 12-items with the first six items regarding psychosocial support and the second six items specific to symptom management. Each participant is instructed to rate their confidence in completing each PC task using a four-point scale that ranges from '1' (need further basic instruction) to '4'

(confident in performing independently) (see Appendix E). This tool has been validated as a reliable and sensitive instrument (Cronbach's alpha 0.87-0.92) to assess perceived self-efficacy of nurses over time (Dehghani et al., 2020; Phillips et al., 2011). Permission to use the instrument was granted by the author (see Appendix F).

IPAL-ICU Toolkit

The IPAL-ICU was created by CAPC in efforts to improve PC in the ICU setting. The project was founded on the belief that "all ICU patients and their families stand to benefit from PC care services via referral for consult by the PC team and/or delivery of core PC services by trained ICU staff" (CAPC, 2020, para.1). The IPAL-ICU project also has an emphasis on the pairing of primary PC delivery by core staff members as well as consulted PC specialists for optimal improvement. IPAL-ICU provides an online toolkit available for all CAPC members. The toolkit contains a variety of resources with the most relevant of these pertaining to the PNSI, its development, and its accompanying education (Mun et al., 2017; Mun et al., 2018; Nelson et al., 2010). Through their employer's access and partnership with CAPC, all NCC nurses were able to access the IPAL-ICU toolkit, which will be utilized to supplement their PC education.

PNSI

The IPAL-ICU provides a document with information to guide the process of developing a PNSI tailored specifically for the unit on which it is implemented (see Appendix D). Thus, the IPAL-ICU document was used to create a customized PNSI which consisted of two short lists of items. The first list consists of items nurses use to screen patients and family members to identify PC needs. For example, a criterion for the first list is "does the patient or family member have any conflicts regarding code status."

The second list details several possible solutions to meet these needs, such as “PC specialty consult” (Mun et al., 2017; Mun et al., 2018; Nelson et al., 2010).

Before the implementation of the PNSI and its preceding education, the DNP Project Manager facilitated the collaboration and input from members of the nursing staff and management to develop the PNSI. Input was also requested from the NCCU intensivists and a representative of the PC consult team. Four nursing staff members, two-unit management members, two NCCU intensivists, and one PC provider volunteered their time and expertise for the DNP Project. These team members used the guided PNSI document with assistance from the DNP Project Manager to identify common PC needs in the NCC and identify items to include in the PNSI in order to screen for these needs. The results from every team member were synthesized by the DNP Project Manager and a proposal for the final PNSI items was presented to each individual participating in the customization of the PNSI. The list of items to screen for PC needs was then finalized. Development of the PNSI took approximately 15 minutes for each team member and was completed during work hours with staff members being compensated by the facility.

Once the PNSI list of needs was finalized, the DNP Project Manager facilitated the development of the second part of the PNSI (the solutions). In a similar manner, each selected member of the care team used the PNSI development document to suggest possible solutions to be included in the second list. The list of possible solutions was then finalized with the approval of each previously selected member of the care team. The total time to develop the PNSI was 11 days.

Education

The IPAL-ICU toolkit contains a variety of educational materials in the form of online modules, documents, and evidence-based articles. The education used for this project consisted of online modules created by CAPC and an in-person presentation from a PC NP. Online education from the IPAL-ICU consisted of five videos which provided education on a bedside ICU nurses' perspective on PC, scope of practice with PC, communication techniques, family perspective, and care team support. Additional videos demonstrated having appropriate bedside PC conversations with patients and family members. Nurses were assigned the online modules via the facility's online education platform and the completion of these modules was required by each RN before the implementation of the DNP Project. Online content required a total of 1 hour to view educational video materials. An additional hour of in-person education was provided for the nurses from the PC NP covering the PC topics of EOL care, symptom and pain management, communication skills, and how to complete the PNSI itself (Mun et al., 2017; Mun et al., 2018; Nelson et al., 2010). Nurses unable to attend the education were provided with a recorded video of the education session using the facility's online education software.

Project Procedure

Pre-Implementation

The project was implemented with the approval by the NCCU's management team and key stakeholders (see Appendix B). Two months of pre-implementation data were evaluated prior to implementation of the DNP Project. The chart review process examined the chart of each patient admitted during the pre-implementation project period

to identify occurrences of PC consults and care conferences. Measures were taken to ensure the accuracy and reliability of the data collection process.

Implementation

During a monthly unit meeting, all nurses in the NCC were invited to complete the Philips et al. (2011) PC self-efficacy questionnaire via Survey-Monkey. After the completion of the initial questionnaire, the DNP Project Manager introduced the DNP Project and instructed the NCC nurses on the use and implementation of the PNSI. Next, 1-hour of PC education was presented by a PC NP employed by the facility. The NP covered the PC education topics provided by IPAL-ICU and how these topics can be used in combination with the PNSI. All questions by the nursing staff were answered by the NP or DNP Project Manager. Online education modules were assigned to the nurses to complete before the implementation of the DNP Project. Education hours were counted as paid work for employees per facility policy.

As part of the in-person education, staff were introduced to the final customized PNSI (see Appendix H). This consisted of a simple list of criteria that nurses used to assess each patient and associated family members to identify PC needs. On the first day of implementation, the finalized PNSI previously discussed at the unit meeting was included on each daily patient rounding sheet. The PNSI was completed by the bedside nurse daily on the daily rounding sheets and subsequently covered during daily rounds. During daily rounds, the bedside nurse presented the patient and included the results of the PNSI. If a need or needs were identified, the care team then discussed if a solution should be chosen from the PNSI that would be appropriate to meet those needs. As an example, the staff nurse used the PNSI to screen a patient and identified that the patient

would like to have further discussion regarding the patient's code status. The nurse then recorded this on the daily rounding sheet and presented this PC need to the care team during daily rounds. Lastly, the care team considered possible solutions from the list of suggestions on the PNSI, which led to scheduling a time for a care conference with the patient, family members, and nurse.

Post-Implementation

Two months after the implementation of the PNSI, a chart review was completed by the DNP Project Manager using the same process as the chart review completed for the pre-implementation data. The chart for each patient admitted during the 2-month data collection period was reviewed for PC consults and care conferences. At the monthly unit meeting 2 months post-implementation, each nurse participating in the project was invited to complete the PC perceived self-efficacy scale for a second time to obtain post-implementation results. Any nurse not able to attend the unit meeting was emailed the Survey-Monkey link and confirmation of receiving the link was noted by the DNP Project Manager via email responses.

Data Collection

The data for the PC self-efficacy scale were gathered through Survey-Monkey questionnaires to enable a comparison of the before and after results (see Appendix G). For each questionnaire, participants were asked to identify the following: the first letter of the city in which they were born, the last digit of their phone number, and the last digit of their home address. This information was used for matching purposes and to ensure each nurse's questionnaire was obtained. For data collection purposes, each questionnaire also included demographic information including age, sex, and ethnicity.

Information for the PNSI was obtained via a confidential chart review completed by the DNP Project Manager using each patient's admission date, age, and sex as identifiers. Each patient's age, sex, and LOS were recorded, along with an assessment of whether the patient had a PC consult and/or a care conference. All data were collected in compliance with Health Insurance Portability and Accountability Act (HIPAA) and facility policies.

Ethical Considerations

The project was approved by the facility's nursing research council and institutional review board (IRB) (see Appendix C). Approval was requested from the DNP Project Manager's associated university, which accepted the facility IRB approval and determined that the project did not involve human subjects research (see Appendix A). All questionnaire results were maintained in strict confidence, with password protection, and securely stored on a designated computer hard drive during and after the completion process. To safeguard participant confidentiality, access to the questionnaire and chart review results was restricted solely to the DNP Project Manager, who securely stored the information on a password-protected computer.

Results

Demographics

Nurse Participants

A total of 37 nurses participated in the project, 27 female nurses and 10 male nurses. All staff nurses on the unit were invited to participate and were voluntarily included except for four nurses who ceased their employment with the NCCU by the project's end. The age distribution of the nurses based on self-reported years of age was

as follows: 29 nurses in the 20-29 age group, six nurses in the 30-39 age group, and two nurses in the 40-49 age group. A total of 34 nurses described themselves as white while two described themselves as Asian and one reported "Other".

Patient Participants

During the pre-implementation period, a total of 123 patients were admitted to the NCCU, while 127 patients were admitted during the post-implementation period. All patients were included in the project. The pre-implementation group had an average age of 65 years and consisted of 62 males and 61 females, with an average LOS of 7.48 days. In comparison, the post-implementation group had an average age of 61 years and included 68 males and 59 females, with an average LOS of 6.93 days.

Statistical Testing Results

All statistical results were completed by the DNP Project Manager with the guidance of a statistician. Chart review results and questionnaire results were recorded on excel spreadsheets and subject to statistical analyses as described below.

PC Consults

Chart review data were assessed for differences in PC consultations between the pre- and post-implementation groups. A z-test was conducted to compare the two proportions of independent samples (Rosnow & Rosenthal, 1996). The project included 123 participants during the pre-implementation process of which 12 received PC consults and 127 participants during the post-implementation process of which 20 received PC consults. The z-test showed no statistically significant difference in the number of consultations between the pre- and post-intervention groups ($p = 0.156$, 95% CI [-0.142, 0.024]). Binary logistic regression was used to adjust for covariates (age, gender, and

LOS) and estimate the probability of a PC consult occurring based on the values of independent variables (Harris, 2021). The resulting p-value was 0.07.

Care Conferences

Differences in care conferences pre- and post-implementation were assessed using a z-test to compare the proportions of patients who had a care conference in the two independent samples. In the pre-implementation group, 15 had a care conference, and in the post-implementation group, 29 had a care conference. The z-test demonstrated a significant difference between pre and post for care conference ($p = 0.027$; confidence interval: [-0.198, -0.011]), indicating that the PNSI resulted in an increase in the number of care conferences. Using binary logistic regression, and adjusting for age, gender, LOS there was a statistically significant difference ($p = 0.01$). Interestingly, the boxplots and binary logistic regression demonstrated that LOS appeared to be a highly significant predictor for both PC consult and care conference.

PC Perceived Self-Efficacy Scale

A paired t-test was conducted to evaluate the impact of the education and intervention on PC self-efficacy. A paired t-test is a statistical test used to compare means of two related samples, in this case, the pre- and post-implementation scores of the same participants and due to the smaller sample size is more appropriate than the z-test (Rosnow & Rosenthal, 1996). The results showed a statistically significant increase in self-efficacy post-implementation (M = 38.25, SD = 3.89) compared to pre-implementation (M = 35.22, SD = 4.95); $p < .0001$. The mean difference between the pre- and post-implementation scores was 3.03 (95% CI [2.00, 4.06]), indicating a statistically significant improvement in the nurses' perceived self-efficacy.

Clinical Outcomes

Based on participant feedback, this project appears to have had a positive impact on clinical outcomes related to the use of the PNSI. Specifically, three nurses reported feeling more confident in their ability to use PC, while four nurses felt more confident discussing PC needs during rounds. In addition, two nurses expressed feeling more comfortable participating in care conferences. These findings suggest that the project may have contributed to improved knowledge and confidence related to PC.

Discussion

Barriers

Several barriers may have impacted the success of the project. Differences in patient and family variables, such as varying diagnoses and care plans, could have affected the number of PC consultations provided. Additionally, four nurses were unable to participate in the project due to employment changes within the NCCU. Time constraints during rounds may have also posed a barrier, as some providers may have prioritized other patient care needs, leading to less time for discussing the PNSI. These barriers highlight the importance of continued evaluation and adaptation of the PNSI to ensure maximum benefit for patients and families.

Implications for Practice

The DNP project generated data that supports the effectiveness of PC education and the use of a PNSI in improving nurses' perceived PC self-efficacy. Furthermore, these practices had a positive impact on the frequency of care conferences held for patients in the NCCU. Although the increase in PC consults was not statistically

significant, the clinical significance suggests that PC practices and philosophies have been more successfully integrated into the unit culture. These results have the potential to enhance patient and family satisfaction.

The project had minimal financial implications for the unit and hospital. The unit paid nurses for all education hours, including online modules and in-person education. Additionally, all collaboration with NCCU staff members was done during work hours, for which the unit provided normal wages. Although cost savings were not directly measured, it is anticipated that improved PC practices may have resulted in savings, such as fewer patient expenses due to reductions in costly procedures.

The project has changed the workflow of the NCCU unit on which it was implemented by highlighting the unmet PC needs of its critical care patients and noting that there is potential to meet these needs. In addition, the PSNI has standardized a process to identify and discuss PC needs daily. There is potential for this intervention to be used in other areas of the hospital.

Incorporating PC practices into NCCU has had a positive impact on the quality of healthcare. The DNP Project played a vital role in enhancing patient care by boosting nurses' confidence in PC practices, promoting more care conferences, and urging NCC staff to treat patients holistically. These findings may inspire other facilities to adopt similar PNSIs to identify and address their PC needs.

The PNSI and its associated practices are theoretically sustainable on any unit due to their ease of administration and integration into the unit’s daily practice and daily rounding template. The PNSI was included on the daily rounding sheet, which was used for each patient during rounds, and helped guide the RN in presenting the patient during

rounds. The PNSI became a part of patient care rounds on the unit of project implementation and is now expected to be consistently performed by all members of the care team.

Limitations

Limitations of the project include potential response bias considering the DNP Project manager is employed in the NCCU. Another limitation was the possibility of non-compliance with completing the PNSIs. The latter was monitored by the DNP Project Manager through frequent rounding sheet reviews and weekly unit rounding. No incentives were offered for participating nurses.

Conclusion

As a specialty and as a discipline, PC is well-suited for critical care patients in NCCUs and other critical care settings (Anderson et al., 2016). Implementation of a PNSI is a promising approach to integrating PC into critical care units, improving PC access and quality for patients and families (Mun et al., 2017; Venis & Dodek, 2020). Nurse-led PNSIs enable nurses to identify PC needs and collaborate with the care team to meet them. The combination of a PNSI and PC education has been shown to be beneficial for nurse perceived self-confidence with PC practices. Additionally, PNSIs can lead to increased referrals to PC specialists and contribute to various improvements in PC care (Clara et al., 2019; Kichler et al., 2018; Martz et al., 2020; Zalenski et al., 2017). These findings suggest that PNSIs and PC practices have great potential for improving the quality of care for NCC patients and their families.

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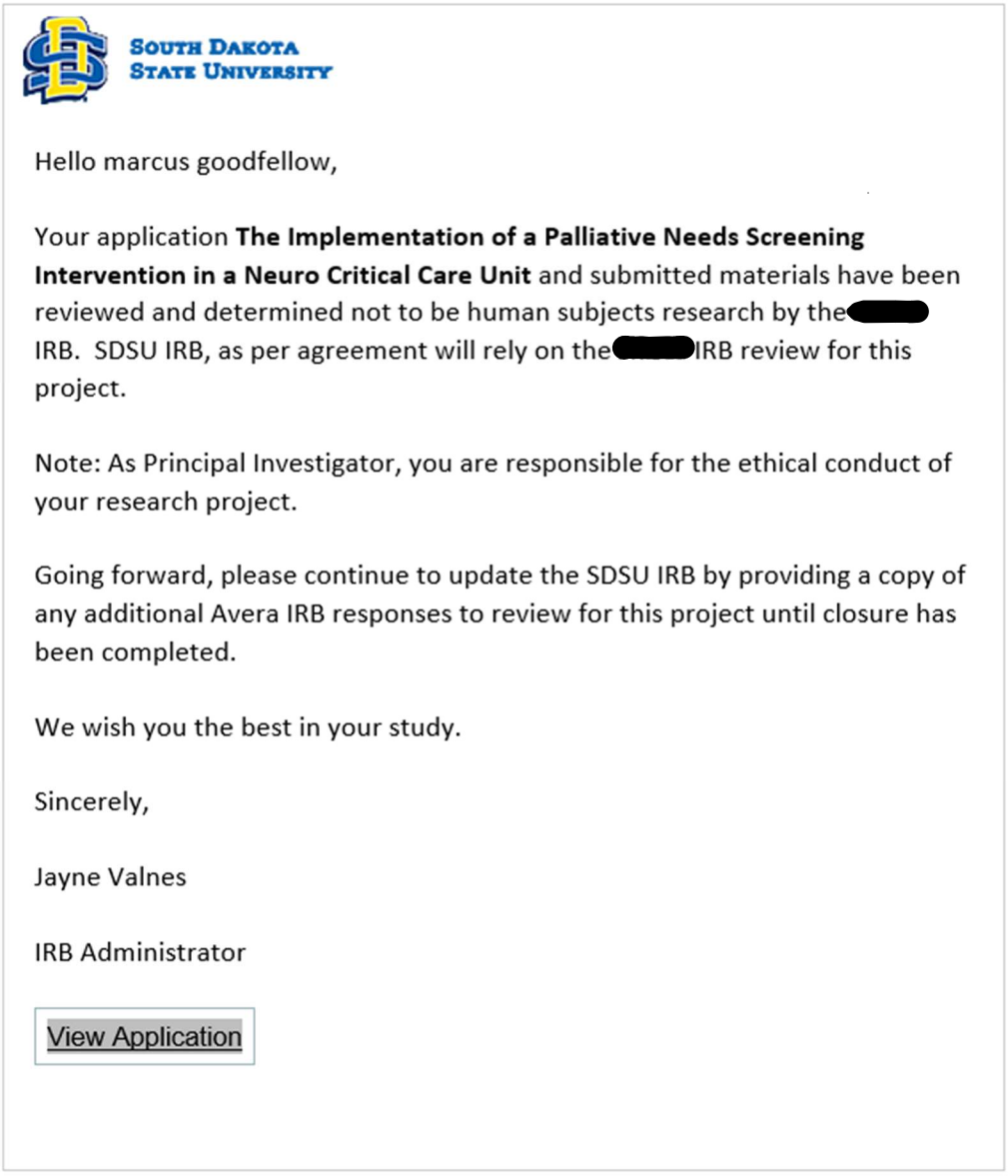
Appendix A

IRB Approval



SOUTH DAKOTA STATE UNIVERSITY

Hello marcus goodfellow,

Your application **The Implementation of a Palliative Needs Screening Intervention in a Neuro Critical Care Unit** and submitted materials have been reviewed and determined not to be human subjects research by the [redacted] IRB. SDSU IRB, as per agreement will rely on the [redacted] IRB review for this project.

Note: As Principal Investigator, you are responsible for the ethical conduct of your research project.

Going forward, please continue to update the SDSU IRB by providing a copy of any additional Avera IRB responses to review for this project until closure has been completed.

We wish you the best in your study.

Sincerely,

Jayne Valnes

IRB Administrator

View Application

Appendix B

Facility Approval

Organizational Research Project Approval Application - Nursing

Principal Investigator (PI): Marcus Goodfellow
Phone: [redacted] Email: [redacted]
Address: [redacted]
PI is: ❑ Undergraduate Student @ _____ ❑ Graduate Student @ South Dakota State University
❑ Faculty @ _____ ❑ Employee @ _____ ❑ Other _____
Employee's manager or director (if an [redacted] employee): Courtney Ehlers
Mentor Name and Affiliation (as applies to students/residents): Dr. Brandi Pravecek & Dr. Mary Isaacson
Title of Project or Protocol/Research Study: Implementation of a Palliative Needs Screening Intervention in a NCCU
Financial Sponsor (if applicable): N/A
Time frame for study (please give exact dates desired for data collection): TBD
Research Site(s): NCCU

Description Of Your Project

Purpose/Objectives: Improve and Integrate Palliative Care Practices In a Neuro Intensive Care Unit
Methods: (overview design, sample, measures, intervention, prodedures) See attached document
Significance: Attach Project Proposal

I will adhere to [redacted] Hospital & University Health Center policy and procedures pertaining to confidentiality and this study shall not reveal any patient identification information, including but not limited to name, address, or any definitive description and/or organizational proprietary information so a third party could identify such patients or the organization.

Signature of Applicant: _____ Date: 7/18/22

Faculty Advisor/Mentor has reviewed and approved of presentation for the Nursing Reseach Committee.

Signature of Faculty Advisor/Mentor [redacted] Approval X ☒ Yes ❑ No Date: 7/18/2022 | 21:48 CD

Signatures:

Nursing Research Committee Approved: ☒ Yes ❑ No Date: 7-27-22
(Required if nursing project - prepare a 10-15 minute presentation of proposal for presentation at the monthly committee meeting)

Director/Manager (required): _____ ☒ Yes ❑ No Date: 7/19/22
(If an employee, applicant's director/manager required)

Director/Manager (required): _____ ☒ Yes ❑ No Date: 7/29/22
(Director/manager of research site location required)

Form 8691-84 PS (Rev. 1/20) **Not a permanent part of the Medical Record**

Appendix C

Facility IRB Approval

[redacted]

Institutional Review Board
Federalwide Assurance #[redacted]

08/16/2022

HHS Registration #: [redacted]

Protocol Title: **The Implementation of a Palliative Needs Screening Intervention in a Neuro Critical Care Unit**

IRB Protocol #:	2022.030_QI	**IRB Submission:**	Initial Submission
IRB Review:	Expedited Review	**IRB Determination Date:**	08/16/2022

Dear Marcus Goodfellow:

Thank you for your submission. I am pleased to inform you the[redacted] Institutional Review Board (IRB) has reviewed the above-referenced protocol and has made the determination this project is not human subject research; rather it is a **Quality Improvement** Project. Because this project does not meet the definition of human subject research as per 45 CFR 46.102 and 45 CFR 164.501, it therefore falls outside the requirement of IRB review. From an IRB perspective, you are free to proceed with your project.

We wish you great success in this project. Please contact the[redacted] Institutional Review Board directly at 605-322-4706 if you have any questions. Thank you.

Regards,

Tammy Hein
IRB Manager

Appendix D

IPAL-ICU PNSI Development Guide

Improving Palliative Care in the ICU

Implementing ICU Screening Criteria for Unmet Palliative Care Needs: *A Guide for ICU and Palliative Care Staff*

A Technical Assistance Monograph from the IPAL-ICU Project

Judith E. Nelson, MD, JD,[1] Margaret L. Campbell, PhD, RN, FAAN,[2]
Therese B. Cortez, MSN, NP, ACHPN,[3] J. Randall Curtis, MD, MPH,[4]
Jennifer A. Frontera, MD,[5] Michelle Gabriel, RN, MS,[6]
Dana R. Lustbader, MD, FCCM, FCCP,[7] Anne C. Mosenthal, MD, FACS,[8]
Colleen Mulkerin, MSW, LCSW,[9] Kathleen A. Puntillo, RN, DNSc, FAAN,[10]
Daniel E. Ray, MD, MS, FCCP,[11] Rick Bassett, MSN, RN, APRN, ACNS-BC, CCRN,[12]
Renee D. Boss, MD,[13] Karen J. Brasel, MD, MPH,[14] David E. Weissman, MD, FACP,[15]
for the IPAL-ICU Project*

[1]Department of Medicine, Division of Pulmonary, Critical Care and Sleep Medicine and Hertzberg Palliative Care Institute, Icahn School of Medicine at Mount Sinai, New York, NY; [2]Center for Health Research, College of Nursing, Wayne State University, Detroit, MI; [3]Palliative Care Program, Department of Veterans Affairs Veterans Integrated Service Network 3, New York, NY; [4]Department of Medicine, Division of Pulmonary and Critical Care Medicine, University of Washington School of Medicine, Seattle, WA; [5]Cerebrovascular Center, Neurological Institute, Division of Neuro-critical Care, Cleveland Clinic, Cleveland, OH; [6]VA Palo Alto Health Care System, Palo Alto, CA; [7]Section of Palliative Medicine, North Shore University Hospital, Manhasset, NY; [8]Divisions of Critical Care and Palliative Care, Department of Surgery, University of Medicine & Dentistry of New Jersey–New Jersey Medical School, Newark, NJ; [9]Hartford Hospital, Hartford, CT; [10]Department of Physiological Nursing, University of California, San Francisco, San Francisco, CA; [11]Lehigh Valley Health Network, Allentown, PA; [12]Boise, Meridian, and Mountain States Tumor Institute, St. Luke's Hospital, Boise, ID; [13]Division of Neonatology, Department of Pediatrics, Johns Hopkins University School of Medicine, Baltimore, MD; [14]Departments of Surgery and Health Policy, Medical College of Wisconsin, Milwaukee, WI; [15]Center to Advance Palliative Care, Icahn School of Medicine at Mount Sinai, New York, NY.

*The IPAL-ICU (Improving Palliative Care in the ICU) Project is based at Icahn School of Medicine at Mount Sinai, with support from the National Institutes of Health/National Institute on Aging (K07 Academic Career Leadership Award AG034234 to Dr. Nelson) and the Center to Advance Palliative Care.

Introduction. Many ICUs are developing screening criteria to help identify patients with a high likelihood of unmet palliative care needs. The impetus for these projects typically arises out of the recognition of both the need to improve care delivery (e.g., improve communication with the patient/family) and address institutional priorities (e.g., reduce ICU length of stay to improve patient flow through the emergency department). Although it would seem a simple task to develop screening criteria and make them operational, in fact, the process is complex and has many pitfalls.

Notes:

- *Developing screening criteria may or may not be the right approach to improving care at your institution. However, if you have considered the pros and cons and wish to proceed, this guide will assist you in the implementation process.*
- *This guide makes no assumptions about the integration of palliative care specialty services into ICU practice; some ICUs will develop screening criteria and processes that utilize palliative care specialists, others will not.*

This guide was developed as a road map to help ICU and palliative care staff. The guide is a series of worksheets/process steps, organized into four sections:

- ✓ Part 1 Needs Assessment
- ✓ Part 2 Screening Criteria Selection
- ✓ Part 3 Implementation Planning
- ✓ Part 4 Evaluation

The guide is designed to be used collaboratively by the ICU and palliative care clinical staff. A key first step is to form a multidisciplinary planning committee with representatives from both services. Once organized, the committee can proceed through the worksheets sequentially. It is vital for planning committee members to realize that there are no "best" screening criteria; nor is there a "one-size-fits-all" implementation process. ICUs that successfully adopt a screening pathway share the following characteristics. They:

- Develop screening criteria through local consensus building among key stakeholders;
- Pay strict attention to details of pathway implementation that mesh with ICU structure and current workflow features;
- Build in evaluation stopping points to assess and revise screening criteria and the implementation process;
- Recognize and attend to the common barriers to program implementation.

We welcome your feedback on this guide and suggestions for improvement.

The IPAL-ICU Advisory Board

WORKSHEET 1. NEEDS ASSESSMENT

1. What is the impetus for developing a screening tool in your ICU (e.g., long ICU LOS; frequent conflicts over goals of care/requests for futile care)?

2. What resources are available to help integrate palliative care services into ICU care (e.g., new palliative care APN with ICU experience; ICU physician certified in Hospice and Palliative Medicine; hospital support for an initiative to reduce ICU LOS)?

3. What barriers exist to integrating palliative care services into ICU care (e.g., palliative care team is already at clinical capacity; frequent tension between ICU and palliative care staff)?

4. Assessment of team functioning: On a scale from 0 to 10, indicate the degree of "culture clash" between the ICU clinical team and the palliative care team.

   0 = the teams rarely work together due to major differences in patient care philosophy
   10 = the teams work exceedingly well together to meet patient and institutional needs

   Your rating: ____

   If you believe there is room for improvement in how the two teams work together, start a dialogue between them. List potential methods to improve the relationship (e.g., monthly joint case conference; individual self-assessment of attitudes toward care of seriously ill patients; group discussion of clinician attitudes/values that impact care decisions).

1.
2.
3.
4.

WORKSHEET 2. SCREENING CRITERIA SELECTION

There are neither "best" nor "validated" ICU screening criteria. The optimal criteria for your setting are those that meet the needs of patients and families while aligning with institutional priorities. Below is a table including criteria that have been reported in the literature and/or used by others. Complete this table either as a joint exercise with representatives of both the ICU and palliative care program, or have each program complete the table separately and then come together, share your thoughts, and work toward consensus. You may wish to include other stakeholders, such as ethics committee staff, hospitalists, or a hospital patient ombudsman. Space is provided to enter other criteria besides those listed below.

Step 1. Place a check mark next to the criteria that you believe have a high percentage of patients with unmet palliative care needs in your setting. These needs generally fall into one or more of the following domains:

- Complex symptom management (e.g., pain, nausea)
- Family support (e.g., family overwhelmed with decision making)
- Complex decision making (e.g., prognostic uncertainty)
- Conflicts over care goals (e.g., use of life-sustaining treatments or CPR)
- Complex disposition planning (e.g., limited social support)

Disease Criteria	ICU Team Perspective	Palliative Care Team Perspective
Advanced cancer		
Prolonged multi-organ failure		
Major acute neurologic insult: e.g., CNS trauma, post-CPR encephalopathy, malignant stroke		
Chronic severe cognitive dysfunction: e.g., PVS, minimally conscious state		
Advanced dementia or other severe cognitive impairment		
ALS		
Chronic liver disease		
Chronic renal disease +/- chronic dialysis		
AIDS		
Advanced COPD		
Severe CHF		

Utilization Criteria	ICU Team Perspective	Palliative Care Team Perspective
ICU length of stay > 7 days		
ICU length of stay > 14 days		
ICU length of stay > ___ days		
Frequent hospital or ICU admissions		
> 1 ICU admission during same hospital stay		
Admission from nursing home		
Consideration of PEG tube placement		
Consideration of tracheostomy placement		
Consideration for ethics consultation		
Consideration to start renal replacement therapy during ICU stay		
Other Criteria	**ICU Team Perspective**	**Palliative Care Team Perspective**
Conflicts re: goals, DNR, treatment decisions		
Lack of social support (e.g., homelessness, chronic mental illness)		
"Yes" answer to "surprise question"[1]		
Anticipated discharge to LTAC facility		
Difficult-to-control symptoms		
Homebound due to chronic illness		

[1]*Surprise question: "Would you be surprised if this patient died in the next 12 months?"*

Step 2. Review the above list and discuss; select 4–8 criteria that you believe are most important to meeting patient care needs and priorities at your institution. Refine/adapt the criteria as written above to meet these needs and list them below.

1.	**5.**
2.	**6.**
3.	**7.**
4.	**8.**

Step 3. Review your list of criteria with key stakeholders; at a minimum this should include the ICU leadership team, all ICU staff (physicians, nurses, and case management, others) and palliative care team members. For now focus solely on whether you believe this list will identify patients most in need of palliative care services to improve patient care and meet institutional priorities. *Do not address implementation issues yet*. Following the review, rewrite the final agreed-upon screening criteria (you may decide to have fewer than or more than 8).

1.	**5.**
2.	**6.**
3.	**7.**
4.	**8.**

Step 4.

A. Gather data on patient volume to answer the following question: Approximately how many patients will the screening criteria identify over a brief period (1–2 weeks)? (See "Sample Worksheet for Collection of Palliative Care Integration Project Data" p.13) Review all patients in the ICU each day, both new admits and existing patients. Characterize the types of needs identified for each patient:

- Complex symptom management
- Family support
- Complex decision making
- Conflicts over care goals
- Complex disposition planning

B. Once the data are collected, return to the planning committee, review the data, and consider these questions:

i. What percentage of these needs could be managed by improving daily care processes within the ICU (e.g., improved documentation of care goals; routine family meetings)?

___%

ii. What percentage of the identified needs would likely best be served by a palliative care specialty consultation?

___%

- Assess the potential new workload for the palliative care team. Given current palliative care staffing, what percentage of the new ICU consults could team members realistically see?

  ___%

iii. Decide whether or not the criteria are too broad/too stringent to meet the goals of the screening project within available resources. Revise the screening criteria as necessary.

Revised Screening Criteria

1.	**5.**
2.	**6.**
3.	**7.**
4.	**8.**

WORKSHEET 3. IMPLEMENTATION PLANNING

Step 1. Once you have revised the screening criteria, now it is time to work on the details of implementation. Here are some key questions you will need to answer:

- Who will use the screening criteria to evaluate patients on a daily basis: (e.g., ICU case manager)? _____
- What happens next if a patient meets the screening criteria? Be very specific (e.g., the patient's case is discussed on ICU rounds within 24 hours for the potential of a palliative care consult; there is an automatic palliative care consult generated; or other). Fill in steps below, or draw a diagram of the process steps.

  ▪ If a palliative care consult is initiated, who will make contact with the PC team to discuss the consultation question? _____

  ▪ What are the expectations of the ICU from the palliative care consultant?

    o Time to complete consultation: _____

    o Communication process to convey information to ICU team:

    o Follow-up care after initial assessment (e.g. daily follow up and verbal discussion with (ICU team):

    o Other: _____

- If a palliative care consult is not initiated, what steps will occur to ensure that unmet palliative care needs are addressed, and who will be the person responsible (e.g., daily reassessment for consultation needs during ICU rounds)?

Process Step	Person Responsible
1.	
2.	
3.	
4.	
5.	

Step 2. Stop and Walk Through the Process. The process steps for implementing the criteria presented above should be evaluated by going to the ICU, finding a patient who meets the screening criteria, and discussing how the implementation steps would apply to this actual case. The planning committee should critically discuss each step in the process and decide if said step is feasible and sustainable. Make changes to the process steps as needed.

Step 3. Documentation

What documentation tools will you need?

❒ Screening criteria checklist

❒ Palliative care patient assessment template to document potential unmet palliative care needs (e.g., symptoms, communication, family coping, discharge planning)

❒ Other: _____

How will these tools be integrated in the medical record? Do you need to design templates for the electronic medical record (EMR)?

Use the space below to describe any other features of the process steps to implement your screening plan.

WORKSHEET 4. EVALUATION

Step 1. Building an evaluation schema of the new screening process from the outset is important in providing a structured opportunity to gather and review data on project impact. The planning committee should review the questions below and map out a strategy to gather and review data early after project launch (within 1–2 months).

1. **Is the screening process working to identify the patients with the greatest needs?**
   - Do the screening criteria need to be revised?

2. **How is the screening process working for the ICU team: physicians, bedside nurses, case manager/social worker?**
   - Does the ICU staff believe the new system is helping/hurting their ability to provide excellent ICU care?
   - Are there concerns about workflow, team communication, clinician autonomy?

3. **How is the screening process working for the palliative care team?**
   - Are team members able to manage the patient volume with existing resources?
   - Are the consultation questions truly at a specialist level?
   - Are there common issues that could be managed by the ICU team without palliative care involvement?
   - How is the communication flow with the ICU team?

4. **Refer back to self-assessment of team culture clash (Worksheet 1, "Needs Assessment"). Are things better or worse than they were at the start of this project?**

   ❒ Yes ❒ No Comments: _____

Step 2. Longer-term evaluation beyond 1–2 months will be necessary to assess project impact in terms of patient care and institutional priorities. Decide at the start of the project what data need to be collected proactively to best document project impact.

Data (e.g., ICU LOS)	Where are the data located?	Who will collect the data?	Who will analyze/report the data?	To whom will the data be reported?

References/Resources

References

- Nelson JE et al. Models for structuring a clinical initiative to enhance palliative care in the intensive care unit: a report from the IPAL-ICU Project. *Crit Care Med.* 2010 Sep;38(9):1765–72. doi: 10.1097/CCM.0b013e3181e8ad23. Available at: http://www.capc.org/ipal/ipal-icu/monographs-and-publications.

- Nelson JE et al. Choosing and using screening criteria for palliative care consultation in the ICU. *Crit Care Med.* 2013 (in press).

- Nelson JE et al. Organizing an ICU Palliative Care Initiative: A Technical Assistance Monograph from The IPAL-ICU Project. Center to Advance Palliative Care; 2010; http://www.capc.org/ipal/ipal-icu/monographs-and-publications.

- Weissman DE, Meier DE. Identifying patients in need of a palliative care assessment in the hospital setting: a consensus report from the Center to Advance Palliative Care. *J Palliat Med.* 2011 Jan;14(1):17–23. doi: 10.1089/jpm.2010.0347.

Resources

- IPAL-ICU: Tools and Technical Assistance for Palliative Care–ICU Integration. http://www.capc.org/ipal/ipal-icu.

- Sirkin HL, Keenan P, Jackson A. The hard side of change management. *Harv Bus Rev*. 2005 Oct;83(10):108–18, 158.

- Kotter JP, Schlesinger LA. Choosing strategies for change. *Harv Bus Rev.* 1979 Mar–Apr;57(2):106–14. See also hbr.org/2008/07/choosing-strategies-for-change/ar/1.

Sample Worksheet for Collection of Palliative Care Integration Project Data

Unmet Palliative Care Needs

1. Complex symptom management (e.g., pain, nausea)
2. Family support (e.g., family overwhelmed with decision making)
3. Complex decision making (e.g., prognostic uncertainty)
4. Conflicts over care goals (e.g., DNR orders, use of life-sustaining treatments)
5. Complex disposition planning (e.g., limited social support)

Patient Name	John Smith
Age	75
Screening criteria	Advanced dementia
ICU admission dx	Sepsis

	PC Needs					Comments
	1	2	3	4	5	
Admit 2/2/2013	x					Delirium, dyspnea
2/3/13						Symptoms controlled
2/4/13		x	x	x		DNR conflict; feeding tube?
2/5/13		x	x	x		Continued conflict
2/6/13		x	x	x	x	Continued conflict
2/7/13		x	x	x	x	Continued conflict; family meeting, no resolution of conflict
Discharge 2/8/13		x			x	Discharge to ward, unresolved care goals

Appendix E

Nurse Palliative Care Self-Efficacy Scale Instrument

Palliative care self-efficacy scale

Your sex Male ☐ Female ☐	Your age _____	
Your discipline:	Your Palliative care training (Select all that apply)	Specialist qualification ☐ On the job training only ☐ Short courses or other formal training not leading to a specialist qualification ☐ No training ☐

Palliative care confidence

Please rate your degree of confidence with the following patient / family interactions and patient management topics, by ticking the relevant box below

1 = Need further basic instruction	2 = Confident to perform with close supervision / coaching
3 = Confident to perform with minimal consultation	4 = Confident to perform independently

No	Patient/family interactions and clinical management	1	2	3	4
1	Answering patients' questions about the dying process				
2	Supporting the patient or family member when they become upset				
3	Informing people of the support services available				
4	Discussing different environmental options (eg hospital, home, family)				
5	Discussing patient's wishes for after their death				
6	Answering queries about the effects of certain medications				
7	Reacting to reports of pain from the patient				
8	Reacting to and coping with terminal delirium				
9	Reacting to and coping with terminal dyspnoea (breathlessness)				
10	Reacting to and coping with nausea / vomiting				
11	Reacting to and coping with reports of constipation				
12	Reacting to and coping with limited patient decision-making capacity				

Phillips, J., Y. Salamonson, and P.M. Davidson, *An instrument to assess nurses' and care assistants' self-efficacy to provide a palliative approach to older people in residential aged care: A validation study.* International Journal of Nursing Studies, 2011. **48**(9): p. 1096-1100.

Appendix F

Permission to use Perceived Nurse Self-Efficacy Scale

From: Jane Phillips
Sent: Tuesday, July 26, 2022 5:24 PM
To: Patricia Davidson; Goodfellow, Marcus Dean - SDSU Student
Cc: Stacey Thomas
Subject: RE: Permission to Use Self-Efficacy Scale for DNP Project

Dear Marcus,

You are very welcome to use this tool using the preferred citation. This tool is available from: https://www.uts.edu.au/research-and-teaching/our-research/impacct/about-us/research-impacct/scales-research-and-clinical-application

Good luck with your research, which I will look forward to reading about in the peer-reviewed literature

Kind regards

Jane

Professor Jane Phillips, BSc, PGDip, PhD, RN, FACN, FPCNA
Head – School of Nursing, Faculty of Health
Emerita Professor Palliative Nursing, University of Technology Sydney

I acknowledge the Turrbal and Yugara, as the First Nations owners of the lands where QUT now stands. I pay respect to their Elders, lore, customs and creation spirits. I recognise that these lands have always been places of teaching, research and learning.

https://orcid.org/0000-0002-3691-8230

Appendix G

Demographic Questionnaire Questions

What is your age group?

1. 20-29
2. 30-39
3. 40-49

What is your sex?

1. Female
2. Male

Are you of Hispanic/Latino/Spanish origin?

1. Yes
2. No

How would you best describe yourself?

1. American Indian or Alaska Native
2. Asian
3. Black or African American
4. Native Hawaiian or Other Pacific Islander
5. White
6. Other

Appendix H

Final PNSI

Does the patient and/or family member have any…
☐ Conflicts in goals of care
☐ Conflicts in code status
☐ Conflicts in treatment decisions
☐ Lack of social support needing attention
☐ Other Palliative Care need
Possible Solutions
Care Conference
Social work meeting
Palliative Care consult
Ethics consult