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Pilot Implementation of a Comprehensive Pain Assessment in an Oncology Clinic

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Description of the Clinical Problem

According to the National Cancer Institute approximately 1,735,350 Americans will be diagnosed with cancer in 2018 (American Cancer Society, 2018) . It is estimated that 30%-50% of those patients receiving treatment will experience pain caused by malignancy or the cancer therapy itself. Regrettably, 70-90% of those with metastatic disease will encounter severe discomfort, due most often to tumor burden at secondary sites (Platt, 2010).

Uncontrolled pain is distressing and leads to poor functionality, decreased emotional well-being, unplanned Emergency Department (ED) visits, and unanticipated hospital admissions (UHA) (Numico et al., 2015; Rocque et al., 2013). For example, from 2006-2012, 29.5 million (4.2%) adult Emergency Department (ED) visits were attributed to uncontrolled oncologic symptoms (Rivera et al., 2017). The inability to complete daily tasks including ambulation, dressing, feeding, and toileting of oneself instigates fear and lack of self-control, resulting in depression and anxiety in one-quarter of the population (Jacobsen & Jim, 2008). Further studies found those harboring depressive symptoms in the setting of advanced cancer had a 25% increased risk of mortality and were 4 times more likely to hasten death (Jacobsen & Jim, 2008).

A 2012-2016 study aimed at decreasing ED and hospital admissions found that patients given an earlier palliative care referral (PCR) had 18.1% less ED visits and 12.5% less acute hospital admissions versus late PCRs (Michael et al., 2019). In response to the evidence, the American Society of Clinical Oncology (ASCO) updated its guidelines in 2016, recommending the integration of PC into standard oncology care: “Patients with advanced cancer should be referred to interdisciplinary PC teams that

provide inpatient and outpatient care early in the course of disease, alongside active treatment of cancer" (Ferrell et al., 2017).

Assessing pain alone does not acknowledge the interconnectedness of psychosocial, spiritual, and physical duress. To discount these relationships contributes to insufficient treatment leading to unnecessary suffering, poor quality of life, and inferior health outcomes.

A survey conducted amongst all physicians with patient care responsibilities, belonging to the Easter Cooperative Oncology Group (ECOG), found 76% of oncologists specified poor pain assessment as the most significant impediment to appropriate pain management (Von Roenn, Cleeland, Gonin, Hatfield, & Pandya, 1993). Therefore, a proper pain evaluation must be an essential component of the oncologic treatment plan. This evaluation assists in determining pain severity as well as the extent of its physical and emotional impact. With this tool, a clinician is more able to manage oncologic symptoms in high-risk patients frequently utilizing the ED or are admitted to the hospital.

Description of Project, Eligibility Criteria, and Primary Aims

This project implemented an algorithmic approach to assess pain, functionality, and psychosocial states in newly diagnosed cancer patients, utilizing a validated pain tool, within a second-year-fellow Hematology/Oncology clinic, with intent to identify patients at high-risk for ED admission or UHA.

The second-year-fellow Hematology/Oncology clinic site services approximately 450 patients per year. Clinic hours occurred on Thursday afternoons (1200-1600) during a 3-month data collection period. Prior to this project, this site had not utilized a formal

comprehensive pain assessment tool. Hence, baseline data on prior institutional performance was not available.

To be eligible to participate within this study, patients needed have a new cancer diagnosis or subsequent recurrence and were presenting for consultation prior to starting treatment. Additionally, the patient had to have decision-making capacity as well as the ability to independently communicate and read English at a fifth-grade level.

Primary aims for this project included: (a) aggregating demographic data to determine the profile of a high-risk patient seen within this clinic, (b) determining those referred to and who followed up with symptom specialists or the ED, and (c) identifying barriers for next iteration of the project.

Secondary goals included: (a) assessing the effectiveness of a Comprehensive Pain Assessment tool in helping to identify pain, psychosocial, functional, spiritual distress, and substance abuse potential in patients newly diagnosed with cancer, (b) providing thorough education on pharmacological and nonpharmacological modalities to reduce pain, (c) explaining the purpose and misconceptions of PC, and (d) managing symptoms and/or providing referrals for appropriate interventions in a timely manner to improve patient satisfaction and health outcomes.

Project Plan Process

Following stakeholder and IRB approval, a provider documentation template in the electronic medical record (EMR) was created. Information within the note was based on a validated Adult Oncology Outpatient Comprehensive Pain Assessment Tool.

During data collection, a weekly chart review was completed by the investigator to identify patients for consultation and confirmed with the consulting oncologist. Prior

to assessment, patients were given an Information Letter for Research explaining the intentions of the project and that involvement was voluntary (Appendix A).

The pain assessment was administered by the investigator during the patient encounter. If a need for pain or symptom management, mental health services, social work, or nurse navigation was identified, referrals were provided during that visit.

At the conclusion of the data collection period, the investigator performed a chart review of all eligible patients, aggregating and analyzing data. Additionally, a post-implementation survey was conducted amongst the second-year fellows. Upon the completion of both patient and physician data analysis, potential improvements to the process were determined and presented to stakeholders.

Project Site

The site in which this project was conducted had recently merged with a world-renowned cancer center. To comply with the cancer center's standards, specific oncologic algorithms and protocols are to be adopted into practice over an unspecified time. For this reason, the Adult Oncologic Comprehensive Pain Assessment was accepted as a validated tool by the facilitators without difficulty.

Framework

The Plan Do Check Act (PDCA) model, also known as the Shewart or Deming cycle, is a highly-utilized tool in continuous process improvement (CPI). The investigator must *plan* an intervention to a problem using evidenced-based practice, *do* the necessary steps to achieve the potential solution, *check* the outcome(s) of the implemented intervention, making necessary revisions, and then *act* on the revisions by

implementing the best solutions. Ideally, this sequence should persist until the desired outcome has been achieved (Johnson, 2002).

The *Planning* phase consisted of the project proposal to stakeholders, development of project materials, and IRB application with approval. In the *Do* phase, the eligible patients were identified, the Comprehensive Pain Assessment was administered, and data were collected over 3 months. Data analysis and manuscript development by the investigator occurred during the *Check* phase. Final data were presented to stakeholders at the conclusion of the project to collect feedback on identifiable barriers and potential iterations for next the attempt. Finally, the *Act* phase required the agreed-upon revisions to be completed on the next PDCA cycle. This PDCA framework was chosen to assist in the execution of the project due to its ease of application, pertinence in the clinical environment, and familiarity within the institution where the intervention was implemented.

Project Approval and Timeline

Initial project approval was obtained by presenting an implementation outline, and evidence supporting the importance of comprehensive pain assessment in newly diagnosed oncology patients to the providers on August 6, 2018 (Appendix B). An IRB application was submitted to the health care organization on September 28, 2018. Approval was obtained on November 15, 2018. An application for IRB approval from the University of San Diego was subsequently submitted and approved by December 4, 2018 (Appendix C-D).

The 3-month data collection period commenced on December 6, 2018. Patients were seen by the investigator in clinic every Thursday afternoon until February 28, 2019.

At the conclusion of this period, chart reviews were performed on eligible patients and data were analyzed for the next 21 days. A post-implementation survey was given to all second-year fellows for feedback.

Stakeholders

The project data, evaluation, and communication plan were discussed at length and unanimously agreed upon in an initial meeting with all stakeholders. A projected timeline of 4 months from the creation of a standardized EMR-provider note to completion of data collection was established. Regular meetings with the stakeholders were scheduled to discuss progress, obstacles, and potential solutions. Outcomes were also shared with five patients who were screened over the 3-month period.

Databases and Search Terms

PubMed, UpToDate, and Google Scholar were databases searched to identify high-risk patient literature utilizing standardized comprehensive pain assessment to reduce ED visits and hospital admissions. Further, these publications were evaluated for the improvement of quality of care, patient satisfaction, and health outcomes. Common search terms included *oncology*, *pain*, *oncologic pain*, *assessment*, *palliative care*, and *symptom management*. At the conclusion of the literary search, 118 articles were critically reviewed. Twelve of those articles were used for supporting evidence for this project.

Evidenced-Based Solutions

Standardized Electronic Medical Record (EMR) Provider Documentation

In the United States, it is commonplace for large-scale, academic medical practices to utilize an EMR system. In addition to improved documentation, it is also a

helpful tool to assist in the identification of desired patient populations. Further, the EMR can alert the clinician to screen specific high-risk populations and place appropriate, timely orders.

The clinic utilized the EPIC EMR system in which this intervention was employed. A provider documentation note template was created and replicated the information required on the Comprehensive Pain Assessment Tool. The note could be utilized by all EPIC users by typing the shortcut "COMPPAIN." The template was designed to self-populate patient information including name, date of birth, age, medical record number, sex, diagnosis, medications, and allergies. Additionally, all assessment questions related to pain, functionality, and psychosocial issues were listed as they appeared on the original tool. Free text could be entered into the plan and assessment portion of the record. A disclaimer explaining that the patient had been given literature prior to the assessment and verbally consented to the study concluded the documentation.

Comprehensive Pain Assessment for High-Risk Patients

The Adult Oncology Outpatient Comprehensive Pain Assessment was developed from evidenced-based literature and was designed specifically for the adult outpatient oncology population, not including pregnant women. This tool not only assessed the patient's current level of pain, but also past and present psychosocial states, perceived functionality in completing activities of daily living, expectations of pain control, and potential problems with addiction (Appendix E).

Clinician Education

A 10-minute meeting with the second-year fellows was held prior to project implementation explaining the importance of a comprehensive pain assessment in the

outpatient adult oncology population as early in the diagnosis as possible. An electronic notice summarizing the project, patient eligibility criteria, process of identifying eligible patients, and project timeline was sent to all stakeholders prior to data collection.

Process and Outcome Indicator Data Monitoring

Chart Review

During the data collection period, the patient panel was reviewed every Thursday morning to identify eligible patients from the new consultations. Findings were then discussed and agreed upon with the oncologist treating the patient. Additionally, all eligible patients' charts were reviewed both during and at the conclusion of data collection to determine if and when they followed up, presented to the ED, or were unexpectedly hospitalized.

Post-Implementation Clinician Survey

The second outcome indicator for data monitoring included a 5-question survey sent to the three fellows 1-week post data collection. The survey was relayed and returned through a confidential email system (Table 1).

Table 1

Post-Implementation Clinician Survey Results

Do you feel the Comprehensive Pain Assessment:	Yes	No	Cannot Determine
Benefited your newly diagnosed patients?	3	0	0
Was an efficient and effective use of time?	3	0	0
Improved your patients' outcome?	2	0	1
Improved your patients' perceived quality of care?	3	0	0

Data Analysis

Aim 1: Demographic Information

During the 3-month data collection period, 121 patients were seen. Of those patients, 56 were new consultations and 14 fit eligibility criteria. The Comprehensive Pain Assessment Tool was administered to 5 of those patients (Figure 1).

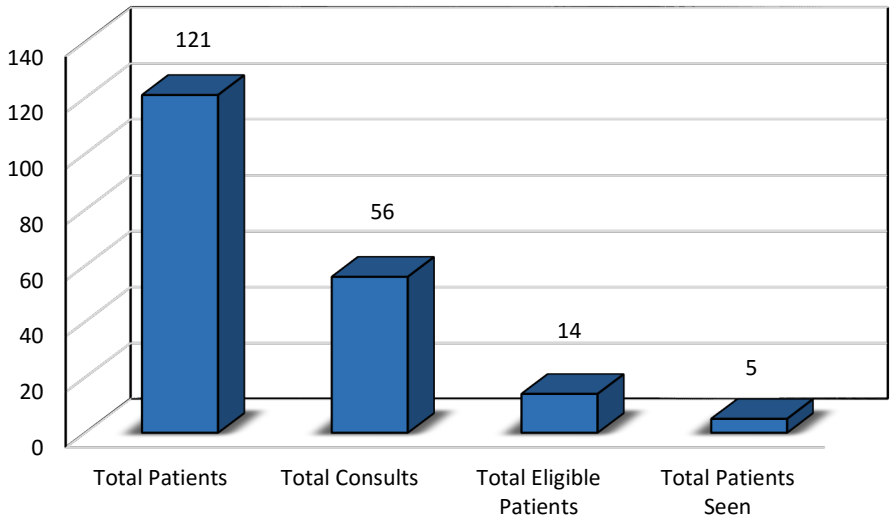

Figure 1. Number of patients and consultations.

Of the 14 eligible patients 4 were male and 10 were female. Median age was 70 years old with an age range of 56-90 years old. The most prominently diagnosed cancers were Stage IV breast and gynecological malignancies. Four patients were not pathologically diagnosed or staged at the time of the first consultation. Of the five patients administered the pain assessment, 100% of them were female with Stage IV solid tumor primary malignancies (Table 2).

Table 2

Demographic Information Data Analysis

	Not Seen (%) (n = 9)	Consulted (%) (n = 5)
Gender		
Male	4 (44%)	
Female	5 (56%)	5 (100%)
Age		
≤ 70 years	6 (67%)	1 (20%)
≥ 70 years	3 (33%)	4 (80%)
Median Age	69.9	71.4
Range	56-90	61-80
Site of Primary Cancer		
Breast	2 (22%)	
Gynecological		3 (60%)
Gastroenterological	1 (11%)	
Hepatocellular Carcinoma		1 (20%)
Skin (BCC of chest)	1 (11%)	
Nerve Sheath Tumor	1 (11%)	
Unknown	3 (33%)	1 (20%)
Loss to Follow UP	1 (11%)	
Stage		
I		
II		
III		
IV	4 (44%)	2 (40%)
Unknown	5 (55%)	3 (60%)

Aim 2: Baseline Data

Eighty-six percent of patients were correctly identified as being high-risk. Three of the five patients administered the pain assessment were given PC referrals and subsequently followed up. One patient was referred to a nurse navigator and had been contacted by the service. One of the patients referred to PC was appropriately placed on hospice and expired according to her wishes within 48 hours of completing Advanced Directive and Physician Order for Life Sustaining treatment forms. One of the 5 patients not referred was admitted to the ED and hospitalized (Table 3)

Table 3

Hospitalizations and Emergency Department (ED) Visits

	Not Seen (%) (n = 9)	Consulted (%) (n = 5)
Number of ED Admissions		
1		2 (40%)
2	1 (11%)	1 (20%)
3		
≥ 4	1 (11%)	
Reason for ED Visit		
Pain		1 (20%)
Shortness of Breath	6 (67%)	1 (20%)
Other		1 (20%)
Number of Unanticipated Hospitalizations		
1	2 (22%)	1 (20%)
2		
3		
≥ 4		
Reason for Unanticipated Hospitalization		
Pain		1 (20%)
Shortness of Breath	1 (11%)	
Other	1 (11%)	

Three of the five patients administered the comprehensive pain assessment tool presented to the ED and were hospitalized. Two of the nine patients not seen were admitted to the ED and hospitalized. The most prominent causes for ED admission were shortness of breath and pain. One patient who was identified as an eligible, high-risk patient was not referred by the oncologist because they believed the patient appeared to be "too overwhelmed." Unfortunately, this patient had four ED admissions and one hospitalization related to shortness of breath.

Aim 3: Barriers and Potential Solutions

After completion of the data collection period and subsequent analysis, several barriers were recognized. The first obstacle to this study was a small sample size. As the data suggested, solid tumor as well as breast and gynecological cancers were the most prevalent. A potential solution may be to implement this intervention in a solid tumor clinic such as breast, gynecology oncology, gastrointestinal, prostate, or lung.

The second barrier was under-consultation of eligible patients. Possible reasons for this may have been a lack of clarity on patient eligibility criteria, miscommunication on the purpose of assessing not only pain but psychosocial and functional states, the physician's belief that the patient did not require the intervention, or the patient refused the intervention. On the next iteration of this project, a more in-depth presentation and education on patient eligibility criteria, how to better identify high-risk patients, and the components of the pain assessment tool should be provided to both providers and medical assistants responsible for rooming the patients. Additionally, to avoid patients' refusal due to feeling overwhelmed on their first visit, assessing the patient within the first three visits should be considered.

The third hinderance was the lack of a dedicated space for consultation. The Hematology Oncology clinic in which this project was implemented had limited patient rooms and private space. A quiet, comfortable area with ample seating, space for literature, and a computer would be an ideal location to conduct such a visit. An exam room would be helpful should a more in-depth physical evaluation to assess pain and/or functionality be required; however, it is not necessary as these patients had just been examined by the oncologist. Additionally, it would be helpful for the investigator to be in or around the oncologists during clinic hours. This would allow for discussion of patient needs and unanticipated issues.

The fourth short-coming was the inability to assess patient satisfaction and health outcomes. Due to the limited 3-month data collection period, it was difficult to determine long-term health outcomes of early PC or mental health referrals, as well as their effect on patient satisfaction. In the next cycle, a pre and post patient satisfaction survey is recommended. Additionally, following the patients longitudinally over a 12- to 24-month period would allow for a clearer understanding of the impact on decreasing ED visits and unintentional hospitalizations.

Cost Analysis

The average cost of an oncologic ED visit in the United States is approximately $1,127 (Rivera et al., 2017). During the 3-month data collection period, three out of five consulted patients presented to the ED. Two patients presented once and one patient presented twice. The estimated cost for all four ED visits was $4,508.

Out of the nine patients not consulted, two presented to the ED. One patient presented twice and one patient presented four times. The cost for all 6 ED visits equates to $6,762.

It is the goal to apply iterations to this project, via the PDCA cycle, to achieve the intention of identifying high-risk patients early on in treatment and providing preventative interventions to reduce ED visits and hospital admissions. Had this been accomplished, the potential savings would have been $11,270 in health care costs.

Dissemination

At the conclusion of this 3-month pilot, a stakeholder presentation exhibiting data and outcomes was presented to at the Hematology/Oncology Division rounds on April 5, 2019. On April 13, 2019, a poster presentation of the project was presented at the 52nd annual Western Institute of Nursing (WIN) Conference held at the Town and Country Convention Center in San Diego, CA (Appendix F-G).

Sustainability

The institution in which this EPB project was conducted has an Internal Medicine Residency Program and various fellowship programs. To extend and improve this project, the current plan is for a resident, fellow, or DNP student to continue with the initiative, implementing the discussed iterations. Projects such as this one can improve the quality of care for oncology and/or PC patients.

Conclusion

This project implemented an algorithmic approach to assess pain, functionality, and psychosocial states in newly diagnosed cancer patients. This was accomplished by

utilizing a validated pain assessment tool for the purpose of identifying high-risk patients for ED admission or UHA within a second-year fellow Hematology/Oncology clinic.

Eighty-six percent of patients were correctly identified as being high-risk for ED or hospital admission. The average time to perform the comprehensive pain assessment was approximately 23 minutes. Four out of the five consulted patients were not familiar with the term or functions of palliative care.

Future iterations include (a) implementing this project within a solid tumor clinic, with particular consideration to breast and gynecological malignancies; (b) providing more information on eligibility criteria for providers determining a designated space for consultation; (c) performing the consult within one to three visits of diagnosis; (d) administering a pre and post implementation survey for patients and providers; and, (e) following patients longitudinally for 6 months or greater.

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