The Implementation of a Nurse-Driven Palliative Care Trigger Tool

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Abstract

Problem: Palliative care (PC) providers at an academic medical center stated medical intensive care unit (MICU) patients are often referred late in their hospital stay, with an average PC consult rate of 65% over the last 6 months. This falls below the hospital quality performance metric of 80% of eligible patients receiving a PC consult within 48 hours of admission. **Purpose:** The purpose of this quality improvement (QI) project is to increase PC utilization in the MICU by implementing a nurse-driven Palliative Care Trigger Tool to prompt referral for specialty PC consults. **Methods:** MICU nurses and providers received education regarding underused PC services and the evidence supporting the use of nurse-driven PC trigger tools to increase PC referral. A MICU specific criteria of PC triggers was formulated by the QI implementation team based upon the best available evidence. Nursing staff were asked to screen patients daily using the PC Trigger Tool and present findings during bedside rounds. MICU providers were asked to consult PC for patients meeting trigger criteria. Rates of eligible patients and PC consults were collected via electronic medical record data reports, de-identified, and analyzed for trends via run charts. **Results:** Over 150 MICU nurses were educated on the PC trigger QI initiative along with 10 MICU providers, and 4 PC providers. During the 15-week project period, more than 220 patients were admitted to the MICU and an average of 91% were screened for PC triggers within 48 hours of admission. Approximately 63% of screened patients were identified as having positive PC triggers and 90% of these received a PC consult. Following implementation, the mean time for admission to consult decreased from 22.39 to 7.28 days; mean PC consultation rate within 48 hours of admission increased from 65% to 90%. **Conclusion:** PC consultation rates increased through the use of an evidence-based PC trigger tool, exceeding the hospital's quality benchmark for PC referrals. Provider preference greatly impacted consultation rates and emphasizes the need to change knowledge and perspectives related to PC.

The Implementation of a Nurse-Driven Palliative Care Trigger Tool

Palliative care (PC) is an interdisciplinary care delivery system designed to anticipate, prevent, and manage physical, psychological, social, and spiritual suffering to optimize quality of life for patients, their families, and caregivers (National Consensus Project for Quality PC, 2018). Nationally, there are over 5 million intensive care unit (ICU) admissions each year with a mortality rate of up to 29% and a $108 billion dollar cost of care (Society of Critical Care Medicine, 2021). PC has been shown to improve quality of life (QOL) and decrease distress in adult ICU patients (Baker et al., 2015). It is a core component of comprehensive critical care for ICU patients, regardless of prognosis or treatment goals. Despite research showing the positive impacts of PC consults, marked underutilization of the service persists (Aslakson et al., 2014). The direct outcomes of inadequate PC services result in increased length of stay (LOS), decreased QOL, inappropriate or under addressed symptom management, increased healthcare costs, and moral distress (Center to Advance PC, 2020).

Given the lack of PC specialists, gaps in understanding of utility, and an institutional culture that prides itself on aggressive treatment, appropriate and timely PC intervention is often lacking. This creates an environment of moral distress for patients, families, and the healthcare team. The practice problem exists in an urban inner-city quaternary academic medical center with several specialized ICU's. The high acuity 29-bed MICU in this medical center reports the highest rate of mortality in the institution yet averages only 8 PC consults per month (MICU director, personal communication, October 15, 2020). Interviews were conducted with major stakeholders at the medical center in an effort to gather internal evidence for the practice change. Interviews were conducted in-person with the nursing director for medical specialties, as well as the medical director, nurse manager and assistant nurse manager of the MICU. Additionally, several interviews took place with MICU registered nurses (RNs). Collectively, the MICU administrators and nursing director identified delays in care concerning palliative approaches, and an ununified approach to PC screening (personal communication, November 18, 2020). Bedside MICU RN staff voiced resounding frustration stemming from resistance to PC consult from providers, misunderstanding and miscommunication about patients' unmet PC needs, and lack of support surrounding the proper identification of patients who would benefit from PC intervention. Additionally, PC providers at the institution stated MICU patients are often referred late in their hospital course, and conversations concerning PC may happen sooner given timely identification and consult of appropriate patients (personal communication, September 28, 2020) (see Appendix A for current process flow map).

MICU patients typically present with several comorbid conditions and chronic diseases in the setting of an acute process. Additionally, this inner-city adult patient population presents with additional health care barriers; 21% are in poor or fair health and 9% are uninsured, which increases the need for additional layers of healthcare support (County Health Rankings, 2021). Particular consideration for PC screening was given to those patients who are most vulnerable including non-English speaking, non-US citizens, those without health insurance, those without family/power of attorney/next of kin, and those with a diagnosis of advanced cancer, multiorgan failure, advanced dementia or severe functional decline. The purpose of this QI project was to increase PC utilization in a MICU through the implementation of a nurse-driven PC trigger tool to prompt the need for specialty PC consult, ensuring timely delivery of PC services to those patients with unmet PC needs.

Literature Review

A comprehensive literature review was conducted to evaluate the body of evidence available concerning the use of PC trigger criteria within the adult ICU setting. The evidence reviewed includes one randomized crossover trial, one quasi experimental trial, one descriptive exploratory study, one literature review, and four QI initiatives (see Table 1). Each article evaluated received a strength and quality rating using the Johns Hopkins Nursing Evidence Based Practice Guideline (see Table 2) (Dang & Dearholt, 2018). Two articles were found of level II evidence and of an A quality rating representing the highest quality and strength of the evidence reviewed. The descriptive exploratory study conducted by Lapp and Iverson (2015) is of level III evidence and of an A quality rating. Overwhelmingly, the majority of evidence was of level V strength in the form of QI initiatives or literature review with a B quality rating. This strength of evidence does not support an overt clinical practice change, but does provide unifying support toward further practice and population specific QI projects, awareness campaigns, and performing educational updates as new evidence arises (Dang & Dearholt, 2018). Collectively, the QI projects provide strong support for the use of the Integrating PC in the ICU (IPAL-ICU) guidelines (Weissman & Meier, 2011; CAPC, 2020), PC screening tools, and interdisciplinary conversations to best engage PC plans.

Studies conducted by Hurst et al. (2018) and Ma et al. (2019) examined MICUs implementing PC screening tools in comparison to their current standards of care and evaluated patient and staff outcomes following implementation. Recommendations from both articles support that use of a simple, objective screening tool increased MICU patient access to PC consult (Hurst et al., 2018; Ma et al., 2019). Additionally, positive PC screening was associated with decreased time to PC consult, and screening tools may help critical care teams identify ICU patients who are appropriate for PC in a standard and objective manner (Hurst et al., 2018; Ma et al., 2019; Nelson et al., 2013). These findings and recommendations are significant to this QI project in they provide strong evidence for the use of PC trigger criteria and associated positive patient outcomes.

The aims from the study by Lapp and Iverson (2015) focus' primarily on what specific PC triggers were found to be most effective in capturing unmet PC needs. Similarly, the literature review by Nelson et al. (2013) aimed to uncover which specific PC trigger criteria proved to be most effective in identifying patients with unmet PC needs. The respective literature review and descriptive study each focused on adult ICU patients where PC triggers or screening criteria were applied, and which criteria consistently identified patients benefiting from PC referral (Lapp & Iverson, 2015; Nelson et al., 2013). Identification of common PC triggers informed the current QI project in the formulation of PC trigger criteria, and also aided in the evaluation of other QI project PC trigger tools.

Lastly, the use of PC screening/trigger tools increased the PC referral rate in the ICU for each of the QI projects evaluated, which has the potential to improve the quality of care for seriously ill patients (Martz et al., 2020; McCarroll, 2018; Sihra et al., 2011; Zalenski et al., 2017). Utilizing evidence-based triggers serves a unique dual purpose by identifying patients in need of PC consult while simultaneously educating clinicians about how to best use expert bundles, guidelines, protocols, and trigger tools (McCarroll, 2018). The evidence showed consistent findings for PC screening tools effectively increasing the rate of PC consult in ICUs; however, it should be noted none of the institutions employed the same screening or trigger criteria as each ICU used individualized criteria (Hurst et al., 2018; Ma et al., 2019; Lapp & Iverson, 2015; Nelson et al., 2013; Martz et al., 2020; McCarroll, 2018; Sihra et al., 2011; Zalenski et al., 2017). Variations in success between study outcomes could be based on the specific PC criteria chosen. The implementation and consistent use of population and institution specific PC trigger tools in an effort to improve timely PC consult rates is supported by this body of evidence.

Theoretical Frameworks

Jean Orlando's Nursing Process Discipline Theory hinges on deliberate assessment and interactions with patients and strategic implementation of interventions in order to adequately meet patient needs (Orlando, 1990). Orlando's theory largely addresses issues of helplessness experienced by patients and how nursing is integral in assessing needs, readiness, and responsiveness to change (see Figure 1). This theory is unique to nursing, but is rooted in other disciplines like psychology and behavior sciences in order to fully explain nurse-patient dynamics. This theory most closely serves to explain the helplessness and frustration patients and families may exhibit when unmet PC needs persist. The dynamic nursing process serves to explain how nursing is responsible for diligent patient assessment and implementation in order to address patient needs and reduce helplessness. This nursing function is particularly vital for the patient with comorbid conditions, and reduced capacity or functional status because needs are not easily expressed.

The Framework of Complex Innovation Implementation was chosen as the process framework to achieve the structure, process, and outcome goals. The framework requires coordination between multiple individuals within the organization to view a problem as a priority, which creates an organizational climate and structure conducive to change (see Figure 2) (Helfrich et al., 2007). This principle is applicable to the equitable provision of PC services because positive patient outcomes are a priority to the institution and the MICU team. A MICU population specific PC Trigger Tool was collectively formulated by the MICU QI implementation team, PC team, and patient care services department based upon the best available evidence. The MICU staff acknowledges missed opportunities to consult PC have persisted due to inconsistent patient assessment of PC needs, and lack of an integrated approach to identify appropriate patients for consult in a timely manner. Staff acknowledges current communication channels and processes for PC consult have led to delayed or even missed consults which results in less than positive patient outcomes. The framework's second characteristic is implementation effectiveness, which refers to the consistency and quality of collective innovation use (Helfrich et al., 2007). MICU providers and RNs can ensure the success of the intervention by implementing the PC trigger tool within 48 hours of admission. Consistent participation and application of the trigger tool from multiple individuals who share the same priority is necessary for the practice change to be successful.

Methods

This QI intervention was implemented in the 29-bed MICU of an academic medical center which involved development and implementation of a nurse-driven PC trigger tool in an effort to identify and address MICU patients' unmet PC needs, and increase PC consultation use. The MICU implementation team included the QI-project lead (QI-PL), medical director, nurse manager, clinical site representative, and six change champions consisting of two RNs, two attending physicians, and two nurse practitioners (NPs). Additionally, the director of palliative medicine and the department of quality and safety assisted in data gathering and interpretation. Collectively, the implementation team developed a unit specific nurse-driven PC trigger tool following the recommendations of the IPAL-ICU advisory board, and the Consensus Report from the CAPC (Nelson et al., 2013; Weissman & Meier, 2011) (see Appendix B).

All MICU RNs completed an online training module for utilizing the PC trigger tool. Over 70% of all dayshift MICU providers (NPs, Attendings, and Fellows) were educated on the practice change. All PC providers assigned to attend MICU interdisciplinary rounds (IDR) during the time of implementation were also educated. Strategies and tactics evolved through the implementation phase and became heavily interdisciplinary focused in order to bolster conversations between palliative medicine and MICU teams.

Nurses utilized the trigger tool each day to assess patients for unmet PC needs, then communicated the presence of active triggers during daily MICU rounds to the rest of care team. RN completion of PC screening and presentation of trigger information during bedside rounds was assessed through in person observation by the QI-PL and unit nurse champions during bedside rounds 3 days per week. The critical care fellow or NP designated to attend IDR would then communicate active PC triggers to the PC provider present. The IDR team made an informed decision as to whether a PC consult would be appropriate for the patient. Charge nurses used Smartsheets® to record whether or not PC triggers were present and if PC consults were placed during daily IDR. A weekly Smartsheets® report was generated to highlight any changes that were made to PC screening or consults.

Implementation strategies and tactics focused on revising professional nurse roles through education on use of the PC trigger tool and presentation of triggers during bedside rounds. Through use of the unit's end of life, charge nurse, and senior clinical nurse committees; changes in IDR structure were created to include PC providers who would discuss active triggers. Electronic health record (EHR) audits of PC consult rates enabled the implementation team to provide ongoing feedback to MICU providers. Strategies were tailored based on audits to reeducate and adapt strategies to meet different learning needs. Additionally, unit data reports allowed for QI initiative progress to be broadcasted to the unit to reinforce positive efforts and behaviors.

Process measures for the Smartsheets® report, from the charge nurse, was sent to the QI-PL's hospital email, and saved on a personal password protected computer. Data was retrieved and recorded weekly by the QI-PL to include the number of patients eligible for screening, collected from the daily patient census, and the number of patients actually screened (see

Appendix C). Run charts were employed to showcase unit performance and progress during the 15-week implementation period. All electronic data collected was coded and exchanged securely between the hospital information technology department and the QI-PL's hospital email. Data was analyzed weekly by the QI-PL with aggregate reporting to the implementation team in order to adjust project strategies. Protected health information was used for the sole purpose of this QI initiative and exchanged only as needed with the implementation team. Staff and clinician data collected on the data management spreadsheet remained coded in order to protect privacy and confidentiality (see Appendix D).

Results

Two-hundred and forty-three patients were admitted to the MICU during the 14-week implementation period, with 221 patients screened for PC needs by the RN using the PC Trigger Tool. Of the 221 patients screened, 73.3% (n=162) were found to have active PC triggers. Patients met inclusion criteria and were considered to have active PC triggers (screening positive) if they met any of the primary or secondary trigger criteria (see Appendix B). The most common criteria identified was "multiorgan failure, admitted for shock" (n=97; 59.9%). The second most common trigger was "ICU length of stay >7 days" (n=32; 19.8%). The third most common trigger identified was the secondary criteria, "patient is considered a potential candidate for an invasive procedure or ethics concerns" (n=12; 7.4%). Nursing completion rates for PC screening within 48 hours of admission ranged between 72% and 93% with an average completion rate of 91% (see Figure 3). The run chart in figure 3 showcases a distinct shift in practice from bedside RNs performing no PC screenings to RNs achieving a completion rate of over 70% in the first week of implementation. The RN completion rate falls around the median demonstrating common cause variation with no evidence of a shift, run, or trend. Utilizing bedside paper screening tools may have served as a barrier to consistent screening by nursing due to the majority of documentation being completed in the EHR. Incorporation of the PC screening requirement into the already established nursing daily bedside rounding sheet facilitated the completion and reporting of PC trigger screenings. Additionally, audits and real time feedback by unit champions during rounds facilitated screening completion rates by reinforcing the practice change and providing ongoing consultation.

Patients screened with active PC triggers (n=162) who then received a PC consult order by the MICU provider raged from 63% to 92%, with an average referral rate of 90.1%. The provider consult rate for patients with positive triggers varied around the median showing common cause variation with no trends or shifts. There were 16 patients (9.9%) who were identified as having PC triggers who did not receive a PC referral order by the MICU provider. Reasons for lack of PC consult given the presence of triggers were explored but a root cause was unable to be identified. There is a small run between October 3rd to 17th for consult rates (see Figure 4). The implementation of the PC Trigger Tool decreased the average time from MICU admission to PC referral from 22.39 to 7.28 days, and mean PC consultation rate within 48 hours of admission increased from 65% to 90%. Individual feedback from staff and providers as well as observational audit by unit champions suggests provider preference as well as attitudes and understanding regarding PC intervention remains the largest barrier to consult regardless of the presence of PC triggers. Changes in IDR structure during week 3 to include a PC provider greatly aided the discussion and consideration of PC triggers. Similarly, ongoing education and reinforcement of the QI initiative by unit champions aided in provider understanding and buy in as the project progressed. Observation with feedback during bedside rounds and IDR served as the greatest tactic for revising professional roles and providing ongoing support.

Discussion

This QI initiative reinforces the feasibility and success of implementing a nurse-driven PC trigger tool in a MICU to identify PC needs. Utilization of the PC Trigger Tool directly led to a decrease in the time from MICU admission to PC referral for patients identified as having PC needs, and an increase in PC consult rates within 48 hours of admission. Implementation of the PC Trigger tool, using validated and evidence-based recommendations from the IPAL-ICU advisory board and the Consensus Report from the CAPC, proved effective in meeting the unit's quality performance benchmark for PC referral. The department of quality and safety at the project site began scheduled monthly meetings between the MICU leadership, implementation team, and the PC team to further develop multidisciplinary collaboration, assess barriers and facilitators, and explore opportunities for improvement.

Several strengths and limitations of this QI initiative must be highlighted. Data analysis from chart audits and feedback from unit champions revealed provider preference strongly impacted consultation rates in patients with positive PC triggers and missing PC consults. Allowing the MICU provider to ultimately determine the need for PC consultation served as a major limitation of this QI project which mirrors findings from previous evidence (Ma et al., 2019; Martz et al., 2020; McCarroll, 2018; Sihra et al., 2011; Zalenski et al., 2017). In addition, IDR does not take place in the MICU on Saturdays or Sundays and PC providers are not present in the hospital on these days. This is a major system limitation and barrier to PC consult for those patients who are admitted over the weekend as MICU providers are not able to engage in collaborative discussion or seek input from PC providers if they are not present on the weekends.

Further project limitations included profound staffing shortages and nurse turnover rates related to the COVID-19 pandemic. The nurse turnover rate was as high as 30% which created limitations in awareness and education surrounding principles of the project and expectations. Moreover, utilizing paper screening tools in a nearly exclusive EHR system remains a barrier to project effectiveness and sustainability. Incorporation of the PC Trigger Tool within the EHR is crucial to improving utilization, increasing transparency and lateral integration within the care setting, and enabling precise data analysis moving forward. Nursing satisfaction was not directly measured; however, verbal feedback was positive related to the ability of PC screening to promote nurse advocacy of patient PC needs.

An additional limitation of this project concerns the lack of generalizability of the PC Trigger Tool due to the development and use of a tool specific to this institution's MICU patient population. Moreover, the unexpected addition of a NP lead team within the MICU changed team dynamics so that NPs were no longer incorporated within the other two medical resident teams on the unit. This change may have influenced the manner in which PC triggers were discussed on daily rounds. In conjunction to this, the pandemic further limited PC provider presence and involvement during IDR. Staffing challenges and increased PC consult volume from the pandemic placed further strain on a department that already has limited representation in the institution.

Conclusion

This QI initiative implemented a facility specific nurse-driven PC Trigger Tool to identify patients with PC needs, ideally within the first 48 hours of admission to the MICU. Ultimately, this QI initiative has served as a springboard to standardizing the approach to PC referral and interdisciplinary collaboration between MICU and PC teams by providing an objective and structured trigger criteria aimed at identifying unmet PC needs. Ongoing daily utilization of the PC Trigger Tool will be needed to ensure sustainability. Moving forward, it may be necessary to adapt the tool to best meet the changing patient and staff needs in the MICU. Overall, ongoing conversations between the implementation team, MICU leadership team, and PC team have created shared alliances, values, and vision. It is essential to sustain the relationships and teambuilding efforts that have been made through this process, along with continued presence and involvement of PC providers during daily IDR, to continue to optimize the PC consult process. This ongoing effort, on behalf of leadership teams, showcases a commitment to PC outcomes and has provided the platform needed for continued spread and project sustainability within the institution.

Further QI initiatives must capitalize on streamlining nursing utilization and reporting of PC triggers through incorporation of this tool into the EHR and assessing feasibility and performance of this tool in other ICUs within this medical center.

References

Aslakson, R., Cheng, J., Vollenweider, D., Galusca, D., Smith, T. J., & Pronovost, P. J. (2014). Evidence-based palliative care in the intensive care unit: A systematic review of interventions. *Journal of Palliative Medicine, 17*(2), 219-235. https://doi.org/10.1089/jpm.2013.0409

Baker, M., Luce, J., & Bosslet, G. T. (2015). Integration of palliative care services in the intensive care unit: A roadmap for overcoming barriers. *Clinics in Chest Medicine, 36*(3), 441-448. https://doi.org/10.1016/j.ccm.2015.05.010

Center to Advance Palliative Care. (n.d.). *About palliative care.* Retrieved November 27, 2021, from https://www.capc.org/about/palliative-care/

Center to Advance Palliative Care. (2020, June 22). *Integrating palliative care practices in the ICU.* https://www.capc.org/toolkits/integrating-palliative-care-practices-in-the-icu/

County Health Rankings. (2021). *Maryland.* County Health Rankings & Roadmaps. Retrieved November 27, 2021, from https://www.countyhealthrankings.org/app/maryland/2021/rankings/baltimore-city/county/outcomes/overall/snapshot

Dang, D., & Dearholt, S. (2018). *Johns Hopkins nursing evidence-based practice: Model and guidelines* (3rd ed.). Sigma Theta Tau International.

Helfrich, C. D., Weiner, B. J., McKinney, M. M., & Minasian, L. (2007). Determinants of implementation effectiveness. *Medical Care Research and Review, 64*(3), 279-303. https://doi.org/10.1177/1077558707299887

Hurst, E., Yessayan, L., Mendez, M., Hammad, A., & Jennings, J. (2018). Preliminary analysis of a modified screening tool to increase the frequency of palliative care consults. *The*

American Journal of Hospice & Palliative Care, 35(3), 417–422. https://doi.org/10.1177/1049909117712229

Lapp, E. A., & Iverson, L. (2015). Examination of a palliative care screening tool in intensive care unit patients. *Journal of Hospice & Palliative Nursing, 17*(6), 566–574. https://doi.org/10.1097/NJH.0000000000000202

Ma, J., Chi, S., Buettner, B., Pollard, K., Muir, M., Kolekar, C., Al-Hammadi, N., Chen, L., Kollef, M., & Dans, M. (2019). Early palliative care consultation in the medical ICU: A cluster randomized crossover trial. *Critical Care Medicine, 47*(12), 1707–1715. https://doi.org/10.1097/CCM.0000000000004016

Martz, K., Alderden, J., Bassett, R., & Swick, D. (2020). Outcomes associated with a nurse-driven palliative care screening tool in the intensive care unit. *Critical Care Nurse, 40*(3), 23–29. https://doi.org/10.4037/ccn2020702

McCarroll, C. M. (2018). Increasing access to palliative care services in the intensive care unit. *Dimensions of Critical Care Nursing, 37*(3), 180-192. https://doi.org/10.1097/DCC.0000000000000299

National Consensus Project for Quality Palliative Care. (2018). *Clinical practice guidelines for quality palliative care, 4th edition.* National Coalition for Hospice and Palliative Care. https://www.nationalcoalitionhpc.org/wp-content/uploads/2020/07/NCHPC-NCPGuidelines_4thED_web_FINAL.pdf

Nelson, J. E., Curtis, J. R., Mulkerin, C., Campbell, M., Lustbader, D. R., Mosenthal, A. C., Puntillo, K., Ray, D. E., Bassett, R., Boss, R. D., Brasel, K. J., Frontera, J. A., Hays, R. M., & Weissman, D. E. (2013). Choosing and using screening criteria for palliative care consultation in the ICU: A report from the Improving Palliative Care in the ICU (IPAL-

ICU) advisory board. *Critical Care Medicine, 41*(10), 2318–2327. https://doi.org/10.1097/CCM.0b013e31828cf12c

Orlando, I. J. (1990). *The dynamic nurse-patient relationship: Function, process, and principles*. National League for Nursing.

Sihra, L., Harris, M., & O'Reardon, C. (2011). Using the improving palliative care in the intensive care unit (IPAL-ICU) project to promote palliative care consultation. *Journal of Pain & Symptom Management, 42*(5), 672–675. https://doi.org/10.1016/j.jpainsymman.2011.08.002

Society of Critical Care Medicine. (n.d.). *Critical care statistics.* Retrieved November 27, 2021, from https://www.sccm.org/Communications/Critical-Care-Statistics

Weissman, D. E., & Meier, D. E. (2011). Identifying patients in need of a palliative care sssessment in the hospital setting: A consensus report from the Center to Advance Palliative Care. *Journal of Palliative Medicine, 14*(1), 17–23. https://doi.org/10.1089/jpm.2010.0347

Zalenski, R. J., Jones, S. S., Courage, C., Waselewsky, D. R., Kostaroff, A. S., Kaufman, D., Beemath, A., Brofman, J., Castillo, J. W., Krayem, H., Marinelli, A., Milner, B., Palleschi, M. T., Tareen, M., Testani, S., Soubani, A., Walch, J., Wheeler, J., Wilborn, S., … Welch, R. D. (2017). Impact of palliative care screening and consultation in the ICU: A multihospital quality improvement project. *Journal of Pain and Symptom Management, 53*(1), 5–12. https://doi.org/10.1016/j.jpainsymman.2016.08.003

Table 1

Evidence Review Table

Citation: Hurst, E., Yessayan, L., Mendez, M., Hammad, A., & Jennings, J. (2018). Preliminary analysis of a modified screening tool to increase the frequency of palliative care consults. *The American Journal of Hospice & Palliative Care, 35*(3), 417–422. https://doi.org/10.1177/1049909117712229					Level: II
Purpose/Hypothesis	Design	Sample	Intervention	Outcomes	Results
"Palliative care interventions have been shown to improve patient quality of life but the benefit may be less if interventions occur late in the patient's disease process. The objective of this study was to evaluate whether an objective screening tool could improve the frequency and timeliness of palliative care consultation" (p. 417).	Quasi-experimental	**Sampling Technique:** Adult admissions to 2 MICU's in an urban tertiary care hospital: Henry Ford Hospital in Michigan, USA. Excluded any patients <19 years old. Control: N=156 Intervention: N=67 A sample size of 123 patients was needed in order to detect a 20% difference between the 2 groups with a 2-sided, 5% significance level, and a power of 80% group weights (control: intervention of 2:1).	**Control:** current standard of care- **Intervention:** 6 item Palliative care screening tool **Intervention fidelity:** Two geographically separate MICUs were assigned to continue existing standard care (control group) or to utilize the palliative care tool (intervention group). In the intervention MICU, the primary team used the screening tool with each new admission. Selection of any item on the screening tool triggered PCC initiation within 24 hrs of the patient's admission.	**Dependent Variable:** Palliative care consultations **Measures:** Primary: Difference in proportion of palliative care consults between the two MICU's Secondary: Differences between the two MICU's in frequency of each triggered item in the screening tool Comparison of median time to consultation Number of ventilator free days Days in the MICU after palliative care consult	**Statistical Procedures:** *P*<.05 considered significant. SAS software version 9.3 used for statistical analysis. Group comparisons for categorical variables done with X^2 or Fisher Exact (when frequency <5). Continuous variables examined with 2-sided *t* test or Kruskal-Wallis (when normally distributed). Time to consultation calculated by Kaplan-Meier product limit estimator. Survival curves compared with Wilcoxon. **Results:** More consults were generated in the intervention group (22.39%) compared to the control group (7.05%; P < .001). The median time to consultation was lower in the intervention group compared to the control group (1 day vs 2 days; P < .01).

					Median length of stay not significantly different between groups (p=.44). Ventilator free days not significantly different between groups (p=.8943).
Citation: Lapp, E. A., & Iverson, L. (2015). Examination of a palliative care screening tool in intensive care unit patients. *Journal of Hospice & Palliative Nursing, 17*(6), 566–574. https://doi.org/10.1097/NJH.0000000000000202					Level: III
Purpose/Hypothesis	Design	Sample	Intervention	Outcomes	Results
"This study examined the collection of CAPC screening criteria that were used to make a tool to screen ICU patients. The study aimed to assess the utilization of palliative care services in an academic medical center's ICU based on the total number of CAPC criteria met per patient. The study also aimed to determine the mortality rate in the ICU in relation to the number of criteria met. Finally, the study aimed to identify the most common criteria that were triggers for a palliative care referral in this setting. Data gathered from the study will be used as preimplementation data for a future preintervention-postintervention study" (p. 568).	Retrospective, descriptive, exploratory study design- Quality improvement project	Midwestern academic medical center, 341 beds. Randomized sample of 200 patients in a 20-bed combined MICU and SICU. Eligible: N=1136 Excluded patients <19 years old, or no CHF or stage of COPD documented. Sample size and power analysis not warranted.	**Control:** Patients not screened by CAPC tool. **Intervention:** Adapted CAPC screening tool including 22 items **Intervention fidelity:** Primary investigator (PI) independently reviewed medical records of the 200 randomly selected patients and determined the presence of CAPC criteria by collecting data from narrative comments in admission notes, daily progress notes, and the history and physical summaries. The exact wording of the screening criteria was required in the documentation to be included in the data. The PI recorded the findings	**Dependent Variable:** PCC (determined by presence of PCC note) & mortality (defined by dying in the ICU). **Measures:** Number of criteria met per patient Mortality rate (patient dying in the ICU) in relation to the number of criteria met Most common triggers for referral in this setting	**Statistical Procedures:** X^2 for independent proportions to compare mortality rates Fisher exact to determine nonrandom association between 2 variables. Logistic regression to compare mortality rates between 4 categories based on number of criteria met. Analysis conducted using SAS 9.4 software. **Results:** -Patients meeting 1-3 criteria had a 3.5% chance of consult -Patients meeting 4-6 criteria had a 27% chance of consult -Patients meeting 7-10 criteria had a 61.5% chance of consult

			on the data collection form.		-Number of screening criteria met was significant in predicting probability of being consulted (p<.0001) -Odds of patient being consulted increased 1.74 time for each additional criteria met -Patient had to meet on average 7.3 criteria to be consulted -Number of screening criteria met was significant in predicting probability of dying in the ICU (p<.0001) -Increasing mortality factor 1.5 for each additional criteria met
Citation: Ma, J., Chi, S., Buettner, B., Pollard, K., Muir, M., Kolekar, C., Al-Hammadi, N., Chen, L., Kollef, M., & Dans, M. (2019). Early palliative care consultation in the medical ICU: A cluster randomized crossover trial. *Critical Care Medicine, 47*(12), 1707–1715. https://doi.org/10.1097/CCM.0000000000004016					Level: II
Purpose/Hypothesis	Design	Sample	Intervention	Outcomes	Results
"To assess the impact of early triggered palliative care consultation on the outcomes of high-risk ICU patients" (p. 1707).	Single-center cluster randomized crossover trial	Patients (*n* = 199) admitted to 2 MICUs at Barnes Jewish Hospital from August 2017 to May 2018 with a positive palliative care screen. Control: N=102 Intervention N=97 34 patients excluded for already having	**Control:** MICU standard of care not utilizing tool **Intervention:** Patients received a palliative care consultation from an interprofessional team led by board-certified palliative care providers within 48 hours of ICU admission. **Intervention fidelity:** The medical ICUs were	**Dependent Variable:** Palliative care consultation following positive screen **Measures:** Primary: Proportion of patients who transitioned to DNR&DNI status prior to hospital discharge.	**Statistical Procedures:** Counts and frequencies were computed for categorical variables and compared using the chi-square test or Fisher exact test if the expected count was less than 5. Monte Carlo simulations were performed to estimate 95% Cis for differences in medians and operating costs.

		DNR/DNI status prior to admission. A generalized estimating equation model was used to determine that 96 patients would be required per arm to detect a threefold increase (54% vs 18%) in the primary outcome with 80% power and a type 1 error of 5%.	randomized to intervention or usual care followed by washout and crossover, with independent assignment of patients to each ICU at admission. Patients 18 years and older consecutively admitted on weekdays to the MICUs were screened for study enrollment using a tool comprised of nine predetermined palliative care criteria to identify patients at high risk for morbidity and mortality based on severe or chronic organ dysfunction. Patients who screened positive for at least one item were eligible for enrollment.	Secondary: MICU LOS, hospital LOS, discharge to hospice, duration of mechanical ventilation, duration of vasopressors, tracheostomy, CPR, mortality, operating cost, post discharge ED visits, and hospital readmissions.	All statistical analyses were performed at significance level of 0.05 with two-sided tests using SAS Version 9.4 **Results:** -Transition to DNR/DNI occurred earlier and significantly more often in the intervention group than the control group (50.5% vs 23.4%; $p < 0.0001$). -The intervention group had significantly more transfers to hospice (18.6% vs 4.9%; $p < 0.01$) with fewer ventilator days (median 4 vs 6 d; $p < 0.05$), tracheostomies performed (1% vs 7.8%; $p < 0.05$), and post-discharge ED visits and/or readmissions (17.3% vs 38.9%; $p < 0.01$). Although total operating cost was not significantly different, medical ICU ($p < 0.01$) and pharmacy ($p < 0.05$) operating costs were significantly lower in the intervention group. There was no significant difference in ICU LOS (median 5 vs 5.5 d), hospital LOS (median 10 vs 11 d), in-hospital mortality (22.6% vs 29.4%), or 30-day mortality between groups (35.1% vs 36.3%) ($p > 0.05$).

Citation: Martz, K., Alderden, J., Bassett, R., & Swick, D. (2020). Outcomes associated with a nurse-driven palliative care screening tool in the intensive care unit. *Critical Care Nurse, 40*(3), 23–29. https://doi.org/10.4037/ccn2020702					Level: V
Purpose/Hypothesis	Design	Sample	Intervention	Outcomes	Results
“To identify outcomes associated with specialty palliative care referral among patients with critical illness” (p. 23).	Retrospective cohort study-QI	Patients screening positive on palliative care screening (n=112). 14-bed medical-surgical ICU of a community health system in Idaho between September 2017 and March 2018. Inclusion: patients with positive screening results on the nurse-driven palliative care screening tool. Exclusion: patients with stays shorter than 24 hours because of inadequate time for palliative care consultation.	**Control:** patients screening positive who did not receive PCC. **Intervention:** Nurses notified the intensivist physician and other team members of the result during multidisciplinary rounds, and the physician had the option to place a specialty palliative care consult. **Intervention fidelity:** Records of 112 patients with positive results on palliative care screening were retrospectively reviewed to compare outcomes between patients who received a specialty palliative care consult and those who did not.	**Dependent Variable:** consult to palliative care following positive screen **Measures:** Primary: length of stay, discharge disposition, and escalation of care. Secondary: presence of invasive (endotracheal or tracheal) mechanical ventilation, vasopressor infusion, and dialysis	**Statistical Procedures:** Analyzed the data with SAS statistical software, version 9.3. Descriptive statistics to summarize the patient characteristics and outcomes. Analyzed group differences between patients who received a palliative care consult and those who did not with t tests for continuous variables and r2 tests for categorical variables. **Results:** 65 patients (58%) did not receive a palliative care consult. No significant differences were found in length of hospital or intensive care unit stay. Most patients who experienced mechanical ventilation did not receive a palliative care consultation ($\chi2$ = 5.14, P = .02). Patients who were discharged to home were also less likely to receive a consult ($\chi2$ = 4.1, P = .04), whereas patients who were discharged to hospice were

					more likely to receive a consult ($\chi 2$ = 19.39, P < .001).
Citation: McCarroll, C. M. (2018). Increasing access to palliative care services in the intensive care unit. *Dimensions of Critical Care Nursing, 37*(3), 180-192. https://doi.org/10.1097/DCC.0000000000000299					Level: V
Purpose/Hypothesis	Design	Sample	Intervention	Outcomes	Results
"The aim of this quality improvement (QI) project was to develop and implement a palliative care screening tool using evidence-based triggers to help increase the proportion of palliative care consultations in the ICU setting" (p. 180).	Quality Improvement	Adult patients admitted to ICU n=20. 14-bed Medical-Surgical ICU in southeastern USA. Preintervention (June-August 2016): 10 patients Postintervention (October-December 2016): 10 patients	**Control:** Proportion of patients receiving a PCC preintervention. **Intervention:** Palliative care trigger tool using site specific evidence based triggers selected by key stakeholders using IPAL-ICU **Intervention fidelity:** Nursing staff screened patients on admission and daily. Nurse discussed with attending physician at rounds and physician placed consult if deemed necessary.	**Dependent Variable:** PCC **Measures:** Proportion of patients receiving a PCC	**Statistical Procedures:** Descriptive statistics and simple statistical analysis **Results:** Preimplementation 1/10 patients consulted (10%) Postimplementation 3/10 patients consulted (30%) Increase in consults by 200%
Citation: Nelson, J. E., Curtis, J. R., Mulkerin, C., Campbell, M., Lustbader, D. R., Mosenthal, A. C., Puntillo, K., Ray, D. E., Bassett, R., Boss, R. D., Brasel, K. J., Frontera, J. A., Hays, R. M., & Weissman, D. E. (2013). Choosing and using screening criteria for palliative care consultation in the ICU: A report from the Improving Palliative Care in the ICU (IPAL-ICU) advisory board. *Critical Care Medicine, 41*(10), 2318–2327. https://doi.org/10.1097/CCM.0b013e31828cf12c					Level: V
Purpose/Hypothesis	Design	Sample	Intervention	Outcomes	Results

"To review the use of screening criteria (also known as "triggers") as a mechanism for engaging palliative care consultants to assist with care of critically ill patients and their families in the ICU" (p. 2318).	Literature Review	Physician and Nurse of the IPAL-ICU Advisory Board presented studies and tools from a literature search to all Board members.	**Intervention fidelity:** Study Selection: searched MEDLINE from inception to December 2012 for all English-language articles using the terms "trigger," "screen," "referral," "tool," "triage," "case-finding," "assessment," "checklist," "proactive," or "consultation," together with "intensive care" or "critical care" and "palliative care," "supportive care," "end-of-life care," or "ethics."	**Measures:** 1. What screening criteria for ICU PCC have been reported? 2. What is the optimal method for selecting such criteria at a particular institution or ICU? 3. What are elements of an effective process to implement the screen? 4. How should the impact of a proactive palliative care consultation screen be evaluated? 5. Is implementation of PCC screening criteria the right approach to improve care in your ICU?	**Results: (Position Statements)** 1. If providers as well as nurses and others are actively involved in the process for developing criteria, it is less likely that nurses, or patients and families, will feel that access to palliative care is inadequate. 2. Defined criteria may help educate these clinicians about the potential benefits of PCC and focus attention on those patients and families most in need of specialist input. 3. Multiple single-institution studies have suggested that by use of specific criteria to prompt proactive referral, PCC can help reduce utilization of ICU resources without changing mortality, while increasing involvement of palliative care specialists for ICU patients and families in need.
Citation: Sihra, L., Harris, M., & O'Reardon, C. (2011). Using the improving palliative care in the intensive care unit (IPAL-ICU) project to promote palliative care consultation. *Journal of Pain & Symptom Management, 42*(5), 672–675. https://doi.org/10.1016/j.jpainsymman.2011.08.002					Level: V
Purpose/Hypothesis	Design	Sample	Intervention	Outcomes	Results
"There is growing evidence to suggest the value of palliative care consultation in the ICU. However, the need to establish the presence of the palliative care team and increase palliative care	Quality Improvement	Intervention group: MICU and SICU patients between April 2 and December 31 2010. N= 273	**Intervention:** Screening for palliative care chosen from previously used criteria or areas of concern **Intervention fidelity:** Two MICU nurses	**Dependent Variable:** Palliative care consults **Measures:** Fraction of PCC obtained from the total	**Statistical Procedures:** Simple statistical analysis **Results:** -Proportion of consults between MICU and SICU

consultations in the ICU is paramount to the success of any future initiatives. We conducted this project with the expectation that focused screening of patients appropriate for palliative care would result in an increased rate of consultations" (p. 673).		Preintervention group: MICU and SICU patients April 2 and December 31 2009 Large urban medical center MICU and SICU. Exclusions: admissions <48 hour ICU stay	screened MICU and SICU patients 2-3 times per week. Attending physician was notified of patients who screened positive by phone from the palliative care service offering assistance and the physician could choose whether to make a formal consult.	number of patients screened	did not differ significantly (34.5 % v 37.4%) -MICU consults increased 113% during intervention -SICU consults increased 51% during intervention -Combined 81.2% increase in palliative care consults
Citation: Zalenski, R. J., Jones, S. S., Courage, C., Waselewsky, D. R., Kostaroff, A. S., Kaufman, D., Beemath, A., Brofman, J., Castillo, J. W., Krayem, H., Marinelli, A., Milner, B., Palleschi, M. T., Tareen, M., Testani, S., Soubani, A., Walch, J., Wheeler, J., Wilborn, S., … Welch, R. D. (2017). Impact of palliative care screening and consultation in the ICU: A multihospital quality improvement project. *Journal of Pain and Symptom Management, 53*(1), 5–12. https://doi.org/10.1016/j.jpainsymman.2016.08.003					Level: V
Purpose/Hypothesis	Design	Sample	Intervention	Outcomes	Results
"To determine the outcomes of receiving palliative care consultation (PCC) for patients who screened positive on palliative care referral criteria" (p. 5).	Retrospective analysis of a prospective QI intervention	MICU patients receiving a positive palliative care screen N=405. 7 hospitals: 2 university affiliated tertiary care centers, and 5 community hospitals across the USA. Patients receiving PCC n=161 Patients not receiving PCC n=244	**Control:** Patients receiving positive palliative care screens. **Intervention:** Use of 7-item palliative care screening tool to identify patients at high risk for a complicated hospital stay. **Intervention fidelity:** Patients who had one or more risk factors were classified as screen positive and all others were classified as screen negative. The patients'	**Dependent Variable:** Patient outcomes receiving PCCs compared to those who did not. **Measures:** 1. Change from full code status on admission to DNR before discharge 2. Discharge to hospice 3. Readmission to the same hospital/hospital	**Statistical Procedures:** Covariate balancing propensity score method was used to estimate the conditional probability of receiving a PCC and to balance important covariates. Demographic differences between patients with and without PCC were examined with the Student t-test or chi-square tests. Binary analysis outcomes such as change in DNR status, discharge to hospice, and readmission at 30 days were evaluated using

			screen scores were presented by nurses at interdisciplinary rounds, and the intensivist or the attending physician made the decision whether to order a PCC.	system within 30 days. 4. Hospital LOS and cost.	unadjusted odds ratios, and by logistic regression analysis with AORs. **Results:** Patients who received a PCC had: -Higher rates of DNR (AOR=7.5; 95% CI 5.6-9.9) and hospice referrals (AOR=7.6; 95% CI 5.0-11.7) -Slightly lower 30-day readmissions (AOR=0.7; 95% CI 0.5-1.0); no overall difference in direct costs or LOS was found between the two groups. -Early consultation by Day 4 of admission was associated with reduced LOS (1.7 days [95% CI 3.1, 1.2]) and average direct variable costs ($1815 [95% CI $3322, $803]) compared to those who did not receive PCC.

Table 2

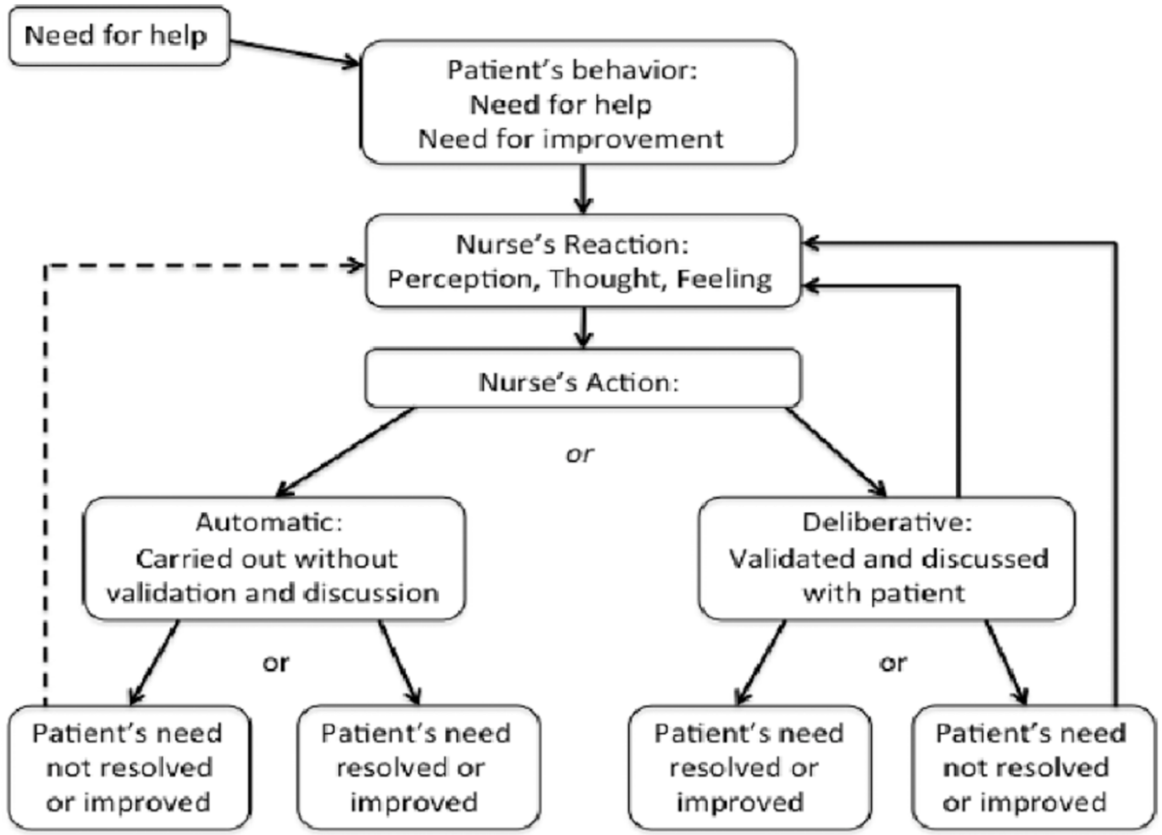
Synthesis Table

Evidence Based Practice Question (PICO): In adult MICU patients how does the use of a nurse-driven palliative care trigger tool compare to the current standard of care in referring patients to specialty palliative care services?			
Level of Evidence	**# of Studies**	**Summary of Findings**	**Overall Quality**
II	**2**	Hurst et al. (2018) supports that the use of a simple, objective screening tool increased patient access to PCC in the MICU. Additionally, positive screening was associated with decreased time to PCC, and screening tools may help critical care teams identify ICU patients who are appropriate for palliative care in a standard and objective manner. Median ICU LOS was not different between the intervention and control groups, and there was no difference in the number of ventilator-free days between the 2 groups. Ma et al. (2019) found that transition to DNR/DNI occurred earlier and significantly more often in the intervention group who received a PCC following positive screening on palliative care tool compared to the control group. Secondary findings support reduced ventilator days, tracheostomies performed and ED visits. No significant differences were found between groups for LOS or mortality.	A, ICUs consisted of separate teams, but attendings could rotate though both of these ICUs. The screening tool was used specifically in an MICU that is separate from the neuro-ICU- item 3 of the tool may be triggered more frequently in Neuro-ICUs. Used nonrandomized sample, screening is specific to MICU patients and not generalizable to all ICUs. Power analysis completed with between group analysis to determine comparison. PCC not available on weekends or holidays potentially leading to delays in care. The same MICU staff was used during tool development and implementation leading to potential bias toward success and use. A, adequately powered study with over 96 patients in the intervention and control groups. Randomized patient assignments and used certified palliative care specialists in the delivery of PCC. Study performed in a single academic institution limits generalizability to other practice areas. The absence of data on potentially eligible patients that were excluded due to staffing limitations is a potential source of bias.
III	**1**	Lapp & Iverson (2015) found that the number of criteria met per screening significantly increases risk of mortality. Patients with more than one criteria should be assessed for palliative care needs by the primary team or palliative care team. Patients with a score of 8 or greater should be adopted as definitive palliative care consult based on mortality risk. Proven need for trigger tool based on lack of PCC placed compared to number of triggers met.	A, randomized sample with demographic data examined by single chart reviewer. CAPC criteria specifically created and tested for ICU use. Single center limits generalization. Unstated adequacy of sample size without power analysis. No post implementation data.
V	**5**	Martz et al. (2020) found that less than half (42%) of patients who screened positive actually received specialty palliative care consultation. No significant differences between groups in the length	B, conducted in a single MICU at a nonprofit hospital. Limited by small sample size. The nurse-driven palliative care screening tool provided information to MDs, but ultimately providers decided

		of hospital or ICU stay. Recommends further research to elucidate the factors providers use in their decisions to order or defer specialty palliative care consultation.	whether or not to order a specialty palliative care consult- selection bias likely exists.
		McCarroll et al. (2018) demonstrated that the proportion of PCC increased from 1 of 10 ICU admissions (10%) to 3 of 10 ICU admissions (30%)- total number of PCC placed by the medical team postintervention increased by 200% from preintervention. Implementing palliative care screening tools in the ICU identifies patients in need of input from palliative care specialists as well as educates physicians on how and when to use palliative care consults.	B, very small sample size was used due to only assessing those patients admitted under the pulmonary critical care service. Physicians needed to sign off on the PCC generated from the tool which limited all positive screenings from receiving a PCC. Education on use of tool was not provided to all staff potentially limiting physician buy-in. Interdisciplinary collaboration in developing screening tool. Extensive literature review.
		Nelson et al. (2013): Multiple single-institution studies have suggested that use of specific criteria to prompt PCC can help reduce utilization of ICU resources without changing mortality, while increasing involvement of palliative care specialists. Defined PCC criteria may help educate clinicians about the potential benefits of PCC and focus attention on those patients and families most in need of specialist input.	B, only utilized MEDLINE for the majority of literature search terms, explored tools offered on the CAPC website, and expert opinion from IPAL-ICU members. Clear inclusion/exclusion criteria for literature review was not described, and sources of evidence are not detailed or evaluated using GRADE criteria.
		Sihra et al. (2011) found that the IPAL-ICU project framework and recommendations can be effectively used to increase the number of PCC in the ICU. Study showed a combined 81.2% increase in PCC between the MICU and SICU.	C, lack of description of statistical analysis. Physician required to place consult. Large sample for single institution study, but limited in generalizability. Clear, well defined, reproducible, interventions, goals and measures.
		Zalenski et al. (2017) showed that patients receiving PCCs compared to those who did not had higher rates of DNR status change and hospice referral, and lower 30-day readmissions. Patients who had a PCC early in their hospital stay were significantly more likely to have associated lower hospital costs and shorter LOS.	B, nonrandomized trial. Clinical criteria included on the 7-item palliative screening tool were developed by the study team and hospital advisory groups- screening tool is not validated nor proven reliable. Only 60% of patients admitted were screened, and only 40% of those screening positive actually received a PCC. Generalizability of the results is enhanced by the diversity of the seven hospitals across three states, including both closed and open ICUs in community and tertiary hospitals.

Figure 1

Practice Theory: Jean Orlando's Nursing Process Discipline Theory



Note. The dotted line represents uncertainty about whether the nurse will revisit his or her reaction and if the patient's needs are resolved or improved. Solid lines represent a deliberative process of validation and discussion to improve or resolve the patient's needs.

Figure 2

Implementation Process Framework: Framework of Complex Innovation Implementation

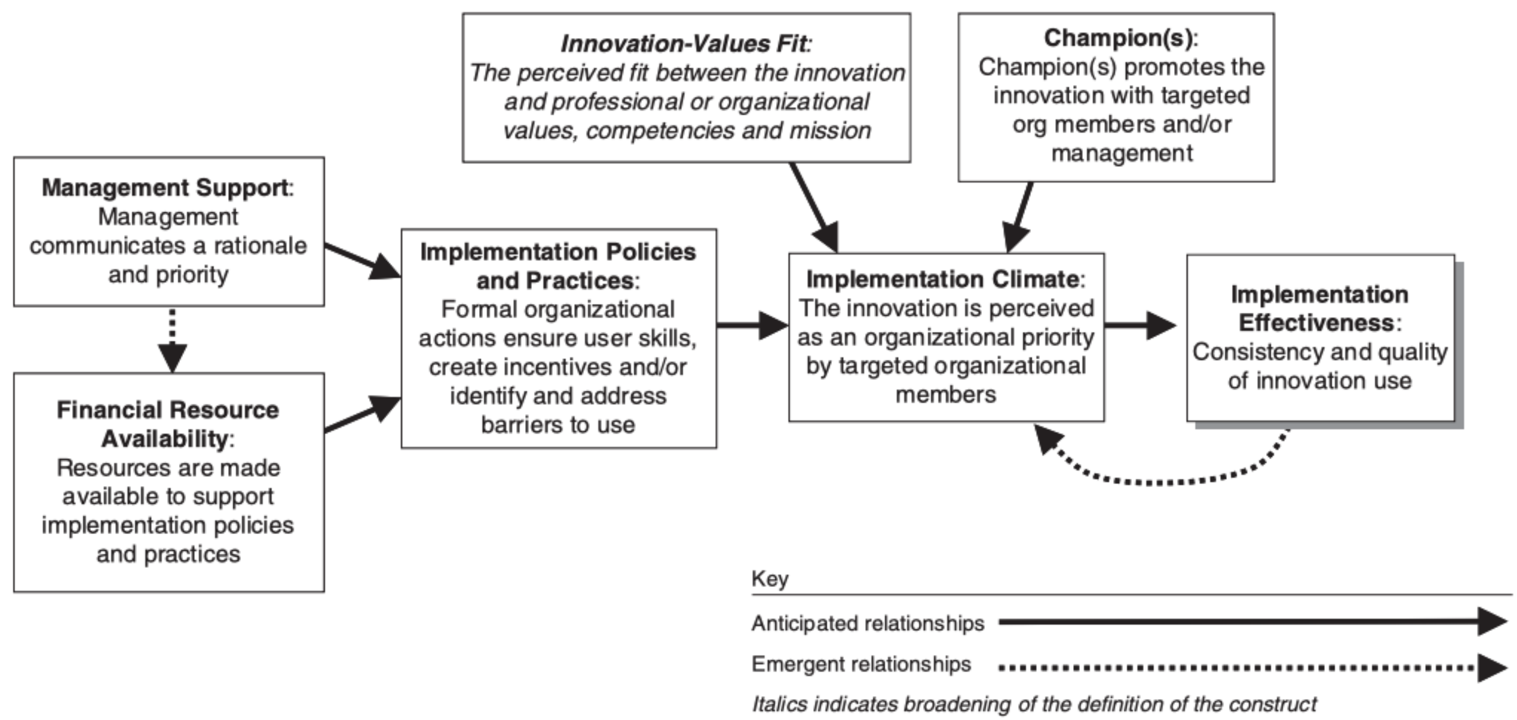


Figure 3

Run Chart 1: Nurses Performing PC Screening within 48 hours of admission

By December 10, 2021, 100% of patients will receive a palliative care screen within 48 hours of admission by the bedside MICU RN.

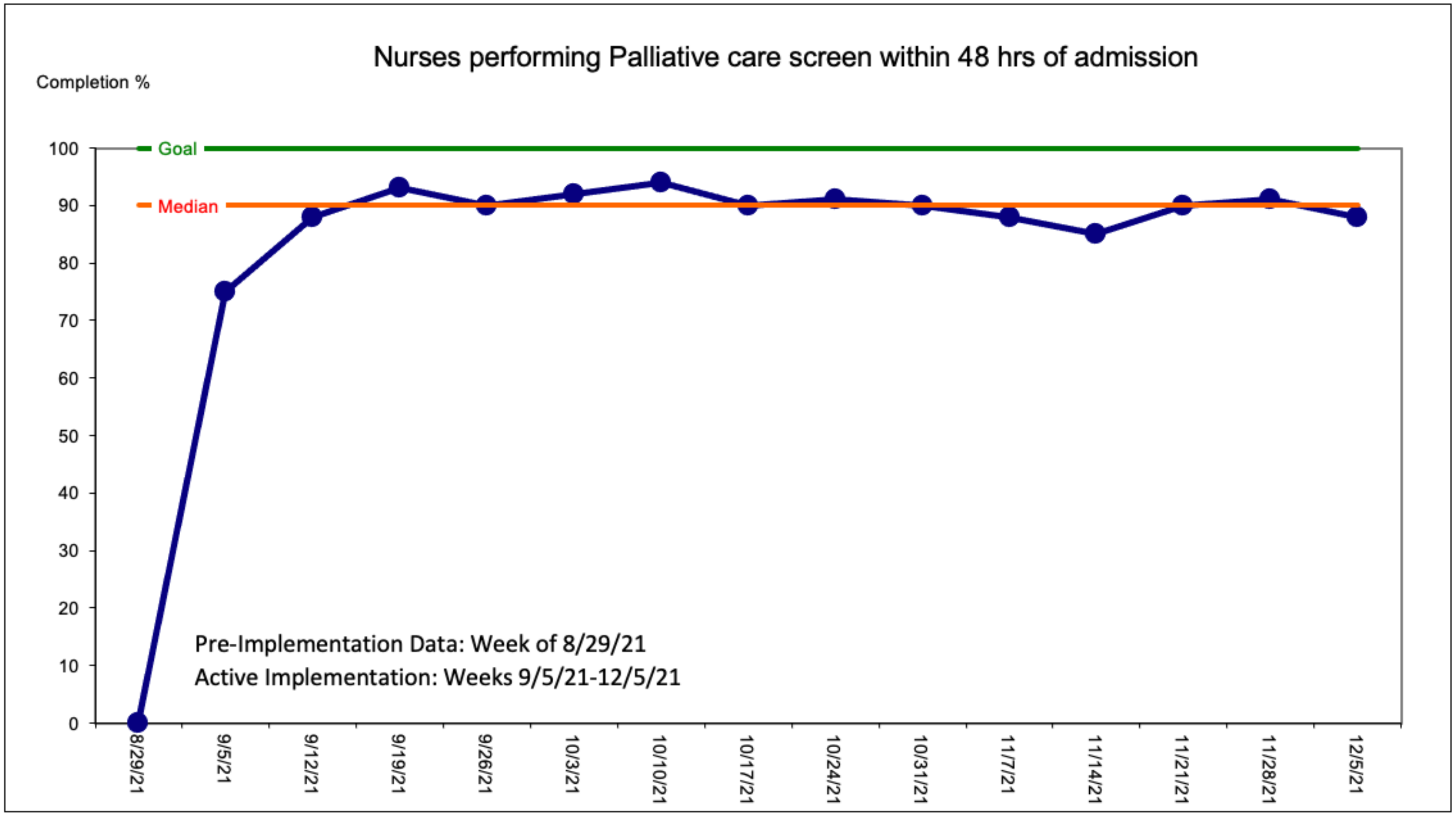
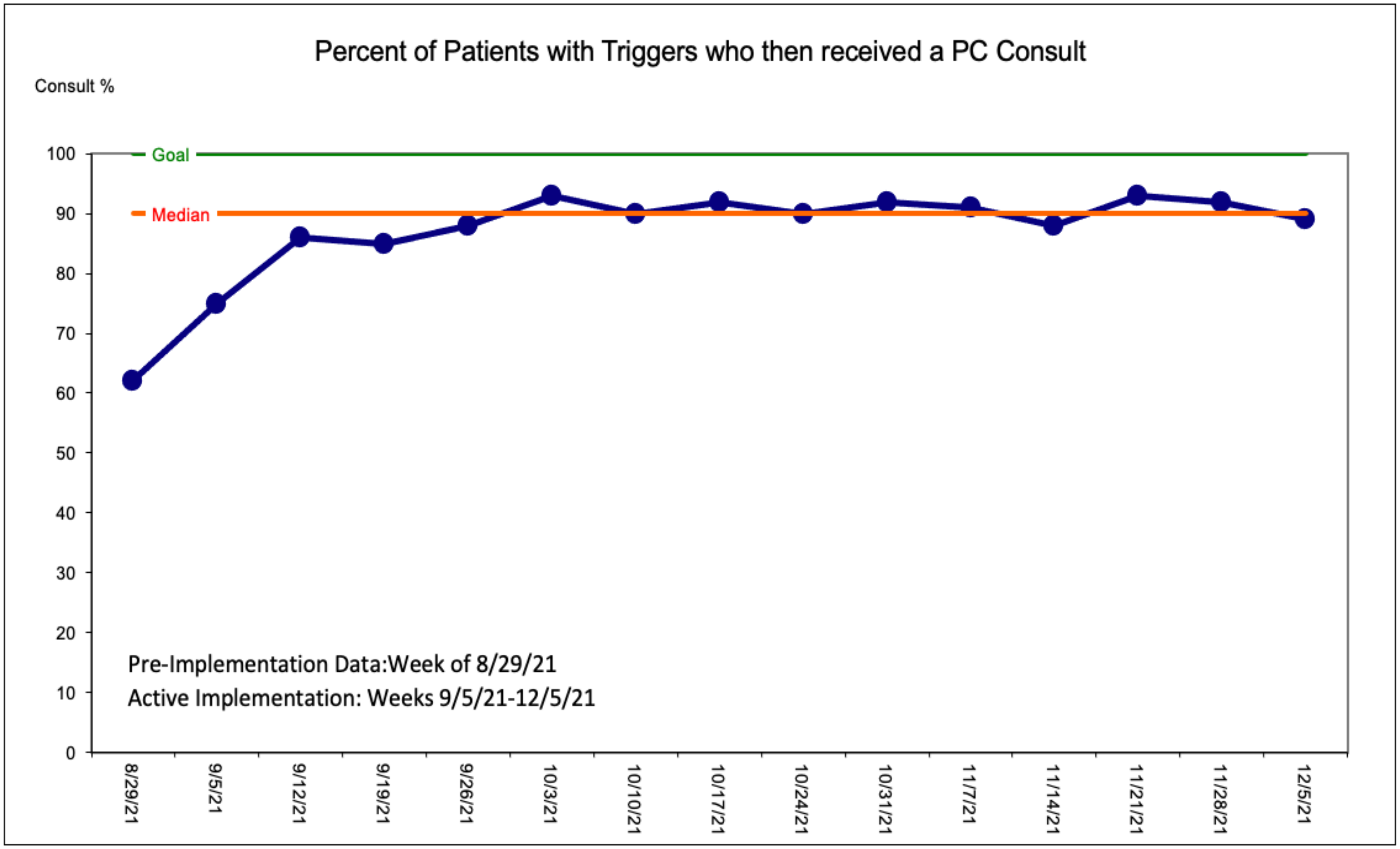


Figure 4

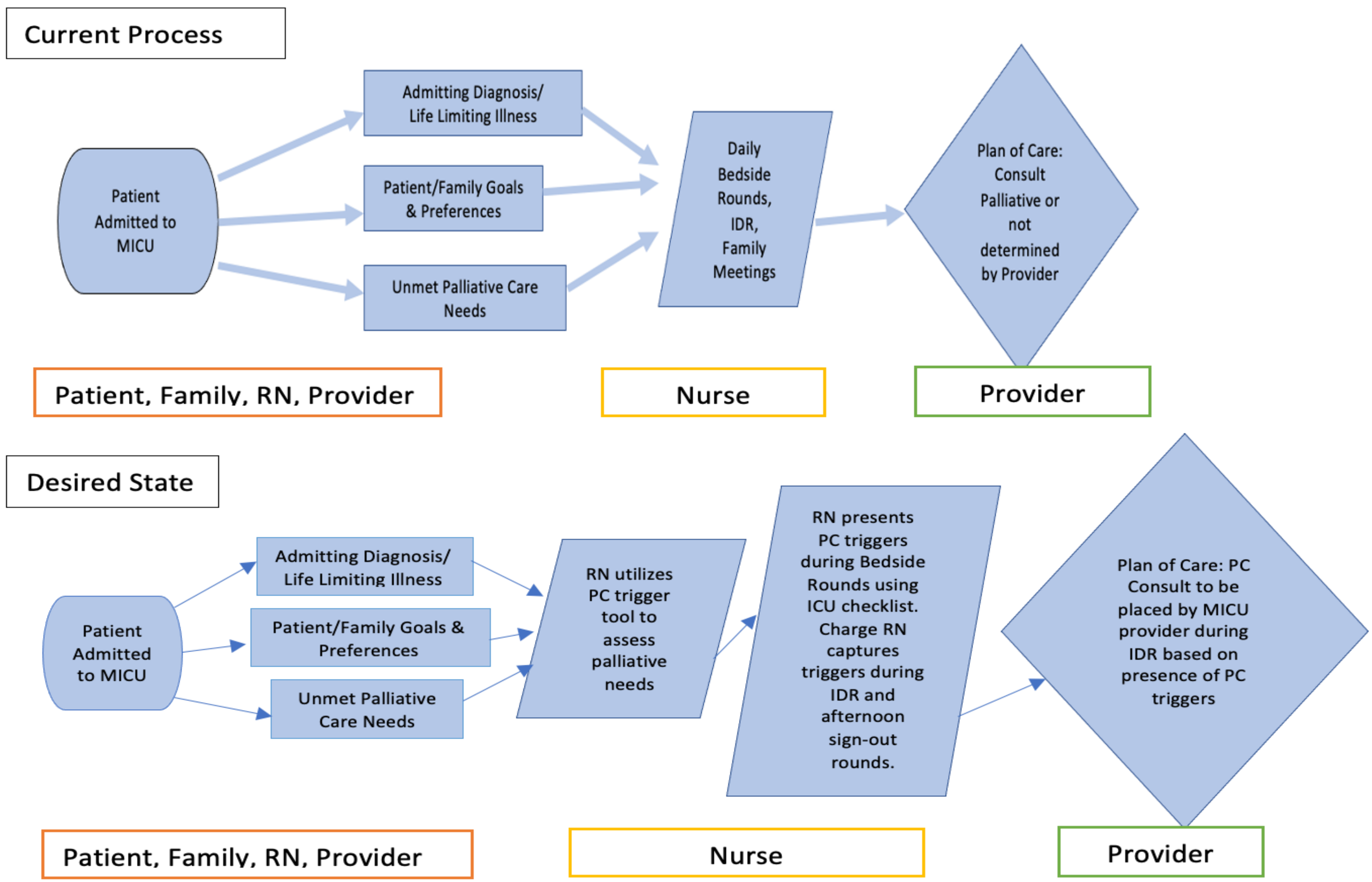
Run Chart 2: Percent of Patients Screening Positive with PC Consult

By December 10, 2021, 100% of patients screening positive on palliative care screening will receive a palliative care consult by the MICU provider.



Appendix A

Process Flow Map: Palliative Consult Process



Appendix B

ICU Palliative Care Trigger Tool

ICU Palliative Care Trigger Tool

Daily IDR: Consider the following criteria when determining if the patient or family could benefit from a palliative care plan

Primary Criteria

- The ‘‘surprise question’’: Would you be surprised if the patient expired within 6 months?
- Difficult-to-control physical or psychological symptoms (e.g. >1 admission for same condition within several months)
- ICU LOS ≥ 7 days without evidence of progress
- Lack of Goals of Care clarity and documentation
- Disagreements or uncertainty among the patient, staff, and/or family concerning . . .
    - major medical treatment decisions/consents
    - plan of care is not congruent with what is stated in the advance directive
    - use of nonoral feeding/hydration
- Cardiac arrest with suspected or confirmed anoxic brain injury
- Advanced stage dementia
- Multiorgan failure (≥3), Admitted for shock
- Intracerebral hemorrhage requiring mechanical ventilation
- Advanced stage solid organ malignancy. Relapsed leukemia or lymphoma
- Age ≥ 80 with life-threatening comorbidities
- Patient has a terminal condition and team determines that continued or escalating care is unlikely to benefit the patient
- Family request and/or concern about communicating illness with children
- Request by interdisciplinary health care team member

Secondary Criteria

- Awaiting, or deemed ineligible for, solid-organ transplantation
- Patient/family/surrogate emotional, spiritual, or relational distress
- Patient/family/surrogate request for palliative care/hospice services
- Admitted from nursing home/SNF
- Patient is considered a potential candidate, or medical team is considering consultation for:
    - feeding tube placement
    - tracheostomy
    - initiation of renal replacement therapy
    - ethics concerns

Primary Criteria are global indicators that represent the minimum that hospitals should use to screen patients at risk for unmet PC needs.
Secondary Criteria are more-specific indicators of a high likelihood of unmet PC needs and should be incorporated into a systems-based approach to patient identification if possible.

If current PC plan in place: Screening is no longer required, but please address PC status in rounds.

Appendix C

Data Management Spreadsheet

Implementation of a Nurse-Driven Palliative Care Trigger Tool Data Management Spreadsheet									
Case Code	Date & Time of Admission	Date & Time of Screening	Screening Performed	Shift Performed	Active Triggers	PCC Placed	Disposition	Provider Code	Nurse Code
xxx	xx/xx/21	xx/xx/21 00:00	Y=1 N=2	Day=1 Night=2	Positive=1 Negative=2	Y=1 N=2	Home=1 Deceased=2 Hospice=3 Transfer=4	xx	xx
001	09/21/21 00:05	10/15/21 22:10	1	2	1	2	1	01	03
002	08/30/21 04:50	09/01/21 02:30	1	2	1	1	2	02	21
003	10/15/21 19:12	10/16/21 18:15	2	1	2	1	4	01	45

Note. PCC= Palliative Care Consult

Appendix D

Code Key

Implementation of a Nurse-Driven Palliative Care Trigger Tool Code Key			
Patient Code	Medical Record Number	Clinician Code	Clinician Name
xxx	xxxxx	xxx	X, credentials
001	98765	001	XX, ACNP, DNP
002	12345	002	Sawyer Spurry, RN
003	86753	003	XX, MD