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Digital Object Identifier: 10.1188/20.ONF.E57

Abstracts are indexed by first author and page number.

PEDIATRIC ASSESSMENT OF CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY USING A PATIENT-REPORTED OUTCOME MEASURE: THE P-CIN MEASURE

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Numbness, tingling, pain, and weakness in the extremities are common chemotherapy-induced peripheral neuropathy (CIPN) symptoms that often necessitate chemotherapy dose reductions and impair balance, function, and quality of life for years beyond initial diagnosis. Because no validated pediatric CIPN patient-reported outcome measures exist, clinicians' and researchers' ability to monitor CIPN and evaluate intervention efficacy has been limited. The study purpose was to test the psychometric properties—sensitivity, internal consistency reliability, and content and convergent validity—of a new patient-reported outcome measure for assessing pediatric CIPN. At two academic sites, we recruited children 5–17 years old (N = 79) who had CIPN from neurotoxic chemotherapy and no other causes. Five experts evaluated content validity of the 14-item electronic survey, which assesses CIPN symptoms and functional deficits using a 0–5 Likert scale. High scores reflect worse CIPN. Several items ask the child to perform a task (e.g., pick-up-a-coin), then rate its difficulty. A subset (n = 26) also underwent the Pediatric Modified Total Neuropathy Score (ped-mTNS©) neurological examination. Following preliminary analyses, one item was deleted, and three others (pick-up-a-coin, stand-with-eyes-closed, heel-walk) were modified to make the tasks more challenging. The revised survey was retested in six new participants, who also completed the Bruininks-Oseretsky Test of Motor Proficiency (BOTMP) motor function assessment. Means (M), item response ranges, standard deviations (SD), content validity indexes (CVI), Cronbach's alphas, and correlation coefficients were calculated. Mean participant age was 11.25 (SD=4.0) years. Most participants had acute leukemia (62.5%) and received vincristine (98.7%). The CVI coefficients ranged from 0.80–1.0 (p=0.05). For 7 of 13 items, responses ranged from 0 to 4 or 5; however, response ranges for toe numbness, pick-up-a coin, and 3 of 4 pain items were 0 to ≤3. Cronbach's alpha coefficients before and after revisions were 0.65 and 0.84, respectively. Scores were strongly associated with ped-mTNS (r=0.52, p<0.01) and BOTMP (r= –0.83, p=0.04) scores. Among vincristine-treated children, preliminary results suggest that the revised 13-item survey is internally consistent and valid. However, lack of item response variation for some items may reflect suboptimal sensitivity. The survey may be a useful tool for monitoring pediatric CIPN but requires additional testing, given the small sample sizes used for some of the validation tests.

INSTRUMENT DEVELOPMENT OF THE SAFETY PERCEPTIONS OF A DRUG HANDLING (SPED) INSTRUMENT

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Hazardous drugs (HD) are defined as those potentially posing health risks to healthcare workers. While safe practice guidelines exist, objective evidence shows poor compliance. The purpose of this study is to test the validity and reliability of a new instrument, Safety PErceptions of Drug Handling (SPED), measuring self-reported attitudes/behaviors regarding recommended HD safe handling practices among nurses. SPED is a 30-item tool measuring attitudes and behaviors for handling HDs using a Likert scale. Items were reviewed by ten content experts for relevance and clarity to calculate content validity indices (CVI). A two week test-retest stability estimate was conducted (N=20). Two separate samples (N=101 and N=166) of nurses completed the instrument. The initial sample supported the validity of the first eight attitudes items, but identified the need for revision of the behavioral items. Kaiser-Meyer-Olkin (KMO) tests assessed correlation adequacy before principal axis factoring assessed factor structure for validity. Item-level CVI ranged from 0.8 to 1.0 with scale-level CVI > 0.80. Test-retest stability estimate for the mean score on the attitudes items = 0.95. Initial testing (N=101) showed sufficient correlations for factor analysis. Attitudes items showed a single factor structure with all item loadings between 0.54 and 0.76. The behavioral items did not achieve an interpretable factor solution and the items were significantly revised leading to the subsequent version. The second sample (N=166) was used to cross validate the attitudes items' factor structure and study the revised items. KMO of 0.88

showed adequate item correlation for factoring. Attitudes items again showed a single factor with loadings from 0.52 to 0.74 with a eigenvalue of 4.30 accounting for 53.78% of common item variance. Behavior items showed a two-factor solution with simple structure. All items loaded on one factor with the criteria of loadings >.40 and at least 0.20 difference across factors. Behavior practice factors were named basic and advanced practice. Attitudes factor showed internal consistency Cronbach's alphas of 0.86 and 0.88 in the first and second samples respectively. Behavior item factors showed Cronbach's alphas of 0.96 and 0.98 for basic practice and advance practice factors respectively. SPED has potential for use as a diagnostic self-report to identify educational needs among nurses handling HDs. SPED is timely with institutions actively adopting USP800 standards.

GUT MICROBIOME AND SYMPTOM BURDEN IN WOMEN RECEIVING TAXANE-BASED CHEMOTHERAPY FOR BREAST CANCER

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Unrelieved gastrointestinal (GI) symptoms in people with cancer can lead to increased symptom burden, reduced QoL, and increased mortality. Changes in the naturally occurring bacteria of the gut, known as the GI microbiome, may influence GI symptom burden. However, microbiome research is relatively new and there is no clear evidence for if and how the GI microbiome changes during chemotherapy or if this change influences GI symptoms. The purpose of this study was to describe the GI microbiome and GI symptom burden in women with breast cancer receiving chemotherapy. This is a descriptive, cross-sectional design collecting stool samples, symptoms, symptom interference with daily life, and quality of life (QoL) from 25 women with breast cancer receiving taxane-based chemotherapy and women with no recent history of cancer. Stool will be prepared for 16S Ribosomal RNA analysis using methods adapted from the NIH-Human Microbiome Project. The GI microbiome will be described based on presence and abundance of bacteria. Symptom burden will be measured using a modified version of the Memorial Symptom Assessment Scale, the MD Anderson Symptom Inventory, and the Fox Simple QoL Scale. Absolute numbers and relative percentages of GI bacteria will be quantified for people with cancer and compared to that of age and sex matched controls using the Wilcoxon-Mann-Whitney test. Stool collection is complete and analysis is in progress. Should GI microbiome and symptom burden differ between the breast cancer and healthy control groups, further analyses will explore if individual bacteria may be responsible for these differences in symptom burden. Understanding how the GI microbiome may change due to cancer and chemotherapy and how these changes may influence symptom presence or severity is critical to understanding potential biologic mechanisms underlying symptom burden. This knowledge will lead to the development of therapies to prevent or correct alterations in the GI microbiome, thus improving QoL in women with breast cancer. This work is innovative in that we are using "omic" analysis to explore causes for symptom burden in people with cancer. Understanding the biologic mechanisms driving symptoms is necessary for the development of customized therapies to prevent or correct imbalances in the GI microbiome which will reduce symptoms and improve QoL in people with cancer.

LESSONS FROM SPECIFYING REQUIREMENTS OF A CLINICAL DECISION SUPPORT SYSTEM FOR CANCER SYMPTOM MANAGEMENT

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Symptom management is an essential component of quality cancer care. Clinical practice guidelines (CPGs) for symptom management exist but operationalizing them into cancer care takes years. Advances in symptom measurement science and standards for integrating patient reported outcomes (PROs) into electronic health records (EHRs) provide opportunities to increase the implementation of CPGs through clinical decision support for symptom management (CDS-Sx) that can provide tailored guidance at the point-of-care. The objective of this project was to develop an electronic, rule-based, CDS-Sx that leverages national CPGs to improve the management of symptoms. Experts in symptom science, clinical care, health informatics, user-centered design, and implementation science developed requirements for the CDS-Sx. The ADAPTE process was used to derive computable algorithms from CPGs for exemplar symptoms (fatigue and constipation), curate patient education materials, identify required PROs, select technical requirements, and create user interface (UI) prototypes. Iterative usability testing was conducted with clinicians and patients to refine the UI. Clinician interviews were conducted by webinar and

patients were interviewed in person while using the PRO prototype on an iPhone. Expert panels required 6 meetings to draft, revise and approve the algorithms and patient education materials following feedback from clinicians (n=17). The latter reported utility of the algorithms and need to customize them to care goals and setting. End-users who reviewed the clinician UI (n=10) requested brief guidance for symptom management, an intuitive interface, and no extra work within the EHR. Patients (n=9) found data entry for PROs acceptable, but collection of additional data to tailor the CDS-Sx guidance (e.g., medication usage) was less acceptable. Technical standards and tools selected included HL7's FHIR APIs, FHIR data model, SMART on FHIR, and CDS Hooks. Technical design choices included session types to support routine surveillance or problem focused PRO collection, CDS integration with the EHR using SMART on FHIR, and direct data collection from patient users via smart phone. Clinician features identified as desirable included: smart phrases for documentation and billing codes. Clinicians, especially advanced practice nurses, and patients expressed high interest in a CDS-Sx that standardizes evidence-based pathways for evaluation and management of cancer symptoms. Aspects of the system were acceptable, but required trade-offs among specificity of the algorithm-based guidance, data availability, usability, security, and flexibility of the technical architecture.

STABILITY OF SYMPTOMS AND SYMPTOM CLUSTERS OVER TIME FOR WOMEN WITH RECURRENT OVARIAN CANCER ON GOG-259: A GOG/NRG ONCOLOGY STUDY

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Women with recurrent ovarian cancer are living longer and experience a wide range of co-occurring symptoms. While the symptom experiences of women with recurrent ovarian cancer have been well described, little is known about the stability and clustering of symptoms over time. The purposes of this study were to 1) evaluate the stability of individual symptoms over time and 2) evaluate differences in the number and types of symptom clusters across time. This sub-sample of patients included women (n=294) with recurrent ovarian cancer experiencing 3 or more bothersome symptoms who participated in the GOG-259 WRITE Symptoms trial (total N=497), AND completed 4 consecutive monthly symptom severity reports during the long-term follow up phase of the WRITE Symptoms study. The Symptom Representation Questionnaire was used to assess the occurrence and severity of 19 priority symptoms for women with ovarian cancer. Stability of symptoms was evaluated using intra-class correlations with a 2-way mixed-effects model and using an absolute agreement definition. Stability of symptom clusters was evaluated comparing exploratory factor analyses at each timepoint. The most stable symptoms over time were lymphedema (ICC=.721); Peripheral Neuropathy (ICC=.760); and Sexuality Concerns (ICC=.741). The least stable symptom was Nausea (ICC=.442). Across the four assessments, six distinct symptom clusters were identified; however, only three of these clusters (Emotional/Cognitive, GI Distress, and Peripheral Pain/Swelling) were relatively stable over time. Symptoms demonstrated varying levels of stability over time. Knowledge about the relative stability of different symptoms could guide clinical assessment, intervention and education of women with recurrent ovarian cancer. The presence of 3 stable symptom clusters can guide future research by providing insight into possible mechanisms of common symptom clusters in women with recurrent ovarian cancer.

ASSOCIATION BETWEEN PATIENT-REPORTED SWALLOWING DYSFUNCTION AND PSYCHOLOGICAL DISTRESS

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Swallowing dysfunction, or dysphagia, is a significant problem experienced by head and neck cancer (HNC)

survivors. A decreased quality of life has been associated with increased swallowing dysfunction. However, limited studies have been performed regarding the association between swallowing dysfunction and psychological distress such as anxiety and depression. The purpose of the retrospective analysis was to 1) describe the prevalence of patient-reported swallowing dysfunction and psychological distress and 2) explore the association between patient-reported swallowing dysfunction and psychological distress in HNC survivors. In this study, 228 patients were seen in an interdisciplinary HNC survivorship clinic between October 2018 and November 2019. All survivors had squamous cell carcinoma of the oral cavity, oropharynx, or larynx/hypopharynx. Patients presenting with recurrence, second primary, or distant metastasis were excluded. Swallowing dysfunction was measured using the Eating Assessment Tool (EAT-10). Anxiety was measured using the Generalized Anxiety Disorder 7 (GAD-7). Depression was measured using the Patient Health Questionnaire 8 (PHQ-8). For all questionnaires, higher scores denote higher symptoms burden. Descriptive statistics and multiple linear regression were performed. The survivors were predominantly male (78.9%) with a mean age of 64.95 years (SD=10.20). On average, the survivors were 6.28 years post-treatment (Median=4, SD=5.92). Tumor sites included oropharynx (55.7%), larynx/hypopharynx (22.8%), and oral cavity (21.5%). Forty-five survivors presented with stage I/II cancer (19.7%) and 183 presented with stage III/IV (80.3%). Of the survivors, 43 underwent surgery alone (18.9%), 88 underwent non-operative treatment (38.6%), and 97 underwent both surgery and adjuvant care (42.5%). Twenty-seven patients (11.8%) reported symptoms of major depression. Thirty-four patients reported mild symptoms of anxiety (14.9%), and 19 reported moderate-severe symptoms (8.3%). Of the 228 survivors, 159 (69.7%) reported problems with swallowing safely and efficiently. After controlling for treatment modality, age, and stage, increased swallowing dysfunction was associated with increased symptoms of anxiety and depression (PHQ-8: $P<0.001$, GAD-7: $P<0.001$). HNC survivors who self-report problems with swallowing are more likely to disclose symptoms of anxiety and major depression. These findings can help guide oncology nursing practice as it will prompt further screening for symptoms of psychological distress in HNC survivors that report swallowing dysfunction. This is the first known study to examine self-reported swallowing dysfunction and its correlation with psychological distress.

NEUROTRANSMITTER GENE POLYMORPHISMS ASSOCIATED WITH SYMPTOM CLUSTERS IN ONCOLOGY PATIENTS UNDERGOING RADIATION THERAPY

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As research continues to increase our understanding of the biological mechanisms that underlie the development of symptoms clusters, most of this research has focused on associations with inflammatory processes. However, research on catecholaminergic, gabaergic, and serotonergic pathways may provide new insights on additional mechanisms. The purpose of this project was to evaluate for associations between polymorphisms among 16 genes involved in catecholaminergic, gabaergic, and serotonergic neurotransmission and the severity of three distinct symptom clusters (i.e., mood-cognitive, sickness-behavior, treatment-related) in a sample of patients with breast and prostate cancer ($n = 157$) at the completion of radiation therapy. Patients with breast or prostate cancer were recruited from two radiation therapy departments in a Comprehensive Cancer Center and a community based oncology program. The Memorial Symptom Assessment Scale was used to measure the severity of 32 symptoms at the completion of radiation therapy. Three distinct symptom clusters were identified using exploratory factor analysis (i.e., mood-cognitive, sickness-behavior, treatment-related). Associations between neurotransmitter gene polymorphisms and symptom cluster severity scores were evaluated using regression analysis. The severity scores for the mood-cognitive symptom cluster were associated with polymorphisms in alpha-1D-adrenergic receptor (ADRA1D), solute-like carrier (SLC) family 6 member 2–noradrenaline transporter (SLC6A2), SLC family 6 member 3–dopamine transporter (SLC6A3), SLC family 6 member 1–GABA transporter (SLC6A1), 5-hydroxytryptamine receptor (HTR) Haplotype 2A (HTR2A Hap A02), 5-hydroxytryptamine receptor 3A (HTR3A), and SLC family 6 member 4–serotonin transporter (SLC6A4). In terms of the sickness-behavior symptom cluster, polymorphisms in SLC6A2, SLC6A3, SLC6A1, and HTR2A were associated with the severity scores. Polymorphisms in SLC6A2, SLC6A3, catecho-o-methyl

transferase (COMT), SLC6A1 and Hap D02, HTR2A, SLC6A4, and tryptophan hydroxylase 2 (TPH2) were associated with severity factor scores for the treatment-related symptom cluster. These findings suggest that polymorphisms in several neurotransmitter genes are involved in the severity of mood-cognitive, sickness-behavior, and treatment-related symptom clusters in oncology patients at the conclusion of radiation therapy. The hypothesis that symptoms cluster together because of common underlying mechanisms is supported by these findings.

CONGRUENCE OF PAIN PERCEPTIONS BETWEEN AFRICAN AMERICAN CANCER PATIENTS AND THEIR CAREGIVERS

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The role of informal caregivers (CG) in pain assessment is a primary component of pain management. Little is known about congruence of pain perceptions between African American (AA) cancer patients and their CG. This study aimed to evaluate congruence in pain severity and interference among AA patients taking opioids for cancer pain and their CG. Using a cross-sectional study design (N=50 dyads), AA cancer patients and their CG independently assessed patients' pain severity (current, average, worst) and pain interference in daily activities (e.g., relations with others, enjoyment of life, and sleep) using the Brief Pain Inventory (BPI) (0–10 numerical rating scales). Paired sample t-tests and intraclass correlation coefficient (ICC) based on a one-way random effects model were used to test congruence on pain severity and interference. Bland-Altman plot were used to visualize the congruence. Based on literature, a cutoff of clinically relevant mean differences in pain scores was established as 2 points. Among 50 dyads, 62.0% of patients and 56.0% of CG were female. Patients were significantly older than CG (56.5 vs. 49.9 years, p=.008). Neither statistically significant (t-test) nor clinically relevant mean differences in pain severity and interference were found. At a dyad level, congruence was poor in current (ICC=0.35, 95% Confidence Intervals [CI]=[–0.14, 0.63]) and average pain severity (ICC=0.44, CI=[0.01, 0.68]), but moderate in worst pain severity (ICC=0.69, CI=[0.46, 0.83]). Congruence on overall pain interference was moderate (ICC=0.69, CI=[0.29, 0.78]). Among pain interference items, relations with others (ICC=0.15, CI=[–0.49, 0.52]), enjoyment of life (ICC=0.22, CI=[–0.38, 0.55]), and sleep (ICC=0.39, CI=[–0.49, 0.52]) indicated poor congruence. The Bland-Altman plots of individual items showed a wide range of 95% limits of agreement exceeding the cutoff of clinically relevant substantial differences (≥ 4 points) in pain severity and inference. Health-care providers often rely on CG to assess patients' cancer pain. At the dyad level, CG tended to have a poor congruence on pain severity and interference with AA cancer patients taking opioids. Better communication about pain may result in better congruence between patients and CG in pain perception, positively impacting pain management and the safety of opioids use. Paying attention to patients' pain experience could be a key to optimal and safe pain management in AA cancer patients taking opioids.

DEVELOPMENT OF A GRAPH-BASED DATABASE FOR OVARIAN CANCER SYMPTOMS

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Uncontrolled cancer- and treatment-related symptoms severely affect the quality of life of cancer patients. Nowadays, many patients share their symptom experiences on online health communities (OHCs) that is not attainable from clinical data. However, it is difficult to utilize the information written in the OHCs without a standardized approach to discover and manage information. Thus, there is a need to develop a pipeline to utilize this wealth of information for nursing research in the future. The purpose of the study is to develop a symptom knowledge database for cancer patients. As a pilot study, we will focus on ovarian cancer (OvCa), a strong example for understanding the complex challenges of managing symptoms. We extracted posts from the OHC sponsored by the American Cancer Society from March, 2006 to March, 2016, and randomly selected

100 postings that described "nausea". Selected posts were manually annotated in four concepts: symptoms, treatments, results and other medications. Each concept was entered as a node in the Neo4j, an open-source graph-based database, allowing us to visualize data in an easily understood manner. Our current database includes 88 users either an OvCa patient or caregiver. We have identified 27 symptoms including "nausea", 10 cancer-related treatment (e.g. Taxol, cisplatin) and 4 different effect of treatments. We also identified 6 co-existing medical conditions and 31 non-cancer related medications such as Tylenol. Current database includes 5 types of relationship between nodes: "diagnosed_with", "has", "resulted n", "takes", and "underwent". We found that OHCs can capture more symptom related information compared to the current symptom assessment checklists. This approach will be applied to the larger OHCs data set. Further study will apply natural language processing to automate the annotation process and capture additional factors (e.g., age, cancer stage, race, and author type). This is the first study developing a unique database for cancer symptoms. We demonstrated the potential of using OHCs to supplement traditional symptom assessment in cancer research, and to understand cancer symptoms from the patients' perspective.

DISTINCT SENSORY PROFILES IN CANCER SURVIVORS WITH CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY (CIPN)

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CIPN occurs in approximately 40% of cancer survivors and has deleterious effects on their functional status and quality of life (QOL). While these effects are well documented, it is not known if subgroups of survivors have different CIPN sensory profiles. The determination of these subgroups and associated characteristics could lead to the identification of high risk survivors and to the initiation of more prompt, albeit limited interventions. The purpose of this study was to identify subgroups of survivors with distinct CIPN sensory profiles and to evaluate for differences in demographic and clinical characteristics, as well as QOL outcomes between these subgroups. The 405 survivors with CIPN completed self-report questions and underwent a neurological examination that included an evaluation of light touch, cold, and pain sensations; vibration thresholds; and balance. Latent profile analysis was used to identify subgroups of survivors with distinct CIPN sensory profiles using ratings of worst pain, as well as objective measures of sensation, vibration, and balance. Differences between the latent classes were evaluated using Independent Student's t-tests and Chi Square analyses. Two subgroups of survivors with distinct CIPN sensory profiles were identified (i.e., less severe loss of lower extremity (LE) function (76.5%); more severe loss of LE function (23.5%)). Compared to the less severe subgroup, survivors in the more severe subgroup had higher worst pain scores, higher number of sites with loss of protective sensations, and worse balance scores. Survivors in the more severe class were: older, more likely to be male, live alone, be unemployed, have a lower annual household income, have a higher body mass index, a worse comorbidity profile, a poorer functional status, and were more likely to be a current or previous smoker and less likely to exercise on a regular basis. Of note, these survivors had worse QOL scores. Findings suggest that subgroups of survivors with distinct CIPN profiles can be identified. Some of the risk factors associated with the more severe profile are modifiable (e.g., body mass index, exercise) and can be targeted with nursing interventions. Oncology nurses need to perform a comprehensive neurological assessment of survivors with CIPN to determine the degree of sensory loss and associated balance problems. Additional research is warranted to determine the underlying mechanisms for these two distinct CIPN profiles.

MANAGING SYMPTOMS VIA HOME-BASED CAREGIVER-DELIVERED REFLEXOLOGY

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The involvement of friend or family caregivers in the home may be a significant avenue for the delivery of supportive care. This trial tested the effects of caregiver-delivered reflexology on multiple symptoms experienced by women undergoing chemotherapy, targeted or hormonal therapy for advanced breast cancer. We present the results from an analysis that treats multiple symptoms as nested within patients and overcomes

the drawbacks of lumping multiple symptoms into an index. This trial enrolled 256 patient-caregiver dyads that were randomized to either 4 weeks of reflexology or attention control. Caregivers were trained by reflexology providers to deliver weekly 30-minute sessions to patients. Thirteen symptoms were assessed for all patients at baseline, weekly over 4 weeks, and at week 5 using the M.D. Anderson Symptom Inventory. Each symptom was categorized as mild, moderate, or severe using established interference-based cut-points, and symptom response was defined as an improvement by at least one category. Symptom responses were treated as multiple events within patients and analyzed using generalized estimating equations technique. Reflexology was more successful than attention control in producing responses for fatigue [odds ratio (OR) 1.76, 95% confidence interval (CI) (1.01, 3.09), p=.05] and pain [OR=1.84, 95% CI (1.05, 3.21), p=.03], with no significant difference for other symptoms. In the reflexology group, 56% of patients were responders on fatigue and had on average fewer comorbid conditions than non-responders, difference of 1.86 [95% CI (0.72, 3.00), p<.01). Responders on pain (76%) had lower average Center for Epidemiologic Studies-Depression score compared to non-responders, difference of 7.08 [95% CI (2.21, 11.21), p<.01]. Home-based caregiver-delivered reflexology is helpful in producing responses on physical symptoms of fatigue and pain. Comorbid conditions and depression are potentially important tailoring factors for future research and can be used to identify patients who may benefit from reflexology. Tailored care for cancer patients in treatment can be achieved through brief weekly symptom assessments and consideration of comorbid conditions.

UPPER EXTREMITY CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY SYMPTOMS AMONG OLDER AND YOUNGER BREAST CANCER SURVIVORS

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Chemotherapy-induced peripheral neuropathy (CIPN) is a prevalent, persistent, and distressing symptom among breast cancer survivors (BCS). CIPN symptoms can affect both upper and lower extremities, negatively influencing the functional abilities and quality of life. Most studies to date have examined the impact of these symptoms on the lower extremities, but the impact of upper extremity (shoulder, arms, hands and fingers) CIPN symptoms is impactful and may affect functional abilities and quality of life differently. Additionally, CIPN symptoms usually do not resolve, signifying the importance of understanding contributors to and effects of the symptoms. Finally, the association of age with the presence or distress of upper extremity CIPN symptoms has not been well studied. The objectives of this study were to determine if (1) the presence and (2) distress of CIPN symptoms varied between younger (< 45 years) and older (55–70 years) survivors. This secondary analysis is part of a large ECOG study including younger (n=505) and older (n=622) BCS, 3–8 years post-diagnosis, receiving the same chemotherapies, and without recurrence. The Symptom Survivor Checklist, a researcher developed tool, was used to assess upper extremity CIPN symptoms (burning, pins/needles, numbness, pain and skin crawls). The scale includes both presence of and distress caused by symptoms. Analyses explored whether CIPN symptom presence and distress differed by age, controlling for sociodemographic and medical variables. Younger BCS were more likely to report pins/needles, numbness and pain in their upper extremities (OR .623–.751). Heart disease (OR 1.6–1.7) and progesterone-negative breast cancer (OR .663) were significantly associated with CIPN symptoms among both groups. Symptom distress ratings did not differ between the age groups. However, both younger and older BCS indicated distress from upper extremity CIPN symptoms, with 25% or more reporting "moderately" or as "quite a bit" of distress, depending on symptom type. This is one of the first studies to identify risk factors specifically for upper extremity CIPN symptoms in BCS. Assessment of symptoms should younger BCS and those with heart disease or progesterone-negative breast cancer. BCS in both groups reported "moderate" or "quite a bit" of distress from upper extremity CIPN symptoms, even years out from their diagnosis and treatment. Future research should determine age-appropriate interventions to mitigate the effects of these symptoms.

COLLECTIVE SUFFERING IN ISOLATION: USE OF STORYTELLING THROUGH MUSIC TO DECREASE LONELINESS AMONG ONCOLOGY NURSES

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The rates of burnout are increasing among healthcare professionals in the US. While heavy workloads contribute to workplace stress, loneliness within the context of emotional exhaustion also contributes significantly to burnout. Loneliness has a tremendous impact on psychological and physical health and longevity. Research indicates that oncology nurses cope with work-related emotions in isolation. The relationship between loneliness and burnout has been studied in physicians, but little research has been done with nurses. The purpose of this study was to explore the effects of an innovative 6-week intervention that combines storytelling, expressive writing, and music to address the workplace emotions, including loneliness, related to caring for people with cancer. A two-group, quasi-experimental design utilized both quantitative and qualitative methods. Convenience sampling was used to recruit 43 oncology nurses to either the intervention or comparison group. Data were collected in both groups at 4 different time points, pre- and post-intervention, with self-report scales and open-ended questionnaires. Participants were primarily female (95%) and white (98%), yet 27% self-reported Hispanic ethnicity. The average age was 38.2 years and 65% had at least a bachelor's degree. The majority of the sample were working full-time in an outpatient oncology setting. There were no background differences between the intervention and comparison groups. Bivariate correlations were conducted on all measures and background data at time 1 (N=43) and revealed that higher levels of loneliness were significantly correlated with more burnout (r=.685, p<.001) and depression (r=.587, p<.001), lower compassion satisfaction (r=–.536, p<.001) and self-compassion (r=–.362, p<.05), and working with adult patients (r=–.306, p<.05). Across the 4-time points, those who participated in the intervention had a significant decrease in loneliness F(3, 98) = 7.46, p<.001; (=.157) compared to those who did not. Qualitative comments reflect that one of the most meaningful aspects of participation was realizing that they were not alone in their emotional experience. In healthcare, there is little opportunity to reflect on the impact caregiving has on self. "Storytelling Through Music" provided a setting for the oncology nurses to discuss their emotions with their peers, thus providing a community and the opportunity to learn that they are not alone. Interventions aimed at addressing emotional exhaustion and decreasing loneliness may significantly contribute to decreasing burnout and warrant further study.

THE EFFECT OF PAINTING-BASED ART THERAPY ON QUALITY-OF-LIFE, ANXIETY, DEPRESSION AND FATIGUE FOR PATIENTS WITH CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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With cancer treatment results uncertain and the possibility of a recurrence, patients may experience psychological and physical disorders. While a combination of chemotherapy, radiation and surgery aims to increase the survival rate, these invasive methods also have side effects that could decrease cancer patients' quality-of-life. Thus, complementary and alternative medicine (CAM)—as a supplementary method to standard medical treatments—is gradually becoming more popular to improve quality-of-life. Although art therapy as a CAM is beneficial for cancer patients in various aspects, such as alleviating somatic symptoms and improving quality-of-life, there are still disagreements in the literature. The purpose was to determine the effectiveness of painting-based art therapy on quality-of-life, anxiety, depression and fatigue for adult cancer patients. Six English databases and three Chinese databases were searched for studies. The quality of the included studies were evaluated using the Cochrane risk-of-bias assessment tool. We pooled continuous data to estimate Standardized Mean Differences (SMD) in quality-of-life, anxiety, depression scores in cancer patients, with 95% Confidence Interval (CI). The appropriate model (fixed-effect or random-effect) was selected in line with studies' heterogeneity. In total, eight eligible RCT studies with 680 females and 42 males were included. The meta-analysis of pooled results revealed a significant effect, indicating that painting-based art therapy can promote quality-of-life at the completion of intervention 3 or 4 months later (SMD = 1.83, 95% CI = 0.29 to 3.38, p = 0.02) as well as improve the anxiety (SMD = –1.09, 95% CI = –1.96 to –0.21, p = 0.02) and depression (SMD = –0.75, 95% CI = –1.40 to –0.11, p = 0.02) timely . However, the evidence of art therapy promoting quality-of-life and relieving fatigue immediately after intervention was insufficient. Painting-based

art therapy is beneficial for adult cancer patients in terms of offering long-term quality-of-life benefits and alleviating anxiety and depression according to moderate evidence. More high-quality RCT studies, especially for male cancer patients, are required to resolve the uncertainty regarding the effectiveness of this therapy for physical symptoms and reinforce the evidence found in this review. This study was the first to synthesize the evidence of the effectiveness of an specific art therapy in which art was painting on quality-of-life, anxiety, depression and fatigue for patients with cancer.

INDUSTRY-SUPPORTED POSTER SESSIONS

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EMERGENCY RESPONSE PREPARATION IN A NEW OUTPATIENT PROTON THERAPY CENTER

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Patient acuity is increasing in the ambulatory setting. New treatments and techniques assist patients in living longer in spite of additional comorbidities. Emergency response preparation can have a positive impact on readiness and timed responses to prevent and respond to emergencies. A new 80,000 square-foot ambulatory proton center was built within an academically-aligned community hospital. As part of its opening, protocols for emergency response preparation were developed and enacted. The aim of this project was to develop an emergency response plan for declining patients and medical codes in a new ambulatory radiation oncology setting. Emergency response plans were developed using the Systems Engineering Initiative for Patient Safety model (SEIPS) model to guide practice-affecting factors that concern patient safety. The goal was to identify potential risks and mitigate them in order to minimize adverse safety events for patients. Additionally, this design allowed for process changes to improve quality and patient outcomes. The response plan was tested with three simulated scenarios: rapid response to a patient fall, pediatric cardiac arrest, and a medical emergency during an MRI procedure. For the patient fall scenario, a hospital wide alert was dispatched in 25 seconds for the response team. The first rapid responder arrived within 85 seconds and the stretcher was brought to the scene in an additional 90 seconds. During the MRI scenario, staff were able to reduce the time to move the patient from 64 to 42 seconds. In the pediatric cardiac arrest scenario there were decreases in time for staff arrival, arrival of an emergency cart, defibrillation, stretcher arrival, and transport to an appropriate level of care. Overall several practice gaps were identified and remedied to improve emergency response times. This project utilized scenarios to facilitate identification of gaps in practice. Common themes amongst the scenarios were identified, and team members from various disciplines were able to work together to identify solutions to close the gaps. When opening a new outpatient clinical site, it is important to identify and test emergency response plans in order to promote patient safety. Innovations in emergency response have focused on analyzing events, coordinating activities, and utilizing communication technologies that will ultimately enhance patient safety and improve outcomes.

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IMPROVING CARE FOR PATIENTS WITH ADVANCED NON-SMALL CELL LUNG CANCER: FINDINGS OF ONCOLOGY NURSES AND NAVIGATORS FROM A NATIONAL CARE OPTIMIZATION SURVEY

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Oncology navigation, being a vital component of cancer care planning, coordination, and delivery, is an important consideration in the optimization of cancer care. Oncology nurses and navigators were, therefore, key advisors, along with other multidisciplinary team (MDT) members, to a national survey of cancer centers, which aimed to identify barriers to optimal care delivery for patients in the U.S. with advanced (stage III/IV) non-small cell lung cancer (NSCLC). Insights of oncology MDT members (i.e., oncologists, pathologists, pulmonologists, thoracic surgeons, pharmacists, cancer center administrators, and oncology nurses and navigators) from a diverse set of U.S. cancer centers were gathered via a comprehensive, double-blind, web-based survey between January and April 2019. Subanalyses were performed to examine relationships between care delivery practices relevant to oncology nursing and navigation and treatment-related outcomes such as shared decision-making (SDM). The survey included 639 complete responders from 160 unique oncology programs across 44 U.S. states, of

whom 75 (11.7%) were oncology nurses, nurse navigators, or advanced practice nurses and 33 (5.2%) were financial advocates, navigators, or social workers who provide financial counseling and support patient access. Across programs, there was a deficiency of nurse or lay navigators (22.3% of respondents had neither, n=101) to assist patients with NSCLC. Among cancer program types, Integrated Network Cancer Programs were significantly more likely to not have a navigator than to have one (7.9% vs. 3.1%; P<0.05). Most respondents (90.1%, n=100) reported no formal health literacy assessments in their programs. Presence of navigation services also has a significant impact on promoting and coordinating SDM, such as ensuring availability of pathology and biomarker reports when treatment options are being decided. Participants in programs with navigators had significantly higher (P<0.05) mean scores for (i) explaining SDM (3.82 vs. 3.29), (ii) asking patients if they wish to engage in SDM (3.55 vs. 3.11), (iii) explaining risks/benefits of treatment options (3.81 vs. 3.52), and (iv) use of educational resources (4.28 vs. 4.02) than those without navigators. These insights highlight the need for further expansion of oncology navigation and should be used to inform resource development efforts to enhance high quality, patient-centered NSCLC care. Specific areas for process improvement may include increasing health literacy assessment use, improving patient education and engagement, and continued integration of navigators into MDTs.

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SUBGROUPS OF PATIENTS WITH DISTINCT DIARRHEA PROFILES DURING CHEMOTHERAPY

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Cancer patients experience an extensive range of symptoms as a result of their disease and its treatment. Chemotherapy-induced diarrhea is a common symptom that occurs in approximately 50% to 80% of patients. In a sample of oncology outpatients undergoing chemotherapy (CTX, n=1133), the purposes of this study were to identify subgroups of patients with distinct diarrhea profiles and evaluate for differences in demographic and clinical characteristics; the occurrence of other gastrointestinal (GI) symptoms, and quality of life (QOL) outcomes among the subgroups. Patients were recruited in oncology outpatient clinics during their first or second cycle of CTX and completed study questionnaires a total of six times over their next two cycles of CTX. Patients completed demographic, symptom, and QOL questionnaires. The occurrence of diarrhea was assessed six times using the occurrence item from the Memorial Symptom Assessment Scale. Latent class analysis was used to identify distinct subgroups of patients with distinct diarrhea profiles (i.e., latent classes) over the six assessments. Parametric and nonparametric tests were used to evaluate for differences among the patient subgroups. Four distinct subgroups of patients were identified (i.e., none (58.3%), decreasing (22.0%), increasing (5.2%), and high (14.5%) classes). Compared to the none class, patients in the high class had lower functional status, higher level of comorbidity, were more likely to report diabetes and depression, were more likely to have a diagnosis of GI cancer, were more likely to receive CTX on a 14 day cycle, and were more likely to receive moderately emetogenic CTX. In addition, patients in the high class reported higher occurrence rates for dry mouth, nausea, feeling bloated, vomiting, lack of appetite, abdominal cramps, difficulty swallowing, mouth sores, weight loss, and change in way food tastes. Of note, patients in the high class had significantly lower QOL scores. The results of the study suggests that some patients are at higher risk for the development of diarrhea during CTX. In addition, nurses need to assess for the co-occurrence of other GI symptoms in patients with diarrhea. These patients will require targeted interventions for multiple co-occurring symptoms.

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ROLE OF THE CLINICAL ONCOLOGY NURSE IN THE MALIGNANT PLEURAL MESOTHELIOMA-TUMOR TREATING FIELDS PATIENT JOURNEY

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Malignant Pleural Mesothelioma (MPM) is a rare form of cancer occurring in one to two persons per million of the general population (or less than 3,000 patients per year in the United States) leading to thousands of deaths worldwide each year. Despite the rarity of the disease, MPM is an aggressive cancer that may progress undetected in its early stages. When detected, most patients are not candidates for surgical resection of the lesions and the standard therapeutic approach offered has not changed since Vogelzang's study published in 2003 until the recent approval by FDA of

NovoTTF-100L™ in May of 2019. NovoTTF-100L™ delivers Tumor Treating Fields (TTFields) to the tumor location and extended the mOS in advanced unresectable newly diagnosed patients to 18.2 months when combined with pemetrexed and a platinum agent. TTFields are alternating electric fields of intermediate frequency (100–300 kHz) and intensity (1–3 V/cm) with antimitotic mode of action that selectively disrupt the division of cancer cells. It has shown clinical efficacy in Glioblastoma (GBM) and has gained FDA approvals in both the newly diagnosed and the recurrent setting. TTFields are delivered regionally based on the tumor location. The purpose of this poster is to bring awareness to the NovoTTF-100L™ system and the results of the STELLAR study: a Phase 2 Trial of TTFields with Chemotherapy for First-Line Treatment of MPM that lead to the approval of NovoTTF-100L™ by FDA via the Humanitarian Device Exemption (HDE). Evaluation and Discussion: The oncology nurse plays a central role in supporting patients on novel cancer therapies. As TTFields gained FDA approval and expanded application in the MPM setting, an understanding of the mode of action and treatment delivery are essential in the oncology practices. The poster will discuss key elements of how TTFields affect cancer cells and how the delivery of TTFields is optimized for each patient based on the tumor presentation. The NovoTTF-100L™ system that delivers this new modality for cancer therapy is a portable, noninvasive device that provides localized treatment for patients with MPM.

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THE PATIENT JOURNEY: A TEACHING FRAMEWORK FOR NURSES ON THE ADMINISTRATION OF INVESTIGATIONAL SPEAR T-CELLS

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Previous research using adoptive T-cell therapy suggests potential for this approach in solid tumors Genetically engineered affinity-enhanced autologous SPEAR (Specific Peptide Enhanced Affinity Receptor) T-cells directed towards HLA-A*02-restricted peptides are being tested by Adaptimmune in ongoing clinical trials to evaluate safety and antitumor activity in patients with a variety of solid tumors. Trials to date with the ADP-A2M4 SPEAR T0-cell have given clinical responses in 7 out of 14 patients with synovial sarcoma and clinical benefit in 13 out of 14 patients treated. The teaching framework entitled "The Patient Journey" provides an overview of the unique operational approaches related to SPEAR T-cell clinical development, manufacturing and administration. It includes considerations for nurses with the intent to enhance nursing care related to the administration of SPEAR T-cells and provide information for nurses to educate patients and their families. The training identifies and describes the logistics required in order to ensure compliance with the protocol and effective administration of the SPEAR T-cells. The "Patient Journey" outlines the entire study from the lens of the patient. The overview covers a review of the administration of SPEAR T-cells (including lymphodepletion regimen and T-cell administration), as well as study procedures and timing of assessments such as collection of blood and tissue for safety monitoring and research purposes. The product safety profile and preliminary efficacy data are also included. Benefits, risks and rationale for the SPEAR T-cell therapies and associated procedures are discussed including potential adverse events and risk mitigations for CRS, ICANs, GVHD. Nurses play key roles in every stage of SPEAR T-cell administration and toxicity monitoring and management. This includes in-patient monitoring requiring intensive safety assessments and long-term monitoring done in an out-patient setting. In addition, nurses provide initial and ongoing education to patients and families allowing for informed choices regarding clinical trial participation. Information on what to expect with the administration of SPEAR T-cell therapies can enhance patient understanding and help nurses deliver safe and effective care thus contributing to the development of this novel intervention for solid tumors.

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TARGETED MYELOABLATION WITH IOMAB-B AND RIC: EFFECTS ON PERIPHERAL BLAST COUNTS AND ENGRAFTMENT

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In Acute Myeloid Leukemia (AML), the leukemic blasts are highly radiosensitive. Clearing peripheral blasts rapidly after chemotherapy is predictive of enhanced response and survival rates. Delivering high enough doses of external beam radiation therapy to clear leukemic blasts is quite toxic. This trial uses molecularly targeted radiation: an anti-CD45 antibody to deliver ^{131}Iodine directly to leukemic cells and other hematopoietic cells. Iomab-B, an anti-CD45 antibody linked to ^{131}I, is used to destroy AML blasts and to condition the patient for allogeneic HCT.

SIERRA, a pivotal, phase three trial in the United States and Canada, compares targeted myeloablation using Iomab-B followed by RIC and HCT to SOC myeloablation and HCT. Patients ≥55yrs of age diagnosed with active, R/R AML may be eligible for enrollment. These patients, with active disease, are largely ineligible for potentially curative standard HCT. Patients are randomized 1:1 to Iomab-B plus Fludarabine and low dose TBI prior to HCT, or to a range of SOC salvage therapies. A conditioning dose of Iomab-B is administered ≈ 12 days prior to HCT, followed by Fludarabine, given day –4 through –2 and TBI. Peripheral blast clearance after Iomab-B administration was evaluated. The data are from the first 75 patients enrolled (150 in full study), Patients were randomized to Iomab-B (n=37) and control (n=38).Three days post Iomab-B administration, a 98% reduction in peripheral blasts was observed; blasts were undetectable in peripheral blood at day 8, prior to any additional therapy. Among patients with active AML receiving the therapeutic dose of Iomab-B, there is 100% engraftment. Iomab-B: (a) Has potent single agent activity with rapid, strong anti-leukemic effect, (b) SIERRA is the only randomized Phase 3 trial offering HCT to patients not in remission, and (c) The data show 100% engraftment in patients with active AML receiving therapeutic doses of Iomab-B. Nurses as "change agents", work toward improving patient care and outcomes daily. This trial evaluates the contribution of Iomab-B as a novel agent to develop potentially curative therapy for older patients with active AML.

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DECIDING ABOUT CLINICAL TRIAL PARTICIPATION: A QUALITATIVE STUDY OF ADULTS WITH CANCER AND THEIR DECISION PARTNERS

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Clinical trials are an important aspect of cancer care, yet less than 5% of adults enroll in studies. Making decisions about clinical trials can be difficult due to the unknown risks versus benefits. Though often perceived as a last resort, clinical trials may be introduced during any point in the illness trajectory as a potential option to improve clinical outcomes (e.g. quality of life, survival). Patients' perspectives about clinical trial decision-making are well studied, yet data are lacking about the role of decision partners (DPs)—family or friends who aid in treatment decision-making—in helping adults with cancer decide to participate in clinical trials. The purpose of this project was to explore decision-making processes between adults with cancer and their DPs regarding clinical trial participation. We conducted semi-structured interviews with 12 dyads of adults with cancer and their DPs (N=24) to determine preferred decisional styles and perceptions about clinical trial participation. Thematic analysis was conducted through an iterative process to identify themes. Majority of the dyads (83%) preferred deferred decision styles that involved DP's input regarding clinical trial participation. Major themes included: 1) Freedom of Choice; 2) Gaining Trial Insight; 3) Relationship Building . . . Trusting Someone in the Process; and 4) Realizing Readiness. Participants conveyed the importance of having the knowledge and freedom to make informed decisions about available trials, establishing trusting relationships with someone in the decision-making process and having their DP's input about clinical trial participation. This research will inform targeted communication interventions to 1) ask patients upon admission to identify whether they have a trusted decision partner to provide input into the decision about joining a clinical trial, 2) incorporate the decision partner into discussions about clinical trial options, and 3) introduce clinical trials early and often in the illness trajectory. Given the uncertainty of clinical trials, palliative care should be integrated into standard care to support patients and DPs in clinical trial decision-making, managing trial-related toxicities, enhancing prognostic awareness, and ensuring that clinical trial participation aligns with patients' goals and preferences.

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SAFETY AND PATIENT-REPORTED OUTCOMES IN PATIENTS RECEIVING NIRAPARIB IN THE PRIMA/ENGOT-OV26/GOG-3012 TRIAL

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Niraparib improves progression-free survival (PFS) in patients with newly diagnosed advanced ovarian cancer that has responded to first-line platinum-based chemotherapy. Overall, PFS was significantly improved regardless of biomarker status (hazard ratio, 95% CI=0.62, 0.50–0.76). Here we report on safety and patient-reported outcomes (PROs) in patients in the PRIMA/ENGOT-OV26/GOG-3012 trial (NCT02655016). This double-blind, placebo-controlled, phase 3 study randomized 733 patients with newly diagnosed advanced ovarian cancer with a complete or partial response to first-line platinum-based chemotherapy. Patients received niraparib or placebo once daily (QD) for 36 months or until disease progression or toxicity. A protocol amendment introduced an individualized starting dose (ISD) based on baseline bodyweight and platelet count: 200 mg QD in patients with bodyweight <77 kg and/or platelets <150,000/μL or 300 mg QD in patients with bodyweight ≥77 kg and platelets ≥150,000/μL. The primary endpoint was PFS; safety and PROs were secondary endpoints. Safety data were collected at each study visit and graded using CTCAE v4.03. PROs were collected every 8 weeks for 56 weeks, then every 12 weeks thereafter while a patient was receiving treatment. PRO evaluations were performed at the time of treatment discontinuation and then at 4, 8, 12, and 24 weeks after discontinuation, regardless of subsequent treatment status. Validated PRO instruments used were FOSI, EQ-5D-5L, EORTC-QLQ-C30, and EORTC-QLQ-OV28. Overall, the most common grade ≥3 treatment-emergent adverse events (TEAEs) were thrombocytopenia event (39%), anemia event (31%), and neutropenia event (21%) in the overall safety population (event includes combined clinical report and laboratory abnormalities for each hematological toxicity). In patients receiving the ISD, these TEAEs decreased to 21%, 23%, and 15%, respectively. No treatment-related deaths occurred. Analysis of EORTC-QLQ-C30 and EORTC-QLQ-OV28 PRO results did not indicate a between-group difference in health-related quality-of-life scores from patients receiving niraparib vs placebo. FOSI mean scores between the niraparib and placebo arms were similar at each time point. Additional PRO data will be reported at the meeting. Niraparib was well tolerated by patients, with similar PRO scores across the treatment period. Hematologic toxicities were manageable through implementation of dose interruptions and reductions. ISD incorporation improved the safety profile of niraparib. These data suggest that niraparib treatment has no detrimental effect on quality of life in this patient population.

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EVALUATION OF DISTRESS SCREENING OUTCOMES USING IMPLEMENTATION SCIENCE METHODS

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American College of Surgeons Commission on Cancer requires implementation of a system wide protocol for distress screening of all cancer patients including distress management guidelines for follow-up care with a social worker, chaplain or clinical psychologist. Healthcare organizations have implemented these standards; however, little is known about what, why or how these interventions work in the real world. Implementation science principles provide the framework to understand these questions and to test approaches to improve them. The purpose of this study was to examine the distress screening standard of care in order to understand adherence to practice, integration into workflow, and sustainability of the intervention over time. Co-Primary Investigators introduced the implementation science framework to the distress screening workgroup led by Cancer Center leadership. Additional study team members included a statistical analyst, clinical informatics expert nurse, clinical nurse, and clinical psychologist. Mixed methods were used to answer the research questions: Quantitative data from the electronic medical record (EMR) and qualitative data from a clinician focus group. Patient data spanning two months were extracted from the EMR of all patient encounters in the ambulatory clinic and infusion center. Data included demographics, distress scores from the five problem areas (domains), reason for visit, and follow-up assessment by social worker, chaplain, or clinical psychologist and/or provider. Initial data findings informed the questions for a clinician focus group centered on understanding barriers and identifying factors for sustainability success. Focus group members included representatives from each of the following groups: clinical nurses, social workers, chaplains, physicians and medical assistants. There were 5,090 patient encounters for 2,869 unique

patients. Fifty-two patients reported a score of seven or higher in at least one domain. Complete analysis of implementation science outcomes derived from the quantitative (EMR) and qualitative data (focus group) will be described: penetration (integration into workflow), acceptability (perception that intervention is agreeable to workflow) and sustainability (extent to which intervention is maintained over time). Opportunities exist for re-education of staff at all levels on introducing the screening tool and interviewing techniques. Findings support enhancements to the current documentation system to provide real time dynamic information on follow-up care. Implementation science provides a valuable approach to evaluating current processes, planning for improvement, and implementing change.

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NURSING CONSIDERATIONS FOR THE USE OF ISATUXIMAB IN THE TREATMENT OF MULTIPLE MYELOMA

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Isatuximab (Isa) is a CD38 monoclonal antibody that binds to a specific epitope on CD38 and triggers death of multiple myeloma (MM) cells. Clinical trials evaluating Isa treatment as monotherapy and in combination with standard therapies demonstrated clinical activity and a manageable safety profile in patients with refractory/relapsed MM (RRMM). In the pivotal phase 3 ICARIA-MM trial (NCT02990338), 307 RRMM patients were randomized to two study arms: Isa plus pomalidomide (P) and dexamethasone (d) (Isa-Pd; n=154) or Pd alone (n=153). Isa was administered intravenously (using a 0.20-µm filter) at 10 mg/kg weekly for 4 weeks, and every 2 weeks thereafter. Median PFS was 11.5 months (95% CI 8.9–13.9) with Isa-Pd versus 6.5 months (95% CI 4.5–8.3) with Pd; HR 0.596 (95% CI 0.44–0.81); P=0.001. ORR was 60.4% with Isa-Pd versus 35.3% with Pd (P<0.0001). Safety was assessed according to National Cancer Institute Common Toxicity Criteria for Adverse Events (NCI-CTCAE) version 4.03. Grade ≥3 AEs were observed in 86.8% patients (Isa-Pd) versus 70.5% (Pd); 7.2% Isa-Pd and 12.8% Pd patients discontinued due to AEs. Most frequent AEs (any grade) were infusion reactions ([IRs] 38.2% Isa-Pd versus 0.0% Pd), and respiratory infections (28.3% Isa-Pd versus 17.4% Pd). The most common laboratory abnormality was neutropenia (any grade), which occurred in 96.1% Isa-Pd versus 93.2% Pd patients. The majority of IRs occurred at first infusion and were reversible; 2.6% patients had Grade ≥3 IRs. No delayed IRs were reported. To manage IRs, patients were pre-medicated with acetaminophen (650–1000 mg), ranitidine (50 mg or equivalent) and diphenhydramine (25–50 mg or equivalent). Dexamethasone was administered as part of premedication and study treatment. No post-infusion corticosteroid or bronchodilator prophylaxis was required. Grade 2 IR led to infusion interruption and longer infusions on day 1 cycle 1. Neutropenia and infections were reversible and manageable with colony stimulating factors and antibiotics. The dosing regimen, clinical activity, and manageable safety profile distinguish Isa as a new treatment option for patients with RRMM. Oncology nurses will be key in the infusion process, administration of pre- and post-medications, management of IRs, and education of patients receiving Isa treatment. Important patient education elements, eg, treatment schedule, risk and reporting of AEs, what to expect at home, and quality of life, will be reviewed.

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ASSESSING EDUCATIONAL PREFERENCES AND EVALUATING NOTEBOOKS TO IMPROVE THE ONCOLOGY PATIENT EXPERIENCE

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Healthcare providers must assist oncology patients to understand the complex multidimensional aspects of cancer care. The ability to comprehend, retain, and act on provided information is essential to improved outcomes. This requires a dynamic assessment and delivery process for patient education. Minimal evidence on the most effective delivery method, timing in the trajectory of care, or process for patient education exists in the literature. Aim one of this study identifies oncology patient's preferences on types of educational materials, timing of the information, and delivery methods of education. Aim two evaluates the effectiveness of a comprehensive oncology patient notebook. Relationships among demographics and learning preferences are also explored in both aims. Orem's self-care theory serves as the framework for this study. The results of this study may generate findings to provide evidence-based recommendations for educators and

clinicians on what to develop or redesign in regards to patent education materials. Furthermore, the findings may standardize a patient education model for oncology patients receiving chemotherapy treatment. Increased knowledge may also improve patient outcomes. A 12-question multiple choice with open ended comments, and five demographical question survey design obtained 67 patient responses for aim one. Content validity of the survey was established. Aim two utilized a pre/post survey design consisting of five categories with a 5-point Likert scale to evaluate the effectiveness of a comprehensive oncology patient notebook which obtained 51 patient responses. Content validity and reliability (Cronbach's alpha) was established. Aim one of the study will use descriptive statistics to report frequencies and percentages for teaching methods, content, and timing. Paired sample t-tests will be used to compare the mean scores pre/post survey to measure knowledge for aim two of the study. Both aims will use Spearman Rank Order Correlation (rho) to examine the relationship between age, gender, level of education, and financial status and learning preference. Findings of this study provide evidence of knowledge required by oncology patients as well as patient learning preferences. These results pose significant implications for health care providers to establish a robust patient education model that may improve patient outcomes.

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ASSESSING KNOWLEDGE OF CANCER PREVENTION AND SCREENING GUIDELINES AFTER TEACHING THROUGH COMMUNITY-BASED PROGRAMS UTILIZING INTERPRETERS FOR IMMIGRANT POPULATIONS

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Community outreach is commonly used to disseminate cancer prevention & screening guidelines (CPSG). Minority, immigrant populations with language barriers are excluded from many activities due to the lack of bilingual professionals available to deliver this education in their language. This can result in increased health care disparities in these underserved communities with higher rates of late stage disease. The purpose of this study is to assess whether learning can occur after CPSG are taught by an English-speaking oncology nurse utilizing nonmedical, community-based interpreters to populations with language barriers in South Asian and Hispanic communities in New York City (NYC). Team members from two cancer centers and community-based minority organizations in NYC partnered to create and deliver programs on CPSG to linguistically diverse communities by an English-speaking oncology nurse utilizing community-based interpreters. Participant knowledge was assessed using matched pre-post surveys in participants' respective languages. Behavioral intention was measured using a Likert scale from 1–4 with anchors at 1) "Will not do it" and 4) "Already have/doing it". Paired t-tests were used to compare pre to post mean score and a p-value <0.05 was considered statistically significant. Behavioral intention rated positively if participants endorsed "will do it" or "already doing" the healthy behavior. 188 community dwelling adults participated in five educational sessions, 122 completing pre and post assessments. Median age was 68, 69% were female. 94% were born outside of the US, coming from 12 different countries, speaking 6 different primary languages. Knowledge increased from an average of 33% correct responses pre-session to 63% correct post-session—a statistically significant change ($t(121) = -10.58$, $p<.001$). Behavioral intention scores reveal 83-96% participants reporting they will continue to or plan to seek screening and screening information from their doctors as well as make lifestyle changes related to decreasing their cancer risk. This program demonstrates CPSG can be taught in English with use of interpreters, and successfully received by participants who historically may not have these programs available to them due to language barriers. Additional research is needed to measure its impact on health outcomes over the long term. This study shows that oncology nurses can play a key role in creating innovative programs like this that educate communities with unique challenges.

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STANDARDIZED GUIDELINES IN RESUMING TAXANE INFUSIONS AFTER A HYPERSENSITIVITY REACTION

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Hypersensitivity reactions (HSRs) to taxanes occur in over 10% of patients and are unpredictable. Symptoms range from mild (grade I), flushing, to (grade III), with

anaphylaxis, despite standardized premedication. RN's are the first responders when a reaction develops. Providers do not have guidelines when treating taxanes HSRs, including which patients should be re-challenged after a reaction has subsided. Providing standardized guidelines will improve safety and criteria for restarting infusions. The purpose of this project was to provide standardized guidelines for the assessment and management of taxanes reactions, which can lead to criteria for re-challenge or discontinuation of taxanes infusions. Interventions: (a) Patients reacting to taxanes on first or second exposure were included. (b) Guidelines were provided to RN regarding rescue medications based on symptoms. (c) Stopping or re-starting infusions rules were developed. (d) Patients with a grade III reaction or reacted during their re-challenge, were provided a desensitization protocol under the supervision of an allergist. 25 patients were enrolled and 22/25 (88%) patients meet criteria for re-challenged. 18/19 (94%) were re-challenged and completed the taxane infusion successfully. One patient with a Grade III reaction, who did not meet criteria based on the severity of reaction, reacted during the re-challenge. One patient, with a grade II reaction, developed a mild reaction during re-challenge. We have developed guidelines and risk stratification for patients presenting with taxane HSRs. Grade of reaction, rescue medications, and infusion titration rate during re-challenge allowed for a safe re-administration in 94% of reactive patients. These guidelines were developed to empower the RN at the bedside to assess and treat patients with HSRs to taxanes. These guidelines improve safety and effective management of patients with HSRs to taxanes.

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YOU AGAIN? FREQUENCY OF ONCOLOGIC EMERGENCY VISITS TO A COMPREHENSIVE CANCER CENTER URGENT CARE CENTER: A DESCRIPTIVE COHORT STUDY

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Oncology patients present for unplanned care when experiencing urgent medical issues related to their disease or treatments, but emergent visits are costly, time consuming and increase the risk of nosocomial infection in high risk patients. We observed at our Comprehensive Cancer Center's 24-hour Urgent Care Center (UCC), that some patients visit repeatedly, but little is known about the characteristics of these patients or the incidence, frequency, and nature of their visits at our institution or in the literature. The purpose of this study was to examine the number of repeated visits and describe the cohort of oncologic patients utilizing emergency care multiple times a year. We reviewed nurse-generated triage forms and demographic data from the electronic health records for all adult (age >18) patient visits at UCC between January 1, 2018 and December 31, 2018 to capture chief complaint, Emergency Severity Index score, pain on arrival, length of stay, primary cancer diagnosis, Do Not Resuscitate (DNR) Status, hospitalization within 30 days, radiation or chemotherapy within 14 days, accompaniment, body mass index, distance of residence from UCC, deceased date (if applicable), time of day and day of week of visit, UCC notification and disposition, and demographic data such as sex, race/ethnicity, and age. The cohort included 12,280 unique patients who made 23,567 visits (range 1–26, mean 1.92, IQR 1–2) in 2018. 42% (n=5,104) of these patients presented more than once within the year. 12.6% (n=1,551) presented >1 time within a 7-day period, 19.6% (n=2,405) presented >1 within 14 days, 24.1% (n=2,964) presented >1 within 21 days, and 28.3% (n=3,472) presented >1 within 30 days. Factors associated with one UCC visit versus >1 UCC visit in 30-days were examined and recent radiation, chemotherapy or hospitalization, DNR at time of visit, presence of pain (all p<.00001) or a UCC notification document (indicating the patient was instructed to come by their clinician; p=.003) were significant. We found that repeated presentation for urgent care is frequent, and the results of this study could inform future work to proactively identify and improve outcomes for patients at high risk for unplanned care. Further research is needed to examine associations between characteristics and one vs >1 visit in 7 days, 14 days, 21 days, 30 days, and one year.

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MALIGNANT PLEURAL MESOTHELIOMA AND TUMOR TREATING FIELDS: NURSES' IMPACT ON SYMPTOM MANAGEMENT

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Malignant Pleural Mesothelioma (MPM) is a rare cancer found in the lining of the lungs and chest wall with 3000 cases diagnosed annually in the United

States. The most prominent cause of MPM is asbestos exposure; however, the disease typically develops decades after the encounter. Most patients are ineligible for surgical resection due to the diffuse, local spreading of the disease and often late-stage diagnosis. These factors contribute to the poor, historical overall survival (OS) rate of 12.1 months. Tumor treating fields (TTF) are a regional, intermediate frequency (100–300 kHz), low intensity (1–4 V/cm), non-invasive antimitotic therapy delivered via transducer arrays placed on the patient's skin and connected to the portable device. The Novo-TTF 100L device was FDA approved in May 2019 for the treatment of chemotherapy-naive, non-resectable MPM in combination with standard of care chemotherapy. STELLAR (NCT02397928), a prospective, nonrandomized, single arm, phase 2 trial, published in *Lancet* by Ceresoli, et al. in 2019 showed improvement in median overall survival from 12.1 months to 18.2 months (95% CI 12.1–25.8) when TTFields was used in combination with pemetrexed and a platinum agent as first line treatment in this patient population. The most common adverse event (AE) in the STELLAR trial was mild to moderate (grade 1–2) skin irritation beneath the transducer arrays, resulting in dermatitis in 66% of patients. As per Lancet, 5% of patients experienced a grade 3 dermatologic adverse event. Prophylactic strategies and treatments to manage skin AE's include appropriate skin preparation; high-potency, topical corticosteroids; and systemic or topical antimicrobial agents. Nurses' skillful execution of symptom management can help achieve optimal patient outcomes. It is important that nurses are well-versed in the potential causes of skin complications, preventative strategies and best care practices regarding TTFields as a novel therapy that is becoming increasingly utilized in the field of oncology.

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CHEMOTHERAPY 101 COURSE FOR NEWLY DIAGNOSED CANCER PATIENTS

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Oncology nurses were challenged with educating new patients during their first chemotherapy treatment after hearing a cancer diagnosis. Overwhelmed patients cannot remember important aspects of the teachings which can lead to improper management of chemotherapy side effects. Our aim was to find ways to effectively educate our patients. In adult patients receiving chemotherapy for the first time in an outpatient setting, would the addition of a multidisciplinary patient education class prior to their first treatment decrease anxiety and increase understanding of chemotherapy? Would the class increase nurse confidence in educating? We created a one-hour multidisciplinary chemotherapy class. The team consisted of Nurse Leaders, Medical Director, Social Workers, Dietitian, Cancer Support Specialist, and Infusion Nurses. Patients were asked to complete a "Distress Thermometer" tool at the class and after their second treatment. The tool is designed to determine the amount of "distress" patient's experienced. Also, patients were given an evaluation of the class. Nurses were recruited to teach the chemo classes and asked to complete a nurse confidence scale initially, then repeated after teaching the second class to rate their level of confidence. Thirty-one patients completed our study. Using Paired Samples Statistics for the "Distress Thermometer," the pre-class mean (5.48) was more than the after several treatments mean (3.42). The 2-tailed p value was significant at < 0.002 (alpha level 0.05). Each item of the Chemo Class Evaluation demonstrated significance at p value < 0.000. The Confidence Scale (C-Scale) was completed by nine nurses. Question one, "I am certain that my performance is correct", demonstrated statistically significant change (p value 0.001/alpha level 0.05). Questions 2, 3 & 5 were not significant. We believe that the nurses were familiar with the content; they just needed to learn organization of material and the flow of the classes. We do realize that there are many factors that influence someone's distress level. We believe this class has contributed to this reduction because of patient feedback. One patient's quote, "I found the class to be very beneficial. I did not know what to expect from chemo and this class addressed it all. It really reduced my anxiety." One patient reported that other cancer centers in our area do not offer a chemo class.

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ASSOCIATIONS OF DEMOGRAPHIC AND CLINICAL CHARACTERISTICS WITH QUALITY OF LIFE IN CHILDREN WITH ADVANCED CANCER

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Children with cancer experience substantial suffering and decreased quality of life (QOL) throughout

the illness trajectory. Pediatric oncology studies have examined child QOL, yet gaps remain in exploring the potential impact of demographic and clinical characteristics. The purpose of this study was to explore associations of child demographic (age, gender, family income) and clinical characteristics (diagnosis, oncology treatment, supportive care treatment) with QOL in children with advanced cancer. This secondary analysis was part of a larger randomized clinical trial that evaluated efficacy of a legacy intervention on children with advanced cancer and their parents. Children 7 to 17 years of age with relapsed/refractory cancer and their primary parent caregivers were recruited via Facebook advertisements. Parents self-reported child demographic and clinical characteristics. Children completed the Pediatric Quality of Life Inventory (PedsQL) Cancer Module. Descriptive and linear regression statistical methods were used to describe and assess the associations. Child-parent dyads (N=128) with completed PedsQL and family income data were included for analysis. Only age, gender, and family income characteristics demonstrated sufficient variability for analyses. Children averaged 10.9 (SD=3.0) years of age. The majority were female (n = 68, 53%), were white (n=107, 84%), and had a hematologic malignancy (n=67, 52%). Families earned annual incomes of <$25,000 (n=50, 39.1%), $25,001–50,000 (n=31, 24.2%), $50,001–75,000 (n=16, 12.5%), $75,001–100,000 (n=15, 11.7%), and >$100,000 (n=16, 12.5%). Statistically significant associations were observed for both age and income level ($p<.05$) but not for gender ($p>.05$). Child age was positively associated with the total PedsQL score ($R^2=0.08$), as well as the pain, nausea, communication, treatment, and procedural anxiety scores ($R^2_{(pain)}=0.04$ through $R^2_{(procedural\ anxiety)}=0.17$). Income level was positively associated with the total score ($R^2=0.23$) and all subdomain scores ($R^2_{(worry)}=0.10$ through $R^2_{(nausea)}=0.24$). After controlling for age, the associations of income with the PedsQL remained for the total score (R^2-change=0.19) and all of the subdomains (R^2-change$_{(procedural\ anxiety)}=0.08$ through R^2-change$_{(nausea)}=0.22$, all $p<.05$). Children with advanced cancer with lower family income and younger age are high risk for poor QOL. Oncology nurses can screen pediatric patients to identify families who may benefit from additional resources and supportive care to promote QOL. Future research could tailor QOL interventions to low income families and young children as these families may be most likely to benefit.

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NURSING INTERVENTIONS TO IMPROVE ADHERENCE TO ORAL CANCER THERAPY: INTEGRATIVE LITERATURE REVIEW

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Oral drugs for cancer treatment led to a new model of therapy and new paradigms and challenges. The oral medication has advantages, but its adherence rate may be low as 20%. Non-adherence may cause consequences on the oral regimen's efficacy and lead to compromised healthcare provider communication, side effects, and/or adverse events caused by toxicities, increased use of healthcare resources, and decreased survival. The research question was: what are the nursing interventions to achieve patient oral cancer therapy adherence? The purpose of this project was to examine the evidence regarding the nursing interventions aimed at improving oral cancer therapy adherence. Integrative literature review, searched MEDLINE database to identify articles in the English language, published between 2010 and 2019. Inclusion criteria were Medical Subject Headings (MeSH) terms: oral antineoplastic, adherence, and related terms combined with oncology nursing. Two reviewers independently evaluated the articles. 54 articles were retrieved and 28 met the inclusion criteria: ten were published in the first 5 years and 18 in the last 5 years; the majority were literature review (13; 46.4%)—four were systematic reviews, cross-sectional (6; 21.4%) and methodological study with recommendations (4; 14.3%). Two studies were a randomized controlled trial, and quasi-experimental, longitudinal, and society guidelines represented one article. Four studies showed improvement in oral cancer therapy adherence, and three failed to increase its adherence. The primary interventions were educational (in person and by phone), text messaging and mobile phone app, and education associated with other strategies (psychological support and an exclusive nurse to follow up patients on oral cancer treatment). Standards for oral chemotherapy administration safety have been published (2013/2016), but a USA national survey (2014) revealed serious concerns about the safety of oral chemotherapy as standard organizational tools reported moderate success. The studies analyzed in this research showed a gap in scientific evidence to identify which nursing interventions are necessary to

ensure adherence to effective oral therapy. Oncology nurses can play a crucial role in engaging patients and the families to overcome non-adherence barriers providing education, support in the management of anticancer treatments. Multilevel and multimodal strategies addressing factors of non-compliance improved adherence to oral treatment. High-quality studies are needed to identify the best interventions to improve adherence and safety to oral cancer treatment.

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INCREASED COMPLIANCE WITH TUMOR TREATING FIELDS CORRELATES WITH IMPROVED OVERALL SURVIVAL WITHOUT NEGATIVELY IMPACTING HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH GLIOBLASTOMA: ROLE OF THE CLINICAL ONCOLOGY NURSE

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Glioblastoma (GBM) is the most aggressive and commonly diagnosed primary brain tumor with an incidence rate of new de novo tumors of 3.22 per 100,000 persons annually in the United States. For patients diagnosed with GBM the prognosis remains poor with a median overall survival (mOS) of 14.6 to 16.7 months with prior standard of care radiation therapy and chemotherapy (temozolomide) for newly diagnosed GBM. Addition of TTFields to maintenance temozolomide improved mOS to 20.9 months compared to 16.0 months in the temozolomide only arm of the EF-14 trial. Typically as tumors progress, patients experience a decline in neurological function as well as health-related quality of life (HRQoL). Tumor Treating Fields (TTFields) are low intensity (1–3 V/cm) intermediate frequency (100–300 kHz) alternating electric fields delivered to the supratentorial region of the brain via 2 pairs of transducer arrays directly placed orthogonally on the patients shaved scalp. TTFields are generated by a portable non-invasive field generator. These TTFields are an antimitotic, loco-regional therapy that selectively target dividing tumor cells by disrupting spindle formation and effecting charged/polarizable particles within the cell leading to mitotic arrest and cell death through apoptosis. TTFields are FDA-approved for the treatment of newly diagnosed GBM in combination with temozolomide and for recurrent GBM as monotherapy. Subset analyses from 2 phase 3 pivotal trials, EF-14 and EF-11, and commercial patient registry dataset (PRiDe) have consistently demonstrated that patient compliance on TTFields of ≥75%, which equates to a monthly average of ≥18 hours/day, correlates with a statistically significant increase in OS compared to patients with <75% compliance. The duration of therapy (ie, the number of months of active treatment) also positively correlates with survival and tumor response. Evaluation of the EF-14 clinical trial HRQoL indicators, utilizing the European Organization for Research (EORTC QLQ-C30) questionnaire and the brain module (QLQ-BN20), demonstrated that combination of TTFields with temozolomide maintained or improved global health status, physical functioning, pain and weakness of legs, and deterioration-free survival as compared to temozolomide alone. Itchy skin was the only domain negatively affected by TTFields. This poster serves to provide the oncology nurse with the information to inform and educate patients about TTFields, the importance of therapy compliance, and the impact of TTFields on HRQoL.

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EFFECT OF MULTIMODAL EDUCATIONAL INTERVENTION ON GENERALIST GRADUATE LEVEL NURSING STUDENTS' KNOWLEDGE AND CONFIDENCE RELATED TO HAZARDOUS MEDICATION SAFE-HANDLING PROCESSES

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Approximately eight million healthcare workers (HCW) are at risk for occupational exposure to hazardous medications (HD). The risk for occupational exposure to HD occurs in all aspects of the HD process. Currently, there are no standards regarding the educational or training requirements for nursing students entering the clinical environment. The lack of standardized education decreases the student's ability to understand the complexity related to the various aspects of HD handling, administration and disposal and increases their risk for occupational exposures to HD. The purpose of this project is to measure the effect of a multimodal educational intervention related to HD on the knowledge and confidence of generalist graduate level nursing students. A quasi-experimental, single group, pre- and post-test design was used. Bandura's Social Learning Theory was utilized to develop the educational interventions. The multimodal educational intervention included hands-on practice with safe handling supplies including appropriate Personal Protective Equipment (PPE)

and Closed System Transfer Devices (CSTD), a HD safe-handling video, didactic presentation related to HD, safe handling practices, administration and disposal processes and spill management, and HD safe handling tip-sheets. The Hazardous Medication Safety Questionnaire (HMSQ), a questionnaire adapted from the Chemotherapy Handling Questionnaire, was developed and utilized to measure the students' knowledge and confidence pre- and post-intervention. The post-intervention questionnaires were completed immediately post-intervention and three weeks post-intervention to measure knowledge gain and retention. 18 second-year generalist graduate level nursing students participated in the educational intervention and completed all three evaluation questionnaires. All students demonstrated an increase in knowledge related to HD safety precautions immediately post intervention and three weeks post intervention. Main barriers to adherence to HD safety precautions included: time constraints, staff in clinical setting not wearing PPE and concerns related to patient's perception of the PPE. There is minimal research related to HD education for nursing students entering the clinical environment. HD education is not part of the standard educational curriculum and students often enter the clinical setting unaware of the occupational exposure risks. The project and the results of this project will contribute to the development of educational standards for nursing students involved in the administration and disposal of HD and/or caring for patients on HD precautions.

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EXPERIENCES OF OLDER ADULTS WITH BREAST OR GYNECOLOGIC CANCER UNDERGOING MULTIGENE PANEL CANCER GENETIC TESTING: SECONDARY ANALYSIS OF A MIXED METHODS STUDY

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Older adults (OAs) account for over 50% of all new cancer diagnoses, often undergo genetic testing, and are gatekeepers of families' genetic information. In a recent analysis of adults undergoing multigene panel testing (MGPT), increased age was associated with decreased knowledge of cancer genetics. Given that knowledge may affect family communication about inherited cancer risk, there is a need to understand gaps in knowledge and family communication among OAs undergoing MGPT. The purpose of this project was to describe knowledge and family communication among OAs undergoing MGPT as compared to younger adults. A secondary analysis of cross-sectional survey data. Participants were adults 65 or older who underwent MGPT due to breast or gynecologic cancer. Cancer genetics knowledge was assessed with the KnowGene Scale. Family communication was evaluated using descriptive questions. Open-ended items allowed free text and contextualized quantitative results. Descriptive statistics summarized findings. Differences in total KnowGene scores by age group were analyzed by t-test. Individual knowledge item scores and family communication were compared using Fisher's exact test. Open-ended survey responses for OAs scoring in the lowest knowledge quartile were analyzed using content analysis. The primary sample included 603 respondents; 174 were OAs. OAs had a mean age of 71.2 years (SD=5.6) and were primarily female (164/167 reporting) with breast (60%), ovarian (26%), or endometrial (14%) cancer. 10% of OAs had at least one pathogenic mutation and 32% had a variant of uncertain significance. The mean KnowGene score for OAs was 11.8/19 (SD=3.4). Individual item scores were significantly lower among OAs (p=0.011), specifically content related to inheritance. Compared to younger adults, OAs were less likely to share genetic test results outside the family (p=0.021) and found it easier to share results with family than anticipated (p=0.003). Fourteen of 29 OAs scoring below the 25th percentile in knowledge responded to open-ended items. Respondents suggested providing additional methods for receiving information and to include family members in the process to facilitate information recall. Knowledge is a critical component of informed health decision making and it has previously been reported that older age is associated with lower cancer genetic testing knowledge. OAs suggest obtaining more information and encouraging involvement of family. Considering incorporating family into the care of OA in a cancer genetics setting is warranted.

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COMPARISON OF THE GUT MICROBIOME BETWEEN CHILDREN WITH SOLID TUMORS POST-CHEMOTHERAPY AND AGE-, GENDER-, AND RACE-MATCHED HEALTHY CONTROLS

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The human body hosts trillions of microbes in the gastrointestinal (GI) tract. Cancer therapies can alter healthy diversity and composition of the gut microbiome (GM); however, characteristics of the GM in children with solid tumors receiving chemotherapy are still unknown. Studying the GM in children with solid tumors post-chemotherapy could help identify potential gut microbes associated with treatment-related GI symptoms and toxicity. The purpose of this project was to profile the GM in children (aged 7–18 years) with solid tumors post-chemotherapy and compare the GM profiles among these children and age-, gender-, and race-matched healthy controls. A case-control study was conducted, with 27 cancer cases and 22 healthy controls enrolled. Children with solid tumors post-chemotherapy within 1 year were recruited from Children's Healthcare of Atlanta (CHOA) and healthy controls were recruited via flyers in CHOA. GM was assessed using stool specimens collected at home following a revised Human Microbiome Project protocol. Children's demographics and clinical information were collected. The bacterial 16S rRNA V4 gene region was extracted and sequenced using standardized 16S metagenomic sequencing protocol. All bioinformatic analyses (diversity, taxonomy, and abundance) were conducted using QIIME 2. Measures of alpha-, beta-diversity and abundance were assessed. No significant differences were found between cancer cases and healthy controls in age ($p=0.053$), gender ($p=0.774$), race ($p=0.172$), and BMI ($p=0.346$). There were no significant differences in alpha-diversity metrics: Observed operational taxonomic units (OTUs), Shannon, Faith's Phylogenetic Diversity, and Pielou_e (all $p>0.05$). Two study groups significantly differed in gut microbial beta-diversity based on Jaccard distance ($p=0.009$) and a trend in Unweighted UniFrac distance ($p=0.074$). Taxonomic analysis showed that the dominant bacterial phyla were *Bacteroidetes, Firmicutes, Proteobacteria, Verrucomicrobia,* and *Actinobacteria.* The dominant bacterial genera were *Bacteroides, Faecalibacterium, Prevotella, Roseburia,* and *Ruminococcus.* Abundance analysis showed that children with solid tumors had lower phylum abundances of *Firmicutes, Bacteroidetes,* and *Proteobacteria.* Children with solid tumors showed different GM profiles in beta-diversity and taxa abundance compared to healthy controls, probably associated with cancer pathogenesis and treatment toxicities and symptoms. Future studies should confirm our findings in a larger sample and understand the impact of the GM alterations on cancer treatment toxicities and symptoms. This is the first study to characterize the GM and compare the GM profiles between children with solid tumors post-chemotherapy and healthy controls.

RESEARCH POSTER ABSTRACTS

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SYSTEMATIC REVIEW OF SEX AND INTIMACY AFTER CANCER TREATMENT: THE EXPERIENCES OF WOMEN OF MINORITY GROUPS

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Studies of sexual wellbeing in the 8.8 million women surviving cancer in the U.S. over-represent non-Hispanic White, highly educated, married women. Women from minority groups may experience poorer sexual adjustment that non-Hispanic White women (NHW), and are less likely to seek help for sexual or relationship problems. This is a significant health disparity that negatively impacts women's quality of life in survivorship. The purpose this this systematic review is to summarize the existing literature describing minority women's experience with sex and intimacy after cancer. A comprehensive search using a combination of keywords and subject headings to elicit studies that addressed sex and intimacy of U.S. racial minority women treated for cancer was performed in CINAHL, PubMed, Embase and PsycInfo and Scopus. Descriptive and interventional studies published in the last 15 years were included. Studies were included if they addressed sexual function, sexual distress, sexual quality of life, intimacy, partner relationship satisfaction or dyadic adjustment. Studies were excluded if they were non-English language,

studies conducted outside the U.S., or focused on sexually transmitted diseases, sex education, or safe sex practices. Covidence® was used to document the inclusion/exclusion process and create the PRISMA diagram. The authors perform thematic content analysis to identify emergent themes. This project is ongoing. To date, the search yielded 3564 records reviewed for inclusion. We are finding a small number of studies specifically describe sex and intimacy outcomes of U.S. minority women cancer survivors. We anticipate that minority women will experience changes in sex and intimacy after cancer treatment, and that reports of sexual function, sexual communication and sexual healthcare may be shaped by their minority experience. While some evidence of health disparities exist between NHW women and racial minority women, the depth and breadth of literature describing the experience of sex and intimacy after cancer treatment in women of minority groups is lacking. There is a dearth of knowledge related to couples' sexual and relationship adjustment, communication about sex and intimacy, or couple-centered interventions for women of minority groups treated for cancer and their partners. A clear and comprehensive understanding of women's experience with sex and intimacy after cancer treatment will inform future intervention development, with the goal of optimizing minority women's sexual well-being and quality of life.

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INTEGRATIVE THERAPIES: ACTUAL EFFECTIVENESS ON QOL IN CANCER PATIENTS

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There are many support programs for cancer patients available in the US. However, available evidence shown as research studies describes only one intervention's evaluation in each study, and there is a lack of knowledge of patient's awareness, utilization, and perceived effectiveness for various programs overall. The cancer committee at our health system level would like to develop a strategic plan to better support patients, but first we needed to study if patients are actually utilizing support programs and the effectiveness. The purpose of this study was to evaluate if there is a relationship between types of integrative support programs and patients' QOL. QOL was measured with a Functional Assessment of Cancer Therapy General (FACT-G), which consist of Physical, Social, Emotional, and Functional Well-being (WB). The Centura Health-system Cancer Registry from 2015, 2016, 2017 and 2018 was used to identify eligible participants for the study. It was voluntary participation, and an electronic survey link was sent via email address. This study was approved by Catholic Health Initiative IRB for exempt study. A total of 9,509 invitations were sent. In the survey, data for age group, social status, cancer and treatment information, awareness and utilization of 27 different support programs and their perceived effectiveness, and FACT-G were collected. Data were analyzed with SPSS. A total of 1,355 responses were received. The participants identified that all 27 programs were helpful when they were tried, with satisfaction scores of 97% to 79%. More than 50% of participants were not aware of 20 among 27 programs. Top programs that they were not aware of were exposure to light (82%), cognitive behavioral therapies (75%), biofield therapies (73%), art therapy (73%), respite travel (71%), music therapy (69%) and animal therapy (68%). Prostate and thyroid cancer patients had significantly lower physical and social WB ($p=0.01$). People who had lower QOL tried a greater number of therapies ($p<0.005$). More findings in relation to their QOL will be shared at the presentation. Although people who tried the programs had high satisfaction rates of over 80%, patients were not even aware of most of the programs available. These summary results were brought to the system-wide cancer committee with a specific recommendation to improve our support for patients with cancer.

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QUALITY STUDY TO REDUCE OPIOID USE FOR BREAST CANCER PATIENTS

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The recent rise in opioid sales and opioid overdoses suggests it is important to maximize the safety of opioid prescribing after surgery. With the concern of overprescribing opioids, a need was identified by breast surgeons to follow breast cancer patients after surgery to determine if quantity of prescribed opioids equaled the number of pills used by patients for

pain. Additionally, appropriate storage and disposal of excess opioids after hospital discharge was assessed to prevent unintended secondary exposures. This study was designed to research if quantity of prescribed opioids equaled the number of pills used by patients for pain in patients undergoing surgery for breast cancer and if proper disposal was performed with any unused opioids. A survey was designed to identify pain levels, anxiety levels, type and quality of pain medication prescribed, quantity of pain medications taken and storage of remaining medication. This survey was conducted from 34 patients from January 2019 to May 2019 at their post-operative appointment. The data collected from this study showed an average of 20.18 opioids were prescribed for patients after surgery for breast cancer. Of the amount prescribed, 9.97 opioids were taken after discharge, leaving 10.18 unused. Thus, participants are taking 49.5% of their opioid prescription and 50.5% remained unused. Further analysis showed 62% of patients used less than half of their prescription, 21% of patients used more than half of their prescription and 18% of patients did not use any prescribed medications postoperatively. Storage of pills also concluded that 72% of patients stored unused opioids in cabinets, drawers or counters and only 12% of patients properly disposed of unused opioids. Overall, this data supports the hypothesis that there may be an over prescription and improper disposal of opioids for patients after surgery for breast cancer. Because of this study, leadership within the Cancer Institute researched the installation of a drug depository outside the facility to support patients in bringing in their leftover medication. Consults with legal and risk departments determined this to be too high of a risk. Therefore, a list of community locations for opioid disposal is now provided in all new patient folders. A follow up study is being proposed in 2020 to research compliance with proper disposal of unused opioids.

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DEVELOPMENT OF A DATA-DRIVEN ACUITY STAFFING TOOL, IN AN OUTPATIENT INFUSION CENTER

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Oncology infusion nurses' workloads are increasing as the number of patients increase and treatments are becoming more complex. There is a push to provide more treatments in the outpatient setting, which is placing a greater demand on infusion nurses to provide safe, competent care to a larger population. Additionally, the implementation of clinical trials, amidst typical infusion center operations, has led to an increase in nursing time and resources required. This unpredictable clinical environment has made it challenging to determine nursing care required, and has additionally hindered the ability to allocate equitable nurse assignments. The increase in number of patients seen, coupled with the rise in treatment acuity has led to an overall decrease in nurse satisfaction. The need for an improved staffing model to adjust for these changes has supported our development of this acuity tool. The development of this tool was aimed to provide safe, high quality care and improve nursing satisfaction by scheduling assignments based on patient acuity versus typical scheduling methods. The tool was intended to generate a score for each patient that was reflective of their acuity based on patient care requirements, regimen intensity, and nursing time. Using an evidence based approach, the first phase of development was to create a numerical acuity rating system for the various treatments focused on nursing time. This was accomplished by using a comprehensive literature review, expert focus groups, and well-established guidelines on instrument development. Once the tool was developed, it was piloted with a sample of patients in the infusion center and re-evaluated with expert focus groups and factor analysis. Minor modifications were made and the tool was redeployed to a larger group of patients. The tool was then placed in eRecord for the next phase of development. Based on more than eight hundred patients' acuity scores, we identified that taking patient acuity and treatment complexity into consideration enabled us to identify patient scheduling and staffing issues in the infusion center. Using an acuity staffing tool may provide valuable information to help improve scheduling processes. Data from this project is undergoing additional analysis. Future research may help demonstrate validity and reliability of this tool.

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A MULTI-CENTER RETROSPECTIVE STUDY EVALUATING PALLIATIVE ANTINEOPLASTIC THERAPY ADMINISTERED AND MEDICATION DE-ESCALATION IN VETERAN CANCER PATIENTS TOWARD THE END-OF-LIFE

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The purpose of this study was to evaluate the incidence of palliative antineoplastic therapy administration for metastatic lung, prostate, colon and pancreatic cancer, melanoma, and the number of patients who received non-essential medications at thirty and fourteen days prior to death. This is a retrospective, multicenter study that was submitted to the R&D Committee and IRB at the Detroit VA Medical Center for approval. The electronic medical record system was used to identify patients deceased between July 1, 2016, to June 30, 2018, with metastatic lung, colorectal, prostate, pancreatic cancer, or melanoma. Further review of eligible patients for screening and evaluation to determine the proportion of Veterans who received palliative antineoplastic therapy and non-essential chronic medications within the last 30 and 14 days of life was conducted. Data collected includes: patient's age at death, gender, cancer diagnosis, hospice care referral, emergency visits related to cancer or cancer treatment, and antineoplastic therapy and non-essential medications administered within 30 and 14 days of death. Antineoplastic therapy are defined as intravenous chemotherapy, oral targeted-therapy, or immunotherapy. Non-essential medications included lipid-lowering agents, oral bisphosphonates, vitamin supplements, anti-platelet agents, anti-dementia agents, gastric protectors without symptom-related indication, oral anti-diabetic agents with most recent A1C < 8%, and therapeutic medication duplications. A total of 57 participants were included in the study. Nine of the participants (16%) received antineoplastic therapy within 30 days prior to death, and two (4%) received antineoplastic therapy within 14 days prior to death. Eight (14%) of the participants received non-essential medications 30 days prior to death. In and out-patient palliative care services were available to all participants. Forty five (79%) of the participants were referred to hospice prior to death and 35 (61%) of them were >30 days prior to death. The mean number of days between hospice referral and death was 40. Thirty six (63%) of the hospice referrals came from palliative care. The number of patients who received antineoplastic therapy within 30 days prior to death in this study is lower than what is commonly found in the literature. This may be due to accessibility of palliative care resources. This study shows the benefits of palliative care accessibility in avoiding unnecessary antineoplastic therapy at the end-of-life.

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ONCOLOGY NURSE NAVIGATION AND TRIAGE PROTOCOLS IMPROVE EMERGENCY DEPARTMENT UTILIZATION RATE

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Oncology nurse navigators (ONN) serve as vital members of the oncology team. Strong evidence support the ONN's impact on patient experience, clinical outcomes, and health economics including emergency department (ED) utilization and subsequent admission rate. A significant challenge for the ONN is providing appropriate symptom management and triage (SMT) with the goals of maintaining treatment adherence and decreasing unnecessary ED visits thereby decreasing hospital admissions. As a participating practice in the Center for Medicare and Medicaid Services Innovation's Oncology Care Model (OCM), HonorHealth Virginia G. Piper Cancer Care Network (VGPCCN) is committed to reducing potentially avoidable hospitalizations and ED utilization. The VGPCCN addressed this key driver of care and utilization by developing standardized practice protocols for symptom management and centralizing ONN triage. The goals of this initiative included: reducing unnecessary ED utilization, improving patient centered care, and understanding the volume and indications of the triage calls. The ONNs partnered with physicians to develop evidence-based protocols which targeted the CMS defined conditions believed to be preventable causes of ED visits and hospitalizations. EMR documentation captured the call indication and volumes that were triaged centrally by two ONNs. OCM trends in ED utilization for the VGPCCN practice decreased over the previous four quarters (July 2018 through June 2019) from an approximate median of four-quarter average of 17 visits to 13 visits per 100 beneficiaries. Additionally, OCM reported the number of ED visits not leading to an admission or observation stay in all practices providing cancer care in the same patient risk quartile at 17.5 per 100 beneficiaries; comparatively VGPCCN

was 14 per 100. Lastly, the median of four-quarter averages of inpatient admissions to short-term acute care hospitals and critical access hospital as 22.1 for all OCM practices providing care in the same patient risk quartile as our own; VGPCCN averaged 18.9 per 100. Call volumes during the collection period of June-December 2018 totaled 2091. The ONNs utilization of standardized practice protocols for SMT have proven to be successful in improving ED utilization rates.

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AVERAGE DURATION OF THE NURSING APPOINTMENT ACCORDING TO THE THERAPEUTIC ONCOLOGY

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The complexity of the treatment requires safe and high quality assistance, which makes it even more challenging when a high number of appointments take place in the outpatient department (clinic/ward). Thus, the nursing appointment becomes one of the main interventions which benefits self-management. In order to do so, it is imperative to have the necessary amount of nurses and offices, which are measured based on the average duration of the appointment. The purpose of this project was to identify the average duration of the nursing appointment according to the therapeutic oncology referred. Documentary and observational field research with intentional sample and quantitative approach, conducted in the output departments of Integrated Clinics, Chemotherapy and Radiotherapy of an oncology public hospital, situated in Brazil, with multiple national and international quality certifications. The work sampling technique was used to identify the time spent, with direct observation of nurses having 5-minute intervals. 984 nursing appointments were observed, 657 in the outpatient department of the Integrated Clinics (12,50 minutes), 234 in the chemotherapy department (on the medication day) with an average of 9,15 minutes and 93 in the radiotherapy department (11,08). The patient's navigation happens in the Integrated Clinics outpatient department, regardless of the indicated treatment. Therefore, the average duration was identified according to the therapeutic. The 75 appointments of oncohematologic patients took an average of 12,79 minutes, but when the objective of the appointment was exclusively the monitoring of hematological toxicity (77 appointments), the average duration was 9,34 minutes. The 127 nursing appointments of patients with indication of oncology surgery had an average of 15,00 minutes. Still in the Integrated Clinics outpatient department, the patients with indication of chemotherapy had 110 appointments with an average duration of 13,5 minutes. When considering the radiotherapy procedures (appointments for preparation, reviews, discharges and follow-up), the average duration of the 117 appointments was 10,76 minutes each. The nursing appointment in this study ranged from 9,15 to 15 minutes depending on the type of treatment being used. It is important to highlight that in all the appointments the nurses did: identification of the nursing diagnosis and/or; care plan and/or; analysis of the outcomes of interventions previously used. Innovation is the time of appointment according therapeutic oncology.

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INTERPROFESSIONAL ONCOLOGY CARE: ATTITUDES TOWARD HEALTHCARE TEAMS IN A REGIONAL CANCER INSTITUTE

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Oncology is a rapidly changing clinical setting. New cancer cases are expected to increase in the U.S. Oncology education for both patients and nurses must be addressed. Research has shown improved patient outcomes and staff satisfaction following collaborative education, but there has been limited research on perceptions of interprofessional collaboration among oncology healthcare providers. The aim of this study was to assess provider attitudes toward interprofessional teams in oncology care. The research design was a cross-sectional survey to evaluate attitudes toward interprofessional care across various disciplines in oncology. The main instrument utilized was the Attitudes Toward Interprofessional Health Care Teams (ATHCT) survey. Demographic variables were obtained from participants. Employees in a New England regional cancer institute were sent an email containing an information sheet to establish consent and a link to the survey questionnaire in Qualtrics. A total of 187 oncology healthcare professionals completed the survey, representing a 22% response rate out of the 850 employees in the cancer institute. Demographics and ATHCT survey responses were included in data analysis. Descriptive analyses, analysis of variance, and correlation analysis

were conducted with IBM SPSS Statistics, version 26. All results yielding $p<0.05$ were deemed statistically significant. The ATHCT mean score was high ($M = 4.07$, $SD = 0.51$). Analysis of variance revealed statistically significant differences in mean score among participant age groups ($p = 0.03$). Specifically, there was a significant difference in the mean scores of participants age 36 to 55 years ($M = 3.96$, $SD = 0.53$) compared to those over 55 years old ($M = 4.22$, $SD = 0.50$). Significant differences ($p = 0.01$) were also noted between different professional groups and their time constraints sub-scale score on the ATHCT scale. There was a significant difference in mean scores of technicians ($M = 3.94$, $SD = 0.39$) and advanced practitioners ($M = 4.29$, $SD = 0.41$). A higher mean score occurred in participants who had a current certification ($M = 4.13$, $SD = 0.50$) compared to those without ($M = 4.05$, $SD = 0.46$). Oncology professionals, including nurses, and patients may benefit from improving interprofessional care throughout the field. With high overall scores demonstrated in attitudes toward healthcare teams, cancer care is a leading area to implement interprofessional education and care models to enhance outcomes.

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A SYSTEMATIC MIXED STUDIES REVIEW OF HOPE EXPERIENCES IN PARENTS OF CHILDREN WITH CANCER

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Hope is negatively associated with parental psychosocial distress and psychological maladjustment as well as an important aspect of emotional well-being and coping for adults with cancer and their caregivers. Yet, little is known about hope experiences of parents of children with cancer. The purpose of this systematic mixed studies review was to comprehensively describe hope experiences in parents of children with cancer. PsycINFO, PubMed, Academic Search Premier and CINAHL databases were used to retrieve articles published in English between January 2005 to October 2019. Using the systematic mixed studies review convergent design, qualitative and quantitative were data collected and extracted following by qualitative synthesis. Eighteen articles met the inclusion criteria. Exclusion criteria were systematic reviews, non-research articles, case reports and abstracts. Based on the synthesized findings, a conceptual model was developed. Hope is a fundamental source of strength and inner guidance for parents. Findings suggest that hope is negatively correlated with parental psychological distress symptoms and coping dysfunctions. Religiosity, spirituality and adequate provider-parent communication may strengthen hope in parents. Parental hope may help minimize psychological distress and maladjustment after a child's cancer diagnosis. Open communication channels between providers and parents is critical in preserving hope. An understanding of religiosity, spirituality, optimism and sociodemographic variables may inform parental psychosocial interventions. Early identification of parents with psychological distress is critical as they may struggle more in the absence of hope. Targeted psychosocial interventions may help parents of children with cancer cope better. Ongoing assessments of spiritual needs may be important in sustaining hope.

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DEVELOPMENT OF AN ADVANCED NURSE PRACTITIONER SERVICE FOR HEMATOLOGY AND ONCOLOGY

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As the nurse consultant with over 20 years' clinical experience within hematology and oncology, I was tasked with setting up a dedicated ANP service in this busy inner city department. The first ANP commenced in post in 2015 and has now the team consists of a Nurse Consultant/Lead ANP, 1 ANP for hematology and 1 ANP for Oncology as well as 2 trainee ANPs. As well as the ability to conduct a full system clinical examination, the ANPs are able to complete clinical procedures including bone marrow biopsies, Central Venous Access Device (CVAD) insertion, paracentesis, ultrasound guided lumbar punctures and skin biopsies. Competency documents were devised for all clinical procedures alongside clinical guidelines/standard operational procedures to ensure we had a robust clinical governance framework. All qualified ANPs are able to prescribe SACT, supportive medication as well as blood products. All of the ANP team run weekly clinics to assess patients receiving Systemic Anti-Cancer Therapy (SACT). Within the hematology and oncology chemotherapy day units the ANP team review patients presenting unwell post SACT as

well as post high dose chemotherapy/stem cell transplantation for hematological malignancies. In order to ensure patients have instant access to radiological investigations the ANP team have all completed Ionizing Radiation (Medical Exposure) Regulations (IR(ME)R) training and are able to request Ultrasound, X-Ray, CT, MRI and bone scans. We have recently set up an ANP led Totally Implantable Vascular Access Device (TIVAD) service for patients to have a portacath inserted when they require long term vascular access for metastatic cancer. Within the last 12 months, as a team we have expanded significantly and undertaken hundreds of procedures, clinics, telephone consultations and day case reviews. Audit is pivotal within the team; rates of CVAD infections, Venous Thrombo-Embolism (VTE), LP service as well as quality control of bone marrow biopsy samples are all audited and shared with the team. The success of the ANP role within hematology and oncology has been championed by the senior medical team and this has been key to the success of the role. As the nurse consultant and lead ANP I am passionate about advancing practice, supporting the team and most importantly promote a culture whereby 'we know what we don't know' and first and foremost remain Registered Nurses.

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AWARENESS, PRACTICE, AND PERCEIVED BARRIERS TOWARD CHEMOTHERAPY INDUCED NAUSEA AND VOMITING PROPHYLAXIS GUIDELINE ADHERENCE AMONG ONCOLOGY NURSES AT SELECTED HOSPITALS IN ADDIS ABABA, ETHIOPIA, 2019

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Nausea and Vomiting remain among the most distressing side effects of treatment with chemotherapy. Chemotherapy induced emesis can impair quality of life and poor control of emesis can interrupt or force withdrawal from critical chemotherapy. Therefore, Nurse's play crucial role toward assessment, prevention, and management of chemotherapy induced nausea and vomiting. Knowledge of nurses to triage patient problem, assist in the evaluation of symptoms, initiation of interventions, information about the last chemotherapy treatment and evidence from the current emesis guideline, guide the nurse in determining the patients disposition and treatment. Therefore, it is important to determine and enhance the nurse's awareness and practice toward chemotherapy induced nausea and vomiting prophylaxis guideline and, reduce barrier's that prevents the nurse to act in line with the guideline recommendation. The objective was to assess Awareness, practice and perceived barrier's toward current chemotherapy induced nausea and vomiting prophylaxis guideline adherence among oncology nurses working at selected hospitals in Addis Ababa, Ethiopia, 2019. Institution based descriptive study design was used to conduct the study in selected hospitals, at Addis Ababa, From April 1–30, 2019. The study area was selected using purposive sampling method. Selection of the study participant was using population census method from the source population nurse's working in oncology units at selected hospitals. Using population census method 79 nurses were participated with the response rate of 97%. The data was cleared and entered in to EPI-data Version 4.2 then exported to SPSS version 24. Data analysis result was described in frequency, mean, and standard deviation. The association of demographic variable's with nurse's awareness and practice was done using bivariate and multivariate logistic regression. From the total of 79 nurses, 49(62%) were female and the mean age of participant was 29.6*4.8 years old. Only 60% of the study subject have good awareness, whereas 59% of the participant have poor practice regarding chemotherapy induced nausea and vomiting guideline adherence. Being oncology certified (AOR: 1.477; 95%CI (1.110, 1.967) and chemotherapy side effect training (AOR: 1. 638; 95% CI (1. 213, 2. 212) were significantly associated with nurse's awareness. Nurses working in oncology unit have favorable awareness but they didn't practice inline with guideline recommendation. Recommendation: Giving training and avoiding barriers to do inline with guideline.

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ONCOLOGY NURSES' EXPERIENCE OF DISCHARGING PATIENTS TO OUTPATIENT HOSPICE CARE

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A grounded theory study was conducted to describe the experience of inpatient oncology nurses as they

cope with transitioning patients to outpatient hospice care. Oncology nurses express uncertainty about how to support patients and their families as decisions are made about honoring preferences for end of life care. Information specific to death and dying during pre-licensure nursing education is limited. Literature to describe nurses' experience while discharging patients to hospice is lacking. After IRB approval, purposive sampling was used at two hospitals to recruit oncology nurses who were experienced in discharging patients to outpatient hospice care. In-depth interviews were conducted in private by two researchers. Constant comparative analysis was used to inform the research questions. Data were analyzed using open coding, axial coding, and selective coding. Theoretical sampling was used to build the developing theory. Data saturation was reached at ten participants. Trustworthiness was assured through memos, field notes, researcher triangulation, and member checking. A process of "navigating and advocating to get things right" emerged as the core category. New nurses and nurses new to oncology articulated a process of "proceeding with caution" while helping patients transition to outpatient hospice, whereas seasoned nurses expressed confidence in "just knowing what to do". Nurses described a continuum of "finding their own way" and "putting things in perspective" that was influenced by collaborating as team, receiving/providing mentorship and support, balancing time, identifying with the patient and family, and coping well. The nurse ally role was identified as vital to support the discharge process. Oncology nurses care deeply about the care they give patients at end of life, hoping to get it right. The nurse ally was key to navigating the discharge process and providing guidance and support to the nurse, thus implementing the role of the nurse ally is recommended.

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IMPLEMENTATION OF A HEREDITARY CANCER SCREENING AND RISK REDUCTION PROGRAM

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With advances in genetic technology, availability of multiple-gene germline panel testing has made genetic testing more accessible. With a shortage of genetics providers, advance practice nurses with cancer genetics expertise offer an opportunity to increase access for patients. This study seeks to determine if the implementation of a Hereditary Cancer Screening and Risk Reduction Program (HCSRRP) improves discovery of genetic mutations in patients while promoting appropriate screenings and risk reduction strategies. The purpose of this study was to examine retrospective data collected over the first three years after implementation of a HCSRRP to observe trends in positive mutations found internally and externally. De-identified data was collected with data tracking sheets and managed in a computer database. Data was analyzed using simple statistics. Chi square tested the HCSRRP hypothesis that having cancer does not affect having a positive gene mutation. The HCSRRP clinic tested 958 individuals and found 183 (19%) have a gene mutation in a gene that puts them at higher risk for cancer. The HCSRRP found that 272 of the 958 patients (28%) with negative genetic testing qualified for risk-reduction counseling based on the family history. Of 261 patients who did not qualify for genetic testing, 45 (17%) were referred for high risk screening based on family history. There were 183 patients with known gene mutations referred externally to the HCSRRP and having cancer was an independent variable from having a gene mutation ($p=0.07$). This data demonstrates that genetic counseling and risk reduction screening programs are integral for identifying at-risk individuals based on their family history, exclusive of a diagnosis of cancer. With the shortage of genetic counselors and increasing demand for genetic testing, programs like the HCSRRP are a necessity in practice. This program demonstrates the capacity of advanced practice nurses to meet the growing demands on the healthcare system while meeting the needs of patients with high risk for certain types of cancer.

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HPV VACCINATION PERCEPTION: HIV INFECTED ADULT MALES

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Due to the increased risk for human papillomavirus (HPV) related cancers among HIV-positive individuals, we seek to examine the knowledge, acceptability, uptake, and messaging preferences of the HPV vaccine in the HIV-positive young adult male population.

This study was a secondary analysis of a prospective cross-sectional study at a rural Ryan White Clinic in Georgia. Eligibility criteria included HIV-positive, between the ages of 18–45, able to read and speak English, and capable of providing informed consent. The sample will consist of 40 participants, and we will examine the male subsection. Participants completed an online questionnaire adapted from the Carolina HPV Immunization Attitudes and Beliefs Scale, to assess participants' perceptions and knowledge of HPV, HPV vaccines, and preferences of health communication and messaging. Data will be analyzed for descriptive frequencies in excel. Of the 40 participants enrolled, we analyzed 20 participants who identified as "born male and identify as male." Forty percent of men did not know what HPV is, and 75% of men never heard about the HPV vaccine. Over 50% of the participants were unsure of who should and should not receive the HPV vaccine. Only 45% of men intended to get the HPV vaccine within the next 12 months, 45% of men were unsure, and 10% of men did not intend on receiving the vaccine. The majority of participants selected receiving health-related information through a healthcare provider as their preferred method of obtaining information, second to the internet, and third to family and friends. The overall participants of the study were unaware of what HPV was and the HPV vaccine. The majority of men prefer health-related information directly from a healthcare professional; therefore, nurses can help bridge the gap in education. The data from this study can be used to help tailor educational materials and interventions to increase HPV vaccination rates among HIV-positive men.

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THE ANALYSIS OF THE CAUSES OF NURSING PROBLEMS IN THE REHABILITATION PERIOD OF POSTOPERATIVE PATIENTS WITH BREAST CANCER AND THE RESEARCH PROGRESS OF CONTINUOUS NURSING MEASURES

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Breast cancer is the malignant tumor with the highest incidence in women. According to the statistics of the global cancer epidemic in 2012 and the analysis of the cancer data in China in 2015, the incidence of breast cancer ranks the first in women with cancer, showing a rising and younger trend. Surgical treatment is still one of the main treatment methods for breast cancer, and various postoperative complications, as well as postoperative chemoradiotherapy brought by a variety of toxic side effects on the psychological, physiological and social functions of patients have caused varying degrees of influence. Continuing nursing is a patient-centered, high-quality nursing service that extends from hospital to patient's home to promote and maintain patient's health. It is an extended nursing service model from hospital to society and family. Continuous care has become a major concern for health care workers in both developed and developing countries as a cornerstone and essential element of good health care. Continuous nursing can improve the quality of life of patients with breast cancer, which is worthy of application. Therefore, continuous nursing is an important nursing measure to improve the quality of life of patients and improve the effect of late chemoradiotherapy. By analyzing the causes of common nursing problems in the rehabilitation period of breast cancer patients outside the hospital and summarizing the continuous nursing measures for clinical reference and application.

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STANDARDIZE WITH SIMULATION: VALIDATING CHEMOTHERAPY ADMINISTRATION COMPETENCY IN THE SIMULATION LAB

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This study aimed to determine if training nurses in the Simulation Laboratory (SimLab) will increase confidence of oncology nurses in: chemotherapy verification, safe handling, administration, and spill management of chemotherapy. Other objectives include determining if using the SimLab for competency evaluation will increase nurse perception of the value of having a standardized method for validating chemotherapy competency, measure nurse's expectations of making mistakes in the live environment after performing in the SimLab, determine if nurses prefer to be evaluated in a simulated environment, and determine if nurses desire to participate in continued competency assessments in the Sim Lab annually. The complexity of chemotherapy administration and the risks involved in a medication error provide the need for chemotherapy nurses to maintain a high level of competency. The Gary M. Hock Family Patient Care Simulation Center at Santa Barbara Cottage Hospital was used to evaluate chemotherapy competency for oncology nurses in 2019. The evaluations focused on safe administration practices outlined in the Oncology-Chemotherapy and Biotherapy Administration

policies. Evaluations were held in the SimLab once a month from February–September 2019. A standardized, 90-minute patient scenario of FOLFOX regimen was used. Evaluators used a revised standardized checklist tool. 35 oncology nurses (100% of eligible staff) participated and took a pre- and post-survey to evaluate their experiences. Two surveys were used; one for chemo-competent staff that measured confidence, and another to measure knowledge in staff seeking initial competency. Post-simulation surveys show the most improvement in confidence in nurses' abilities to perform safe handling of chemotherapy, an increase of 39%. Increases were also seen in confidence in administering chemotherapy per unit protocol (32%), verifying chemo calculations (19%), and disposal and spill management (17%). This method had never been used before at SBCH for validating chemotherapy administration competency, and there are limited studies on using the Sim lab for this. The oncology unit at SBCH strives to practice to the high quality and safety standards that ONS and other accrediting bodies expect. Simulation provided a standardized method for evaluating chemotherapy administration for oncology nurses. Creating a chemotherapy simulation was a feasible, effective method to assess chemotherapy administration competency, 78% of nurses agree or strongly agree that they would like to continue competency assessments annually in the SimLab.

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STATUS OF SUPPORT PROVIDED BY PHYSICIANS TREATING CANCER PATIENTS FOR DECISION MAKING REGARDING TREATMENT SELECTION BY THESE PATIENTS

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The objective of this study was to determine the factors involved in decision-making support provided by physicians to cancer patients. 200 physicians treating cancer patients were surveyed via an internet questionnaire survey about the status of cancer patients' decision making regarding treatment selection and status of support provided for decision making. A total of 181 men and 19 women participated, with a mean age of 50.86 years; the mean number of cancer patients treated annually was 88.22. Regarding decision-making status, 83.5% of patients decided to undergo treatment within 1 week; 46% reported difficulty in decision making and 18% could not decide on treatment within the period set by the physicians. The physicians screened patients requiring decision-making support (1) at the time of diagnosis, (2) when it was difficult to control adverse events, and (3) when recurrence/metastasis developed. When patients had difficulty in making self-decisions, 39% of the physicians collaborated with specialists from other professions. The physicians requested help from other professions for decision-making support when (1) controlling adverse events was difficult, (2) recurrence/metastasis developed, and (3) they collaborated with other institutions. However, there were limitations in improving the quality of patients' decision making. Physicians treating cancer patients understand that patients face difficulty in making decisions, but there is a delay in the timing of collaboration with other professions. This suggests the necessity of promoting multidisciplinary collaboration from an early stage when providing decision-making support for treatment selection. This study was conducted with a research grant from Grants-in-Aid for Scientific Research.

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FACTORS INVOLVED IN DECISION MAKING REGARDING TREATMENT SELECTION BY CANCER PATIENT

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The objective was to determine the psychological factors involved in decision making regarding treatment selection by cancer patients. 200 patients who had undergone cancer treatment were surveyed via an internet questionnaire survey about current recognition of disease state and status of explanation from healthcare professionals, the degree of satisfaction with the decision regarding cancer treatment, and factors involved in decision making. A total of 113 men and 87 women with a mean age of 56.73 years participated; the mean time elapsed since diagnosis, 10 years; and proportion of patients currently receiving treatment, 10.5%. The explanation of the disease state was recognized by 76% patients and 37.5% felt anxious about life after treatment. About half of the patients were willing to make self-decisions; 13% patients felt that it was difficult to select a treatment and 18% had a sense of discomfort about their physical condition after treatment. The patients actively consulted with healthcare professionals (59.5%) and family members (35%) and made a decision based on (1) prolongation of life, (2) opinions of healthcare professionals, and (3) acceptance of treatment-associated risks. The inability of cancer patients to actively make self-decisions is affected by their inability to imagine physical

condition after treatment and anxiety about life, suggesting the need for support to improve the quality of decision making. This study was conducted with a research grant from Grants-in-Aid for Scientific Research.

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CANCER DISTRESS, PSYCHOLOGICAL TRAUMA, AND RESILIENCY IN HOSPITALIZED HEMATOPOIETIC STEM CELL TRANSPLANT PATIENTS: A DESCRIPTIVE STUDY

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Hematopoietic stem cell transplant (HSCT) can be a lifesaving part of cancer treatment, but is not without consequences. The process can be arduous leading to a great deal of distress and in some cases even traumatic experiences for these patients. While distress management is a National Comprehensive Cancer Network priority in practice guidelines, distress during hospitalization for HSCT is largely unexplored in the literature. This descriptive study aims to explore the trajectory of psychological symptoms over the course of hospitalization, as well as the relationships between distress, psychological trauma, anxiety, depression, and resiliency. Distress, psychological trauma, anxiety, depression, and resiliency instruments will be administered at three time points (upon admission, at discharge, and approximately 14 days after discharge). Five assessment tools will be utilized at each time point and include the Cancer and Treatment Distress scale (CTxD), Primary Care PTSD Screen for DMS-5 (PC-PTSD-5), Patient Health Questionnaire (PHQ-2), two item General Anxiety Disorder scale (GAD-2), and the Connor-Davidson Resilience scale (CD-RISC). Descriptive statistics will be used to characterize the sample. Pearson's correlations will be used to evaluate relationships between distress, trauma, depression, anxiety, and resiliency at each time point. One-way analysis of variance (ANOVA) will be used to evaluate changes in distress and resilience over time. By looking at the hospitalization experience, we hope to gain understanding of the inpatient experience of psychological distress and trauma, which may assist in implementing nursing interventions to meet the psychological needs of hospitalized HSCT patients. The inpatient time frame involves the most direct involvement of the healthcare team, and therefore may create a unique opportunity to address psychological distress and perhaps learn how patients cope with distress. Because nursing staff at the bedside have the most direct contact with patients during this critical time, nursing interventions may be extremely beneficial. In order to develop future interventions, we need to gain a better understanding of the trajectory of psychologic responses during and following hospitalization for HSCT.

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DESCRIBING THE PHASE I ONCOLOGY CLINICAL TRIAL POPULATION: A RETROSPECTIVE CHART REVIEW

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The purpose was to describe the Phase I oncology clinical trial (CT) population in our cancer center and identify implications for practice that may improve the experience of clinical trial participants. Exciting discoveries are changing the face of early-phase clinical trials (CTs). Cancer drug development has become more targeted, with improved response rates and less toxicity for participants. Many patients are living longer with successful cancer treatments because of CTs. Despite the exciting new therapeutic approaches evaluated in early-phase CTs, these new approaches can add complexity to the care and lived experience of participants. Little is currently known about the use of supportive care services among participants in early-phase CTs. Research variables studied were sociodemographics, disease-related, treatment-related, utilization of supportive care resources. This was a retrospective chart review in a phase I CT unit within a tertiary cancer center in the northeastern United States. The sample was comprised of adults with cancer enrolled in Phase I oncology CTs from 2017–2019. This observational study involved a retrospective chart review to collect information about sociodemographics, clinical, and utilization of supportive care resources. Reviewed a total of 426 charts. Mean age of participants was 60.5 years (20.5–85.2 years) with 56.1% female (n=239) and 43.9% male (n=187). Most were white (85.1%, n=363). Most common cancer site was gastrointestinal with 22.1% (n=94) of cases. Other sites included: lung

(20%, n=85), breast (10.6%, n=45), gynecologic (9.4%, n=40), and sarcoma (9.2%, n=39). Almost all had metastatic disease (97.7%) with 83.1% having 1–3 sites of metastatic disease and 16.9% with greater than 3 sites. Almost all had a performance status of 0–1 (98.8%, n=421). On average, participants were on trial for 90.1 days (0–777 days). More than half had received palliative care (58.7%, n=250) or social work (64.1%, n=273) at some time since diagnosis. We found that Phase I CT participants are often those with advanced stages of disease and utilize high rates of supportive care resources. Collectively, these results indicate that Phase I CT participants represent a population who may benefit from interventions targeting their supportive care needs. Findings will ultimately lead to improvements in care and the patient experience of clinical trial participants. Knowledge of trends and use of supportive care resources while participating in early-phase oncology CTs will guide the development of targeted interventions.

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ADDRESSING EMOTIONAL NEEDS IN THE ONCOLOGIC PATIENT UNDERGOING STEREOTACTIC RADIOSURGERY

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There is no assessment of patient education or standardized protocol to address emotional needs and distress levels during stereotactic radiosurgery. No study has tested two valid national tools on distress levels in radiosurgery patients. Nursing created standardized patient education material requiring efficacy testing. This study translated evidence based practice into clinical practice and showcases nursing innovation and research to enhance patient education and wellness. The study aims to assess the effect of addressing patient distress and early intervention on patient's emotional needs, and aims to assess effect of standardized education on patient's anxiety and distress related to starting stereotactic radiation and understanding of the radiation process. Design: quasi-experimental study. Sample: n-goal is 34 pairs. Patients with brain or spine metastasis from a solid primary tumor requiring stereotactic radiosurgery. Data collection procedure: written informed consent, "National Comprehensive Cancer Network Distress Thermometer" and "Concerns about Radiation Therapy Scale" questionnaires administered prior to treatment and 7-days post treatment. Intervention: standardized patient education utilizing electronic tablets and multi-modal. Analytic approach: using a 2-point standard deviation, alpha 0.05 and power 0.8, simple t-test, correlation and Mann-Whitney-Wilcoxon analysis. Descriptive statistics and qualitative data included. Evaluation and Discussion are pending. Research project is incomplete. Currently in the analysis phase. This is the first study found to include findings of the concerns about radiation therapy scale and how it correlates to the distress thermometer in patients undergoing stereotactic radiosurgery.

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MULTIPROFESSIONAL VISIT AT A RADIOTHERAPY UNIT, GENERAL HOSPITAL OF THE CITY OF SÃO PAULO

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The multiprofessional visit to the radiotherapy sector arose from the team's concern to offer excellent and humanized care to patients and their families. This proposal also adds the involvement of professionals, facilitating the creation of a targeted conduct during treatment. The multiprofessional team consists of a group of professionals who work as a team to achieve a global care goal. This team is made up of doctors, nurses, nutritionists, psychologists and dentists. The team proposal is to accompany the patient at the beginning of treatment, where each professional within their experience offers an effective treatment plan that can contribute to the success of treatment. The family is an essential factor during this process, can help maintain a continuous treatment and put into practice the therapeutic plan established by the multiprofessional team. The project objective was to record the multidisciplinary team experience in a radiotherapy outpatient clinic. Ensure team and patient integration to provide care focused on their needs. Involve the multidisciplinary team to develop better communication. This is to report an experience lived by the multiprofessional team in the radiotherapy sector, in period from February to June 2019. We realized meetings between professionals, to discuss which patients will benefit from a multiprofessional visit, to define the evaluation status and therapeutic plan. After discussion of the case, we scheduled a multiprofessional visit with the patient/family and multiprofessional team, registered in the computerized system, for follow-up. Eight patients diagnosed with head and neck neoplasms in radiotherapy

treatment in the cervical region were followed. These patients defined due to the complexity of treatment, increased risk of complications and consequently necessary greater involvement of the multidisciplinary team. The multidisciplinary visit to the radiotherapy sector contributed to support the team relationship and provide individualized and humanized care, enabling the assessment of the needs of each patient/family member.

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THE STANDARD TIME OF NURSING INTERVENTIONS IN AN ADULT CHEMOTHERAPY OUTPATIENT CLINIC OF A DEVELOPING COUNTRY

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There is a lack of parameters to define the nursing workload to accomplish the processes of planning, provision, and negotiation to allocate adequate nursing staffing. The purpose of this project was to identify the standard time of nursing interventions performed at outpatient adult chemotherapy clinics. A cross-sectional study was conducted at a private (C1) and public (C2) chemotherapy outpatient clinics in the city of São Paulo/Brazil. The data were obtained using an instrument developed and validated by Martin, through the technique of working sampling, with direct observation of nursing professionals' activities—Registered Nurse (RN) and Technician Nurse (TN) were observed. The standard time of the nursing interventions was calculated based on the total time and the number of times each activity was observed, plus the time spent by the professionals in the execution of the personal, associated activities, and waiting time. The interventions were classified according to Martin and Nursing Intervention Classification. 3,178 activities performed by 70 nursing professionals (40 RN and 30 NT) were observed taking care of 259 patients. The total time observed was 4,087.37 min, of which 2,245.81' (55%) in C1 and 1,841.56' (45%) in C2. The mean time of the interventions was 1.58 minutes in C1 and 1.05 minutes in C2. Activities time performed by RN and TN were respectively 2,625.95 min (64%) and 1,461.42 min (36%). There was a predominance of indirect care interventions (72%) compared with direct care (38%). The indirect interventions with time in min and standard deviation (SD) were: student mentoring: 1.74' (2.56), laboratory data interpretation: 1.70' (2.01), environmental comfort: 1.62' (2.73), risk Identification: 1.42' (1.82), infection control: 1.01' (2.57) and staff development: 0.90' (0.92). The direct interventions were: intravenous procedure: 3.34' (1.89), medication administration: 1.80' (3.05), chemotherapy control: 1.67' (2.22), drug prescription education: 1.63' (1.37) and vital signs monitoring: 1.49' (1.72). There are several methods for planning nursing staff, but few have evaluated the outpatient oncology unit. Some tools have been used and showed to be feasible and useful to assess the time of interventions for dimensioning nursing professionals safely. Determining the standard time of interventions with a significant impact on nursing care in adult chemotherapy outpatient clinics can estimate nursing staffing resources, aiming to quality and safety care in the outpatient settings.

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PAIN AND FATIGUE IN THE TITAN STUDY OF APALUTAMIDE PLUS ANDROGEN DEPRIVATION THERAPY FOR METASTATIC CASTRATION-SENSITIVE PROSTATE CANCER: CLINICAL STUDY DATA HELP NURSES WITH INFORMED CARE DECISIONS

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Pain and fatigue are debilitating symptoms of prostate cancer that impact health-related quality of life (HRQoL). As nurses are often the first to meet with patients and hear their concerns about prostate cancer and treatment, including HRQoL, patient-reported outcomes from clinical trials are important information to help inform decision-making. TITAN demonstrated that apalutamide plus androgen deprivation therapy (ADT) improves radiographic progression-free survival and overall survival over placebo plus ADT in patients with metastatic castration-sensitive prostate cancer (mCSPC). Post-hoc analyses of TITAN HRQoL assess pain and fatigue to help nurses with an informed care plan. In TITAN, mCSPC patients were randomized 1:1 to either

apalutamide (240 mg/d; n=525) or placebo (n=527) in 28-day treatment cycles, in addition to ADT. Pain and fatigue were assessed using the Brief Pain Inventory–Short Form (BPI-SF) and Brief Fatigue Inventory (BFI) (at baseline and for 7 days, Day –6–Day 1/cycle). Post-hoc analyses were conducted using the method of generalized estimating equations for logistic regression, including endpoints related to time to improvement, time to deterioration, and subgroup analyses based on baseline pain and fatigue. Median pain (apalutamide, 1.14; placebo, 1.00) and fatigue (apalutamide, 1.29; placebo 1.43, 0–10 severity scales) indicated patients were relatively asymptomatic at baseline. Patients in the apalutamide group had consistently more favorable scores on BPI-SF pain severity and interference versus placebo, and lower risk of worsening pain interference with mood, sleep, and overall pain interference; fatigue scores and risk of worsening were not different between treatment groups. Median time to deterioration was longer in the apalutamide group for "Pain at its Least in the Last 24 Hours" (28.7 vs 21.8 months versus placebo) and pain interference with walking ability (28.7 versus 20.2 months) and sleep (28.7 versus 20.9 months). Patients with pain at baseline were more likely to experience improvement with apalutamide (risk ratio, 0.71 [95% CI, 0.54–0.94]), while fatigue was likely to remain stable (1.18; [0.87–1.60]). Nurses are often the first healthcare provider to meet, educate, and counsel patients. These data, which demonstrate patient-reported tolerability and HRQoL from TITAN, are an important supplement to efficacy and safety and thus comprise a valuable tool for nurses—to support informed decision making by patients with mCSPC on the therapies available to them.

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PACLITAXEL: EVIDENCE-BASED RECOMMENDATIONS FOR ADMINISTRATION

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The controversy surrounding the administration of first dose paclitaxel hinges on the risk of hypersensitivity reactions. To assess best practice for the administration of paclitaxel, this study examined the effects of a titration versus infusing as ordered while remaining with the patient. Paclitaxel continues to cause hypersensitivity reactions primarily upon initial or secondary exposure, making administration a challenge. While paclitaxel has been in use for decades, the literature fails to address the safest approaches for administration: therefore leading to some institutions developing their own way of administering the medication as evidenced by current anecdotal practices. Some have developed a titration schedule while others infuse it as ordered and remain with the patient for the first 30mLs. A registered nurse (RN) initiated IRB approved retrospective chart review was conducted, at an NCI Designated Comprehensive Cancer Center, on a sample of new paclitaxel patients in calendar year 2018 to assess patterns of administration as it relates to potential reactions. Five hundred and twenty-six (526) individuals were identified through electronic health records in collaboration with the pharmacy department. Data was extracted on a range of variables including pre-medication use, titration, hypersensitivity reactions, and whether patient was re-challenged with paclitaxel or if it was discontinued. Of the 526 charts reviewed, 11.4% (60 patients) experienced a hypersensitivity reaction; a few of these patients (11) had multiple reactions. Of these 60 patients, 67.6% did not receive a titration prior to their reaction; whereas 32.4% did receive a titration suggesting the use of a titration may benefit the patients receiving paclitaxel. Further analyses are in progress to determine other factors influencing hypersensitivity reactions and to identify safest practice of administration for the patient.

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GENDER DIFFERENCES IN THE USE OF ENGAGEMENT AND DISENGAGEMENT COPING STRATEGIES IN ONCOLOGY PATIENTS RECEIVING CHEMOTHERAPY

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The purpose of this study, in a sample of women (n=277) and men (n=293) undergoing chemotherapy for either gastrointestinal or lung cancer, was to evaluate for gender differences in coping strategies using the Brief COPE. While approximately equal numbers of women and men will be diagnosed with

lung and colorectal cancer, women have been underrepresented in both lung and gastrointestinal cancer research. Regardless of cancer site, men have been underrepresented in studies that focus on psychosocial issues associated with a cancer diagnosis and its treatment. This unequal representation of both sexes leaves significant gaps in our knowledge of differences in the way that women and men cope with the diagnosis and treatments associated with lung or GI cancers (i.e., two cancers that have equal occurrence rates in both genders). This analysis is part of a larger study that evaluated the symptom experience of outpatients receiving chemotherapy. Patients were recruited from two Comprehensive Cancer Centers, one Veteran's Affairs hospital, and four community-based oncology programs. Coping data was obtained using the Brief COPE from patients with gastrointestinal (n=412) and lung (n=158) cancer. Gender was identified by self-report. In terms of the use of engagement coping strategies, women reported higher scores for positive reframing, religion, and using instrumental support. Men reported higher scores for humor. In terms of the use of disengagement coping strategies, women reported higher scores for denial, venting and self-distraction. Men reported higher scores for substance use. This study is the first to evaluate gender differences in coping strategies in a large sample of patients undergoing chemotherapy for gastrointestinal or lung cancer using the Brief COPE. Gender is constructed by a variety of cultural, political, and social norms and has influence on the ways in which people cope, as well as on health outcomes. Gender-based stereotypes of emotional expression may impact how women and men express themselves and the ways in which support is offered to them. Clinicians should be more aware of their own preconceived notions about sex and gender and reflect on how these stereotypes may influence the psychosocial care they provide to oncology patients. Furthermore, clinicians have the opportunity to assess patients' use of coping strategies, reinforcing or intervening as appropriate.

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THE BEST NURSE SIZING METHODOLOGY IN AN OUTPATIENT ONCOLOGY INSTITUTION IN BRAZIL

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The provision of maximum excellent in an oncology outpatient clinic must be adequate to the management of the team of nurses who work in direct patient care. The use of criticality sizing methodology takes into account patient performance status. This methodology is not recognized by the Brazilian legislation governing the nursing sector and cannot be applied even if studies prove its effectiveness. The Federal Nursing Council resolution encompasses oncology as a special unit where first aid and obstetric center are also inserted. In view of the above, the objective of this paper was to compare the two methodologies and offer to the Brazilian council a nursing scaling alternative directed to the cancer patient. From May 2018 to May 2019, in a private institution, 21,413 consultations were performed, average of 75 patients/day. Patients were classified into levels according to the criticality methodology, with 5 being the maximum level. The most prevalent levels were 1 and 3. According to the special unit study, the number of visits or their pathology are not taken into account but the weekdays, weekly working hours and the patient safety index. For care in this period, 07 nurses were available with 36 hours of work per week. According to both methodologies, the ideal number of nurses for 21,413 attendances is 10 nurses. We can observe that the criticality methodology, being specific for oncology and categorizing the patient by levels, favors a more personalized care and directed to the demands of each patient, according to their performance status and the moment of the disease. The special unit methodology, on the other hand, does not take into account the specificity of the disease and the particularities of cancer patient care. Cancer patients have different levels of criticality that must be assessed before daily scale division occurs. This assessment provides a better distribution of workload for nurses. With this action there is the possibility of the correct use of the skills and competencies of each professional to perform their duties, thereby minimizing the workload, once this division is performed according to the best proposed methodology.

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QUALITY OF LIFE CONCERNS FOR YOUNG-ONSET COLORECTAL CANCER SURVIVORS WITH OSTOMIES

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Colorectal cancer (CRC) is the third most commonly diagnosed cancer in the United States and the second leading cause of cancer deaths in both men and women. The recent rise of young-onset (YO) CRC (20–49) has continued for the past couple of decades and is an emerging public health issue. We and others have shown that these patients are diagnosed at advanced stages of the disease and are subjected to aggressive

treatments including the loss of normal bowel function and the placement of a stoma. The purpose of this study is to better understand the unique challenges of YO-CRC patients who had an ostomy placed following surgery. We launched a cross-sectional study conducted in the form of an online survey based on established instruments including PROMIS, EORTC-QOL-30, and EORTC-CR-29. The survey was completed by patients and survivors (N=884) of which 365 experiencing an ostomy (permanent/temporary ileostomy or colostomy) placement surgery. Despite nearly every respondent with an ostomy indicating having access to an ostomy nurse, a significant number reported interference in various aspects of their survivorship and quality of life. Respondents with ostomies were more likely to report taking a leave of absence, quitting their jobs, or leaving school. Nearly half (47%) reported that their ostomy greatly interfered with their ability to be intimate. For example, people with ostomies were 23% more likely to report 'severe' or 'moderate' levels of sexual dysfunction than those without ostomies and were 20% more likely to worry that they are not "enough" for a significant partner. Respondents also reported that ostomies interfered with social activities and recreational/sports activities. Having an ostomy was also significantly linked with experiencing panic and anxiety, being emotionally exhausted, and wanting help for depression. Taken together, our survey shows that YO-CRC patients with ostomies are vulnerable to interference in daily activities including employment, socializing, and sexual function and have elevated psychosocial distress. Further research should investigate the extent to which these findings impact life-long developmental goals and tasks in young adults. Findings from this study suggest that psychosocial and quality of life resources and support may be useful to the care of people facing YO-CRC and ostomies.

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USE OF FOCUS GROUPS TO EXPLORE THE FEASIBILITY AND USABILITY OF AN ONCOLOGY DISEASE-SPECIFIC DIGITAL EDUCATION PLATFORM

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Working together, advocacy groups and members of the Academy of Oncology Nurse & Patient Navigators (AONN+) established the Cancer Advocacy & Patient Education (CAPE) initiative; a web-based education library stemming from diagnostics through end of life. CAPE was developed via a comprehensive search of the published literature in the past 10 years, and, using the PRISMA model, common areas of need/concern for patients with lung cancer were identified. From the analysis, 7 modules for the integrative education program were designed with current best practice resources and tools. The feasibility and usability of a disease-specific digital education platform and the challenges faced when implementing such a program are unknown. Focus groups were employed to inform the program developers on the practicality and functionality of the initiative, prior to deployment, of a digital education platform designed and developed to mitigate experienced patient and caregiver distress during the lag time between diagnostic workup to initiation of cancer-directed treatment. An open-discussion script addressed education, communication, and shared decision-making to make the time between diagnosis and treatment as productive and meaningful as possible in meeting patients' educational, psychosocial, and spiritual needs. Attendees to national conferences were invited to participate in one of two 90-minute focus group sessions. Fourteen participants, defined as navigators, administrators, and advocates, joined the program. Participants, representing rural and urban facilities as well as academic and community programs, were predominantly nurses (71%), with 57% having navigation backgrounds. Administrators comprised 21% and the remaining 22% had clinical research, advocacy, or educational backgrounds. Discussions were recorded and transcribed verbatim by a third party. The following themes emerged upon transcription of the scripts from these sessions: (1) improved communication between patient and healthcare team observed, (2) enhanced shared decision-making appreciated, (3) platform is easy to navigate, and (4) educational material must consider health literacy. According to participants, the ability to deliver evidence-based educational material through e-prescription requires customization of initial e-mail and must be HIPAA compliant. The focus groups provided significant insight into key modifiable variables to enhance the platform prior to go-live. Findings are supportive of integrative digital educational prescription in providing personalized education to patients with lung cancer during the time from diagnosis to initiation of treatment.

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EFFICACY OF AN ELECTRONIC SURVEY TO ESTABLISH RECONNECTION, ASSESSMENT OF CLINICAL COMPLIANCE, AND PROVISION OF RESOURCES FOR AN EXTENSIVE COHORT OF HEREDITARY CANCER PATIENTS

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The National Comprehensive Cancer Network® (NCCN®) has published cancer risk management guidelines for mutation-positive patients and for cancer survivorship. Compliance with screening and/or prophylactic surgical intervention is known to reduce cancer incidence. Ongoing patient follow-up through oncology patient navigation is essential and has been shown to increase patient compliance and uptake of cancer survivorship. The UT Southwestern Cancer Genetics program implemented a genetic patient navigator (GPN) to assess patients' barriers to care, assist patients in identifying resources to increase compliance, promote healthy lifestyle education, and assist with coordination of cascade testing for at-risk relatives. Making individual patient contacts, however, required greater time than initially anticipated, thus leading to a smaller volume of patients contacted than expected. An electronic survey was developed as an alternative method to maximize reach, and to analyze various metrics associated with this alternate tool to determine effectiveness. The intent of this study was to assess the feasibility of using an electronic HIPPA- compliant patient questionnaire to evaluate self-reported patient compliance and barriers to care with hereditary predisposition management guidelines. A survey was emailed in October 2019 to 784 mutation-positive patients for whom email addresses were available; completed surveys were linked with a unique ID for each patient. Information attached to the survey included: Up-to-date hereditary predisposition management guidelines, healthy lifestyle resources, local survivorship program information, cascade testing, as well as GPN contact information. Three attempts to (once every two weeks) were made via electronic mail. Of 784 surveys sent, 4.6% (36) were returned due to an invalid email address. Of the remaining 748, 30.2% (226) questionnaires were completed. 33.6% (76 patients) who completed questionnaires requested assistance with 136 genetic patient navigation services. An additional 4.3% (32) surveys were partially completed or accessed only. Ongoing work is in process to assess compliance and activate GPN patient assistance. Utilization of this innovative electronic initiative was successful in reaching a large number of our targeted population. The survey allowed for more efficient identification of patient compliance and needs, providing resources, and is allowing the GPN to focus her services in a more productive manner.

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DOES CRYOTHERAPY FOR ALOPECIA PREVENTION INTENSIFY PERIPHERAL NEUROPATHY IN PATIENTS WHO RECEIVE FOLFIRINOX TREATMENT?

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The first line of chemotherapy for colorectal metastatic disease in patients with a good performance status is the protocol Folfirinox. Among the side effects that it causes, two deserve highlights: alopecia and peripheral neuropathy. Due the impact that the hair loss might cause on the patient' social life, the cryotherapy is indicated to reduce the Irinotecan alopecia effects. Because of the known peripheral neuropathy caused by the Oxaliplatin, a different order of administration is necessary to the association of this protocol and the cryotherapy become a possibility. This study aims to evaluate if cryotherapy intensifies the peripheral neuropathy caused by the Folfirinox treatment. Retrospective study performed in the period of one year, with all the patients who received the Folfirinox protocol in an oncology center. The sample comprehended 28 patients divided in two groups, the first associated the cryotherapy to the antineoplastic treatment and the second didn't associate. Records from the medical charts were collected, regard the alopecia and the neuropathy minimum and maximum degree according to the CTC 4.0 that patients presented in the period of the study. Data was analyzed through percentage of incidence and statistical analyzes 2-way Anova and Unpaired T test. In the first group, 20% presented G0 alopecia and 80% presented G1. About the neuropathy, 16,7% presented G0, 50% presented G1 and 33,3% started to present

the symptom with G1 and concluded the treatment with G2. In the second group, 19% presented G0 alopecia, 42,9% presented G1, and 38,1% presented G2. About the neuropathy, 9,5% presented G0, 57,1% presented G1, 23,8% started to present the symptom with G1 and concluded the treatment with G2, and 9,5% presented G2. The statistical analyzes comparing the symptoms among the groups didn't demonstrated a $p < 0,05$, which demonstrate that the neuropathy wasn't intensified in the group who associated cryotherapy to the antineoplastic treatment Folfirinox. Now a day, the cryotherapy is already part of NCCN guidelines for other oncology diagnoses, but for the treatments that require Oxaliplatin, the companies that provides such equipment don't indicate the association. With these results, centers get instigated to develop more studies and in the future, get these recommendations changed.

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EFFECTIVE COMMUNICATION PROVIDES IMPROVED PATIENT CARE AND STAFF SATISFACTION

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Effective communication within a multi-disciplinary outpatient breast cancer clinic is vital when achieving efficient patient-centered care, while also improving staff satisfaction. Recent charting system changes caused delays in patient care, due to duplicate or broken communication processes. This also resulted in patient care coordination (PCC) delays and staff dissatisfaction. The need for a universal communication method was established and distributed to clinic staff in order to provide a more efficient way of communicating PCC needs. Thus, easing confusion or duplication in PCC requests such as chemotherapy infusions, procedures, lab appointments, or radiology imaging needs. An open group discussion was held with all clinic staff members including providers, nurses, medical, radiology, and scheduling staff. Staff members identified key opportunities of improvement within the clinic. Of the topics discussed, effective and universal communication was deemed as a primary focus due to the crucial impact it has on both patients as well as staff members. Multiple communication requests would be received for the same patient need; however, these requests were not being captured within the patient's chart due to the way in which the PCC request was generated as a staff message. The utilization of staff messages for PCC requests was causing duplicative work for all members of the patient care team. Staff messages are not captured within the patient's chart, as they are only viewable to the intended recipient(s). This resulted in delays of patient appointments and healthcare needs, thus imposing an avoidable strain or stress on our patients. In order to educate staff on a more appropriate form of communication, a presentation was created to outline how to initiate a staff message and make it into a universal communication encounter within the patient's chart. This involved educating staff via PowerPoint presentation on the importance and benefits of this communication process. Staff was receptive and eager to adapt to a new and efficient way of ensuring PCC needs. Staff found the presentation easy to understand and implement into their daily activities. Patients verbally reported ease in appointments and improved satisfaction in callbacks to secure needed appointments. Observation and implementation is still ongoing at this time, but all staff is expressing improvement in navigating PCC requests and thus improving staff satisfaction as well as providing efficient, patient-centered care.

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USING THERAPY DOG VISITS TO IMPROVE MOOD OF HOSPITALIZED ADULT ONCOLOGY PATIENTS: A UNIT-BASED TRIAL

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A cancer diagnosis undoubtedly turns a patient and family's worlds upside down; subsequent hospitalizations for treatments and supportive care contribute to interruption of normal life. On our medical oncology unit in a comprehensive cancer center, patients can be hospitalized for prolonged periods, often with several stays per year. Regardless of the length of hospitalization, patients frequently experience varying degrees of emotional distress related to missing the comforts of home including beloved pets, especially when stays are extensive and/or require confinement to unit. Traditionally on oncology units such as ours, strict infection control policies are in place. Although reviewed yearly, policies involving visitation of therapy animals remains based on dated information and attitude of "this is how it has always been". Current policy at our center prohibits certified therapy dogs from visiting inpatient units, which arguably are where patients who would benefit most are located. The ultimate goal of this project is allowing certified therapy dogs on inpatient units to provide alternative

yet meaningful emotional support to patients and decrease self-reports of anxiety. We reviewed our current institute policy and conducted a literature review to compile evidence for a unit-based trial. Conducting this trial requires involvement of several departments including volunteer services, infection prevention, security, medicine doctors and oncologists. Patients on the 18 bed unit will be screened for appropriateness of participation upon admission with exclusion criteria including neutropenia, allergies, phobias, violent outbursts, open wounds, double room with one patient not qualifying, recent transplant, and general disinterest. Qualifying patients will be given a questionnaire before and after canine visits allowing them to subjectively rate their mood and provide any feedback. Certified therapy dogs will visit patients in their rooms on three designated afternoons per week for a maximum of 15 minutes at a time. Between patients, dogs will be wiped down with veterinarian approved disinfecting cloths to minimize infection transmission. The desired outcome of this trial is an increase in patient self-perceived mood and decrease in patient self-reported anxiety during hospitalization as a result of therapy dog visit; should this occur, we hope to change the current institute policy to allow certified therapy dog visits on inpatient units and in patient rooms throughout the hospital.

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PROVIDING RN EDUCATION TO IMPROVE DISTRESS SCREENING AND INCREASE SOCIAL WORK SUPPORT FOR ONCOLOGY INFUSION PATIENTS

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Distress screening of oncology patients is recommended in order to identify and support patients at risk for emotional, social, or physical stressors which potentially limits access to or compliance with cancer care. Beginning in 2015 the Commission on Cancer added systematic psychosocial distress screening to its required standards to maintain accreditation. However, implementation and maintenance of distress screening programs by institutions has proven challenging. While the White Plains Hospital Cancer Center has been working on the Commission on Cancer mandate since 2017, staff compliance and social work referrals have been less than robust. In order to address this, a performance improvement plan was developed to increase distress screening, within the infusion center, by providing nurses with directed education, thereby increasing the proportion of patients who receive social work support. Baseline statistics within were compiled throughout May of 2019 showing a 65% compliance rate for distress screening and 31% of infusion center patients having received social work support. Interdisciplinary meetings occurred during June and July in order to plan for improvements to the current system. An educational initiative was developed and presented to all of the nurses, within the infusion center, during August of 2019. Identification and evaluation of unique patients treated with chemo or bio therapy, in the infusion center, was completed for September, October, and November of 2019. Individual chart audits were completed for each patient visit to assess for distress screening compliance and social work contact. Post implementation, significant progress with distress screening ensued within the infusion center. This occurred during a period of unprecedented growth in patient volume. The percentage of patients with a completed distress screening had improved from 65% in May (baseline) to 84% in November. As a result social work contact increased from 31% to 38%, of the infusion center's chemo/bio patients, during the same time frame. Cancer patients undergoing chemo or bio therapy are at risk of increased stress which can negatively impact both emotional and physical health. Providing targeted education to nurses, primary stakeholders in the distress screening process, improved compliance with screening and subsequently increased the percentage of patients receiving valuable social work support.

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GASTROINTESTINAL SYMPTOMS ARE ASSOCIATED WITH CHEMOTHERAPY-INDUCED NAUSEA IN PATIENTS WITH BREAST CANCER

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Despite administration of evidence-based antiemetic regimens, breast cancer patients continue to experience unrelieved chemotherapy-induced nausea (CIN). Limited information is available on the relationships between CIN and other gastrointestinal (GI) symptoms reported by patients with breast cancer. An examination of these relationships may provide insights into potential therapeutic targets. Study purposes were to:

determine the occurrence of nausea in patients with breast cancer in the week prior to their second or third cycle of chemotherapy (CTX); evaluate for differences in the occurrence of common gastrointestinal symptoms between patients who did and did not report nausea; and determine which demographic, clinical and GI symptom characteristics are associated with nausea group membership. A total of 532 patients with breast cancer were enrolled in the study. Patients completed questionnaires that provided information on demographic, clinical, and GI symptom characteristics. Patients indicated the occurrence of nausea and other common GI symptoms using the Memorial Symptom Assessment Scale (MSAS). Univariate analyses evaluated for differences in demographic and clinical characteristics and GI symptom occurrence between patients who did and did not report nausea. Multiple logistic regression analysis evaluated for characteristics associated with CIN. Of the 532 patients with breast cancer, 47.2% reported the occurrence of nausea in the week prior to their second or third cycle of CTX. Demographic and clinical characteristics associated with CIN group membership were poorer functional status and receipt of CTX on a 14-day cycle. In terms of GI symptoms, higher occurrence rates of dry mouth, vomiting, constipation, change in the way food tastes, and lack of appetite were associated with CIN group membership (all p<.001) These findings suggest that unrelieved nausea is a common symptom in patients with breast cancer in the week prior to their second or third cycle of CTX. In addition, this analysis is the first to demonstrate that other GI symptoms associated with GI inflammation and alterations in the microbiome-gut-brain axis are associated with the occurrence of CIN. Oncology nurses need to assess for nausea, as well as for co-occurring GI symptoms in breast cancer patients undergoing CTX. In addition, patients who receive CTX on a 14-day warrant additional assessments to evaluate the efficacy of their anti-emetic regimen.

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DECREASING BREAST CANCER PATIENT ANXIETY USING A MODERN EDUCATIONAL VIDEO

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Patients with a diagnosis of breast cancer have increased anxiety and depression with many questions about medications, side effects of those medications and how to manage those side effects at home. It has been proposed that chemotherapy education is most effective at reducing anxiety. Short, accessible videos can increase education compliance in patients. Access to these customized videos addresses different learning styles and health literacy needs while improving symptom management of chemotherapy. The study evaluates the effectiveness of videos and a nurse led "chemotherapy class" in educating newly diagnosed breast cancer patients requiring chemotherapy. Patients saw the instructional video during chemotherapy class regarding the first day of chemotherapy and how to prepare. They were sent the link to the video to watch as needed. Topics covered included addressing symptom control and contact information for clinic staff. Utilizing the valid and reliable instruments of FACT-B for evaluation of function and satisfaction with health. The PROMIS 7 survey examines anxiety and knowledge questions were created by the nurses. These were assessed prior to starting chemotherapy, 2 weeks later, at the end of treatment and 3 months post-treatment via an electronic survey. This IRB approved descriptive study involved a pre-post test, which compares repeated measures of anxiety, physical and psychological function and knowledge over time. Interim analysis of 23 subjects showed that the PROMIS 7 anxiety scores decreased significantly by the end of treatment (p=0.016). FACT-B assessment indicated that physical and functional well being declined significantly by the end of treatment (p=0.021 and p=0.001, respectively) while FACT-B social well being scores remained unchanged and emotional well being scores increased significantly (p=0.008). The increase in emotional well being was accompanied by a statistically significant increase in patient knowledge of chemotherapy and symptom management throughout treatment (p=0.001). The chemotherapy class and accompanying instructional video successfully decreased anxiety and increased knowledge of symptom management. While physical and functional well being declined as expected, emotional well being and knowledge increased as a result pre-chemotherapy education. While not everyone may be able to attend a weekly chemotherapy class, I propose adding this video with breast cancer and location specific information to the facility's web site to make this education accessible to all breast cancer patients.

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A PILOT STUDY TO EVALUATE THE EFFECTS OF EXERCISE ON CANCER-RELATED FATIGUE AND QUALITY OF LIFE IN HIGH

GRADE GLIOMA PATIENTS UNDERGOING TREATMENT

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Cancer-related fatigue (CRF) is a challenging symptom among patients often contributing to emotional and cognitive distress, compromising quality of life (QOL), and hindering physical activity. National guidelines recommend regular exercise to minimize CRF symptoms however this is not consistently being incorporated as part of cancer treatment regimens. This ongoing pilot study aims to assess the impact of regular exercise among patients with high grade glioma on CRF and QOL. High grade glioma patients undergoing chemotherapy and/or radiation are randomized to: 1) Usual Care (UC), 2) Exercise, or 3) Education Alone. Exercise consists of 1 in-person class/week plus written material while Education Alone consists of only written material. CRF is assessed using a Visual analog fatigue score (VAFS) rated on a 0–10 scale and CRF and global QOL are assessed using the 30-item European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC-QLQ30) at weeks 0, 3, and 10, respectively, for all groups. Data have been analyzed using descriptive statistics and percent change pre-post 10 weeks. Among the 16 participants enrolled to date, the majority are Caucasian 63%, male 56%, aged 62 ±16.56 and randomized to: UC (n=10), Exercise (n=5), and Education Alone (n=1). With respect to CRF, UC had a +25.6% change in VAFS (3.9 ± 2.2 vs 4.9 ± 2.9) and +35.3% change in EORTC-QLQ30 fatigue (FA) (43.1 ± 18.3 vs 58.3 ± 30.7), whereas Exercise had a –25.0% change in VAFS (2.0 ± 0.8 vs 1.5 ± 1.3) and a –20.1% change in EORTC-QLQ30 FA (27.8 ± 6.4 vs. 22.2 ± 12.8). In terms of global QOL, UC had a –16.5% change (69.8 ± 18.9 vs 58.3 ± 20.4) whereas Exercise had a +2.7% change (79.2 ± 8.3 vs 81.3 ±17.2). These preliminary findings suggest that regular exercise decreases CRF and improves QOL among this population of cancer patients. Nurses are in a key position to promote regular exercise as a non-pharmaceutical intervention to minimize CRF and improve QOL. Further research is needed with a larger sample size to generalize our preliminary findings.

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EDUCATIONAL NEEDS AND PREFERENCES OF PATIENTS WITH CANCER AND OTHER CHRONIC ILLNESSES AND THEIR FAMILY CAREGIVERS

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Patients with serious chronic illnesses and their caregivers may encounter numerous barriers to receiving reliable and appropriate information to manage their illness. The purpose of this study was to assess the unmet educational needs of patients with chronic illnesses and their family caregivers. Surveys containing a combination of quantitative and qualitative items were sent to persons with cancer and other chronic illnesses. A survey for family caregivers was included in each mailing. Survey results were analyzed through the use of descriptive statistics and content analysis. Surveys were returned by 86 patients and 50 caregivers (median age 70 and 72, respectively). The majority (75%) of patients had a cancer diagnosis; the majority of caregivers were spouses. Patients were interested in learning about coping with their medical condition (57%), making decisions about treatment (57%), controlling symptoms (55.8%) and maximizing physical function (51.2%). Caregivers were most interested in learning about helping to manage symptoms (74.0%), helping their loved one cope with their illness (58.0%), helping their loved one make treatment decisions (54.0%), and coping with being a caregiver (52%). Patients felt overwhelmed with taking care of themselves (19.8%) and caregivers felt overwhelmed with caregiving responsibilities (24%). Preferences for educational delivery methods were diverse. Free text responses mirrored these findings. Both patients and caregivers gave examples showing difficulty scheduling and navigating appointments and follow-up care. They described reliance on the patient portal to monitor symptoms but reported great frustration due to difficulty understanding the medical terminology used. There were a variety of unmet needs for information and education that can be addressed. Patient portals give patients access to their health information but they have trouble understanding the language and how the results pertain to their situation. Knowing when to call or visit the provider and what symptoms are 'normal' is an important self-management need. Tailoring interventions according to unmet needs

of family caregivers and individuals with chronic conditions have shown promise in various disease contexts such as dementia. However, unmet needs assessments of family caregivers remain rare when compared analyses of caregiver stress and well-being. Linking unmet needs to key outcomes and intervention development will advance the state of the science of effective, chronic disease care.

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SURVIVORS' PREFERENCES OF PATIENT REPORTED OUTCOMES SYMPTOM MEASUREMENT

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Systematically monitoring symptoms using patient-reported outcomes (PROs) measures during cancer survivorship can improve quality of life, treatment adherence, and overall survival and can decrease resource utilization. Nurses are at the front-line for administering and collecting PRO data from cancer survivors. Little is known about survivor willingness to complete PRO measures and about patient preferences as to completion location, administration method, frequency, and desired response from providers. The purpose of this study is to determine patient willingness and preferences around symptom assessment completion. An investigator-developed questionnaire about preferences for responding to PRO symptom measures was completed by 36 participants during a survivorship follow-up visit. Data were analyzed descriptively. Mean participant age was 62.1 years (standard deviation = 11.2); 50.0% of participants were female, and 83.3% white. Cancer diagnoses included breast (33.3%), thyroid (33.3%), genitourinary (23.3%), and leukemia (10.0%) Participants had a history of cancer treatment with chemotherapy (33.3%), radiation therapy (46.7%), and surgery (83.3%). The preferred location to complete PRO symptom measures was at home before a clinic visit (73.3%). The preferred method of completion was electronically on a home computer (53.3%), paper and pencil (33.3%), or on a phone at home (13.3%). Participants preferred to complete only one PRO measure per clinic visit (76.7%). When reporting high symptom severity, participants preferred a provider to response by phoning them immediately (63.3%). Survivor preferences regarding location, method of administration, frequency of administration and desired response from providers should be considered in planning symptom monitoring using PRO measures as part of survivorship clinical care.

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CHINESE NURSING STUDENTS' EXPERIENCES AND CONCERNS ABOUT PALLIATIVE CARE: A MIXED-METHOD STUDY

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Palliative care is urgently needed in China to respond to the needs of the aging population. However, nursing students are uncomfortable caring for terminally ill patients, which might lower the quality of care and deter them from pursuing careers in palliative care. The project's objectives were to learn about nursing students' experiences and concerns about palliative care. An online cross-sectional questionnaire survey was used and semi-structured individual interviews were conducted on two samples. The settings were online and in five primary hospitals in HuNan Province, China. Two samples of nursing students were included: 370 survey respondents and 15 interviewees. Questionnaires collected personal information, experiences in palliative care, and concerns about palliative care (Chinese version of Physicians' End-of-life Care Attitude Scale). Personal (13 items) and professional concerns (18 items) were separately analyzed using descriptive statistics, t-tests and ANOVA. Individual interviews lasted about 50–90 minutes and were analyzed following Colaizzi's method. In quantitative part, Nursing students' mean age was 19–21 years. About 38% were unsure about a nursing career, but about 60% liked nursing. About 69% had experienced patient death and about 9% reported experience with dead bodies. Almost all (99%) respondents were unsure what palliative care means, although 46% had coursework on it. Personal concerns mean was 62.37 (13–78), professional concerns mean was 47.48 (18–108) and total mean was 109.84 (31–186). Concerns varied by age, place of birth, commitment to nursing and previous knowledge. Four themes emerged through interviewing: emotions, growth, challenges and gaps in palliative

care training. The interviewees reported uncomfortable emotions, lack of preparation and lack of clarity about their role, but they indicated personal and professional growth. Participants' concerns centered on negative emotional responses and challenges delivering appropriate care. However, palliative care was an opportunity for personal and professional growth and serious gaps in nursing education for palliative care were pointed out. Mixed-method was used to know nursing students' concerns about palliative care objectively and understand their experience using their first person accounts, which can provide palliative care information of student nurses for educators.