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PODIUM SESSIONS

Podium Session 1: Physiological Research

AA

A COMPARISON OF THE CYCLIC VARIATION IN SERUM LEVELS OF CA125 ACROSS THE MENSTRUAL CYCLE USING TWO COMMERCIAL ASSAYS. M.R. McLemore, Physiologic Nursing, University of California, San Francisco; B.E. Aouizerat, Physiologic Nursing, University of California, San Francisco; M. Tozzi, Physiologic Nursing, University of California, San Francisco; C. Miaskowski, Physiologic Nursing, University of California, San Francisco; K.A. Lee, Family Health Care Nursing, University of California, San Francisco; L. Chen, Department of Obstetrics, Gynecology, and Reproductive Sciences, University of California, San Francisco; B. Cooper, Dean's Office, University of California, San Francisco

This study is the first to control for factors known to contribute to CA125 elevations; to quantify a decrease in CA125 levels across the menstrual cycle; and to confirm concordance in the relative decreases in serum CA125 levels across the menstrual cycle between two frequently used commercial assays.

CA125, a tumor-associated antigen, is used to monitor epithelial ovarian cancer. However, CA125 lacks the sensitivity and specificity necessary for population-based screening in healthy women. The purpose of this study was to determine in a sample of healthy, premenopausal women, if the serum concentrations of CA125 differ across the three phases of the menstrual cycle using two commercially available assays for CA125 determination.

This study used an adapted version of the Hanahan and Weinberg framework which describes the rules of tumor cell development and their application to biomarkers. Briefly, this framework presents the rules and conditions necessary for normal cells to become malignant cells. The adaption of the framework examines the potential changes to biomarkers during these malignant transformations.

Healthy, Caucasian women between the ages of 18 and 39 were enrolled using strict criteria to exclude factors known to contribute to CA125 fluctuations. Menstrual cycle regularity was determined using calendars maintained by participants for 3 months. After cycle regularity was established, blood was drawn at 3 time points for CA125 determination using two commercial assays (i.e., Seimens, Panomics).

Regardless of the assay used, CA125 values were highest during menses. CA125 values decreased 0.2 U/ml per day from menses to the end of the same cycle, which resulted in a net decrease of 5.8 U/ml across the cycle. The two commercial assays for CA125 determination demonstrated good concordance in terms of reference ranges regardless of epitope differences. While CA125 levels changed over the course of the menstrual cycle, these changes may not be clinically significant in healthy women.

AB

ASSESSING AGREEMENT BETWEEN SALIVARY ALPHA AMYLASE LEVELS COLLECTED BY PASSIVE DROOL AND ELUTED FILTER PAPER IN ADOLESCENTS WITH CANCER. S. Ameringer, Virginia Commonwealth University, Richmond, VA; C. Munro, Virginia Commonwealth University, Richmond, VA; and R.K. Elswick, Virginia Commonwealth University, Richmond, VA

As part of a larger study examining the symptom experience in adolescents with cancer, we aimed to assess agreement between sAA levels collected by eluted FP and PD.

Cancer-related symptoms in adolescents can be intensified by psychological stress; therefore stress is critical to address in symptom management. A multidimensional measurement approach is suggested, including biological and behavioral measures. Recently, salivary alpha amylase (sAA) has been used as a surrogate biological marker of the sympathetic nervous system's response to psychological stress. Passive drool (PD) is the gold standard for salivary collection but is not always possible to obtain and expectorating is not desirable to most. Filter paper (FP) has been used but its accuracy at measuring sAA has not been validated.

Nine adolescent, 13–18 years, completed measures at 4 points: days 1 and 2 of chemotherapy, day 7, and day 1 of the next cycle. The FP was placed in the mouth until saturated, approximately 20 seconds. For PD, participants were asked to briefly refrain from swallowing and then expectorate into a sterile cup. Samples were assayed using a commercially available kinetic assay (Salimetrics, Catalog No. 1-1902). Thirty-three sAA samples were obtained. The values for PD saliva samples (10.5–325.4 U/ml) were within

the expected adult range of 3.1–423.1 U/mL. However, the values obtained in FP samples were significantly lower (0.5–24.4 U/ml, $p < 0.0001$). In an attempt to rescale FP to the levels of the PD samples, we computed a random effects regression using the FP to predict the PD. The regression showed a good fit (R2 = 0.83). Using the predicted values from the regression model, we used a Bland-Altman analysis to determine if the predicted values could be used in place of the PD sample. The analysis showed that the predicted values may range as much as 100 U/ml above or below the PD samples.

Agreement between FP and PD was not satisfactory—FP values were not replaceable for PD values.

Based on these finding, eluted FP may not be an appropriate method for collecting and measuring salivary alpha amylase.

AC

ALTERATIONS IN INTERLEUKIN 1β IN NEURO-ONCOLOGY FAMILY CAREGIVERS OVER TIME.

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In dementia, family caregivers have demonstrated altered immune function resulting from the stress of providing care and altered cytokine levels have been linked to physical disability.

Few studies have attempted to study changes in immune function in oncology family caregivers. The aims of this analysis, in caregivers of persons with a primary malignant brain tumor (PMBT), were to identify changes in interleukin (IL) 1β across the care trajectory.

This study was based on the Adopted Pittsburgh Mind Body Center Model.

From a descriptive, longitudinal study (R01CA117811), plasma samples were collected from 94 family caregivers recruited within a month of the care recipient's diagnosis. Samples from baseline, 4, 8, 12 and 18 months were batch-analyzed using high sensitivity ELISA. Trajectory analysis was used to discern groups with potentially different patterns in IL-1β response and chi-square tests, analysis of variance, kruskal-wallis and pairwise comparison tests were used to explore differences between groups.

Most caregivers were female (n = 67, 73.6%), middle-aged ($\bar{X}$ = 52, SD = 11.6), and caring for someone with a glioblastoma (n = 52, 60.5%). Trajectory analysis of log-transformed IL-1β levels revealed caregivers fell into one of three groups. The first group (20%) displayed low levels of log-transformed IL-1β at diagnosis, (baseline $\bar{X}$ = 5.09; SD = 0.274), the second (58%) displayed moderate levels ($\bar{X}$ = 5.7; SD = 0.248), and the third (22%) displayed high levels of IL-1β ($\bar{X}$ = 6.39; SD = 0.553). Levels did not significantly vary in any group over the year following diagnosis. Compared to the low and moderate groups, the group displaying higher levels of IL-1β were significantly older ($p = 0.01$) and had fewer comorbid conditions ($p = 0.01$). Although results did not reach statistical significance, the group with high levels of IL-1β reported higher levels of anxiety and were more likely to be caring for someone with a glioblastoma compared to those with moderate levels of IL-1β. These data are among the first to investigate immune response in oncology caregivers and suggest that caregivers' immune response differs in groups over the course of the care recipient's disease. Further research will aim to identify predictors of group membership and investigate potential interactions between behavioral markers of distress, immune function, and overall health.

AD

A DESCRIPTIVE STUDY OF LOCAL MUCOSAL IMMUNE RESPONSES IN THE DEVELOPMENT OF CERVICAL CARCINOGENESIS AND APPLICATION TO NURSING PRACTICE.

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Studying the progression of cervical carcinogenesis can lead to development of innovative interventions to prevent it.

Multiple research studies have shown that cancer development is associated with suppressed systemic immune responses. In contrast, the purpose of our descriptive study was to investigate how local mucosal immune responses in the human uterine cervix are altered during cervical carcinogenesis.

A physiological framework was used for the development of the research methodology and explanation of findings. There was a focus on (1) cells that express immunosuppressive substance (IDO) and immunosuppressive cytokines (IL-10 and TGF-beta), and (2) immune cells that may be involved in immunosuppression (immature dendritic cells and regulatory T cells).

Cervical tissue from women in the following three stages of cervical disease: normal cervix, cervical intraepithelial neoplasia (CIN) and carcinoma were examined by the use of immunofluorescence and immunohistochemistry to determine expressions of immunosuppressive and cytotoxic factors. The results were analyzed and found to be statistically significant using generally accepted statistical measures.

The number of cells in the tissue that are immunosuppressive increases progressively from normal cervical tissue to CIN to cervical carcinoma. These include cells that express immunosuppressive substance (IDO) and immunosuppressive cytokines (IL-10 and TGF-beta). Immune cells that may be involved in immunosuppression (immature dendritic cells and regulatory T cells) are also increased. On the other hand, cells that express cytotoxic cytokine are elevated in CIN but reduced in carcinoma.

These findings indicate that local immune responses are markedly suppressed in cervical cancer. A finding unique to this study is that in CIN, local mucosal immune responses show both cytotoxic and immunosuppressive responses in the cervix. This may indicate that CIN is at the point of equilibrium for immune responses: when the balance is shifted toward the cytotoxic response, CIN may be reversed to normal. However when the balance is shifted toward immunosuppression, CIN may progress to cervical carcinoma.

Research in the area of psychoneuroendocrinoimmunology shows that immunity is suppressed due in part to continuous psychosocial and/or physiological stress, which may be associated with carcinogenesis. Anecdotal data of our study found that many women with CIN who came for surgical treatment stated that they had been heavily "stressed" at the time of diagnosis.

In current nursing practice, when patients come for CIN treatment, psychosocial or physiologic stress levels are not routinely assessed. These findings suggest that assessment of the stress levels in the patients with CIN is important and professional stress reduction treatment/therapies may improve the outcome, leading to prevention of cervical carcinoma.

AE

CSF PHOSPHOLIPIDS ARE ASSOCIATED WITH COGNITIVE AND FINE MOTOR ABILITIES IN CHILDREN WITH LEUKEMIA RECEIVING CNS TREATMENT.

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TX; and K. Krull, Epidemiology and Cancer Control, St. Jude Children's Research Hospital, Memphis, TN

Central nervous system (CNS) treatment for childhood acute lymphoblastic leukemia (ALL) has contributed to improved survival by preventing disease relapse in the brain, but has been associated with long-term declines in cognitive and fine motor abilities. Little is known about mechanisms of CNS injury that maybe associated with late effects of CNS treatment.

The purpose was to determine if cerebrospinal fluid (CSF) concentrations of membrane phospholipids were associated with cognitive and fine motor abilities among children with ALL.

The study used a biological framework of membrane injury and oxidative stress. Phospholipids are released from cell membranes by enzyme activation, and are a prime target for oxidative stress in brain tissue.

CSF samples were obtained at diagnosis (n = 72) and during CNS treatment with intrathecal methotrexate. Phospholipids were extracted, separated by high-performance liquid chromatography, and quantified with reference standards. Oxidized and unoxidized phospholipids were quantified at two UV wavelengths. Cognitive and motor abilities were assessed with a standardized battery of age referenced measures at baseline (as soon as the child was medically stable) and annually for 3 years. Pearson correlation was used to examine relationships among CSF phospholipid concentrations and cognitive abilities.

Sphingomyelin (predominant phospholipid in white matter) during the early phase of therapy was significantly and negatively correlated with fine motor skills at Year 1 and Year 2 ($r = -0.37$ to -0.61; $p < 0.05$), and with attention and processing speed at Year 2 and Year 3 ($r = -0.42$ to -0.52; $p < 0.05$). Percent oxidized phospholipids during the first year of therapy were significantly and negatively correlated with general intelligence, memory, non-verbal skills, and academic math abilities at Year 3 ($r = -0.38$ to -0.48; $p < 0.05$). White matter is important for motor and non-verbal cognitive abilities, and white matter change has been reported in neuro-imaging studies of children with ALL. White matter is particularly vulnerable to oxidative stress due to high lipid content. Findings suggest that measures of membrane injury and oxidative stress during early phases of treatment may be important biological markers for later cognitive and motor problems among children with ALL.

Podium Session 2: Cancer-Related Decision Making

AF

DECISIONAL CONFLICT FOR RECEIVING CHEMOTHERAPY IN PATIENTS WITH ADVANCED LUNG AND COLON CANCER. S.C. Lee, National Taipei College of Nursing, Taipei, Taiwan; Y. Chang, Memorial Hospital, Taipei, Taiwan; C. Lee, Memorial Hospital, Taipei, Taiwan; and Shin Kong Wu Ho-Su, Memorial Hospital, Taipei, Taiwan

The purpose of this study was to understand the risk factors for higher decisional conflict for the chemotherapy treatment decision-making

Chemotherapy is the common treatment choice for advanced cancer, though it may influence the quality of life. Deciding to receive chemotherapy is stressful. Cancer patients may be conflicted because of toxicity and benefit; and higher conflict may lead to a regretful decision.

It is important for oncology nurses to promote patients and their family's informed decision-making for cancer treatment. But, there is limited knowledge about the conflict phenomena and its related factors for cancer chemotherapy treatment decision-making. Thus, this study aimed to describe the decisional conflict and to determine its risk factors in a sample of Taiwanese patients with advanced lung and colon cancer.

Janis and Mann's Conflict Theory of Decisional Making was served as the framework.

This was a cross-sectional, retrospective study. A consecutive sample of 85 Taiwanese patients with advanced lung or colon cancer whose oncologists have recommended chemotherapy was recruited from a medical center in Taipei. Data were collected on a self-designed questionnaire for contextual data during decision-making process and Chinese versions of O'Connor's Decisional Conflict Scale and Decisional Regret Scale, which demonstrated Cronbach's α of 0.90 and 0.71. Risk factors of decisional conflict and regret were determined via stepwise methods for multiple linear regression.

A majority of sample was male (67.1%), married and with stage IV (52.9%), colon (50.6%), and high school or less education (81.3%). All subjects have a final decision to receive the chemotherapy. Close to 1/3 of them reported moderate or higher decisional conflict. No significant differences were found with age, cancer, education and resource utilization for decision-making. Risk factors for higher decisional conflict ($p < 0.001$)included lower levels of value clarification($\beta = -0.372$), lower informed($\beta = -0.299$) and lower oncologists' support($\beta = -0.45$). A majority of them agreed that they were satisfied without regret; but the higher regret after the chemotherapy was received was associated with the higher decisional conflict ($\beta = 0.476$, $p < 0.001$) during decision-making. Strategies are needed to facilitate these patients' value clarification, physician communication and promote them as fully informed chemotherapy decision-makers for advanced cancer.

AG

"DOING THE UNAVOIDABLE TO SAVE MY CHILD": PARENT'S PERCEPTIONS OF THEIR ROLE IN STEM CELL TRANSPLANT DECISION-MAKING. K.A. Stegenga, Hematology/Oncology, Children's Mercy Hospital, Kansas City, MO; R.D. Pentz, Research Ethics, Emory School of Medicine, Atlanta, GA; W. Pelletier, Hematology/Oncology/Transplant Department, Alberta Children's Hospital, Calgary, Alberta, Canada; M.A. Alderfer, The Cancer Center, Children's Hospital of Philadelphia, Philadelphia, PA; and P.S. Hinds, Department of Nursing Research and Quality Outcomes, Children's National Medical Center, Washington, DC

The use of stem cell transplant (SCT) as a treatment is increasing. Family participation in treatment decision-making is valued in healthcare. Yet little is known about the process by which parents decide to bring their child to this treatment.

The problem is parents of children with cancer do not view this "decision" in the same way that healthcare providers (HCP) do. The purpose of this work is to delineate their view of this process in order to gain increased understanding of their unique needs at this stressful time.

Grounded theory guided this study. The intent of the larger study was to develop a theory of family decision-making in SCT.

Eighteen families were interviewed longitudinally (pre and post SCT) to explore decision-making in this context. This presentation focuses specifically on parents. Data were analyzed using grounded theory methods including theoretical sampling, line by line coding and constant comparative analysis. Models were developed and verified with participating parents delineating their process of moving forward with SCT.

Parents do not perceive decision-making about SCT as a salient concept. Instead, they use language suggesting that they are "doing the unavoidable to save my child". While they would not classify moving forward with a SCT as a decision, they identify factors that influenced their willingness to proceed. These include: 1) accepting the doctor's recommendation; 2) concluding that this is my child's best/only option; and seeing only suffering from current treatment. They move forward because the alternative (further suffering and likely death) is unacceptable. The factors that assist parents in making this high risk step acceptable include 1) having a perfect match; 2) believing in a higher power; 3) receiving support; 4) feeling comfortable with treating hospital; 5) gathering confirming information; and 6) needing to know I did everything I could. Understanding this process from the parent's perspective can aid HCP understanding as well as future interventions with this population.

AH

DEVELOPMENT OF MULTIDISCIPLINARY SYMPTOM MANAGEMENT ALGORITHMS TO ENHANCE WEB-BASED CLINICAL DECISION SUPPORT IN AMBULATORY THORACIC ONCOLOGY. M.E. Cooley, Research in Nursing and Patient Care, Dana Farber Cancer Institute, Boston, MA; B. Halpenny, Research in Nursing and Patient Care, Dana Farber Cancer Institute, Boston, MA; T. Saunders, Research in Nursing and Patient Care, Dana Farber Cancer Institute, Boston, MA; D. Lobach, Community and Family Medicine/Medical Informatics, Duke University Medical Center, Durham, NC; G. DelFiol, Community and Family Medicine/Medical Informatics, Duke University Medical Center, Durham, NC; M.S. Rabin, Lowe Center for Thoracic Oncology, Dana Farber Cancer Institute, Boston, MA; P. Calarese, Lowe Center for Thoracic Oncology, Dana Farber Cancer Institute, Boston, MA; G. Wilkes, Nursing, Boston Medical Center, Boston, MA; K.S. Zaner, Center for Thoracic Oncology, Boston Medical Center, Boston, MA; and J.L. Abrahm, Pain and Palliative Care, Dana Farber Cancer Institute, Boston, MA

Adequate symptom management is essential to ensure quality cancer care. Although evidence-based guidelines for symptom management are available, these guidelines are underutilized in the delivery of care. A meta-analysis showed that use of computerized guidelines consistently produced positive patient outcomes as long as recommendations were part of clinician workflow at the time and location of decision making and recommendations included more than just assessments.

The purpose of this phase of the research was to develop and computerize web-based symptom management guidelines, in the form of algorithms, into a clinical decision support system (CDSS) that adheres to the features listed above.

Nominal group technique was used to guide group decision-making. This technique is a consensus-building process and is used when one deals with making judgmental decisions.

Expert panels developed algorithms for pain, dyspnea, fatigue, depression, and anxiety. Algorithms were then programmed into a web-based CDSS, known as SEBASTIAN. Correct programming of algorithms was tested and validated by automated unit and integration testing techniques and expert judgment.

Expert panels reviewed literature on the management of five common symptoms experienced by oncology patients. Each panel met 2 to 4 times to translate the literature into computable algorithms and then circulated the algorithm to all panels prior to a day-long workshop. During the workshop, algorithms for 3 of the 5 symptoms were approved pending changes decided during the workshop. Two algorithms were returned to their panels to resolve defined issues, and were subsequently approved by the panels. The approved algorithms represented consensus of 18 multidisciplinary clinicians on appropriate recommendations for the management of these symptoms. Recommendations generated from the algorithms included pharmacological and behavioral interventions that were tailored based on age, comorbidities, laboratory values, medications, and symptom severity. The algorithms were programmed into a web-based CDSS and programming of the algorithms and appropriateness of the recommendations were tested in a laboratory setting to ensure their safety. The next steps are to test the feasibility of using web-based CDSS to enhance symptom management in an ambulatory thoracic oncology setting.

AI

INFORMATION NEEDS AND DECISION MAKING PROCESSES OF MEN ON ACTIVE SURVEILLANCE. B.J. Davison, Nursing, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; and L. Goldenberg, Urologic Sciences, University of British Columbia, Vancouver, British Columbia, Canada

The dilemma of whether to treat low-risk prostate cancer (LRPC) is one of the most difficult decisions facing men, especially since there is growing evidence suggesting AS provides a means of reducing occurrence of treatment-related side effects.

AS is considered a reasonable treatment alternative for men with LRPC, yet less than 10% of men chose this approach. Anxiety related to non-intervention and clinical follow-up continue to have an influence on men choosing this treatment option. This study examined the decision making processes of men who agreed to AS, and information resources required to support and sustain them in their treatment decision.

An interpretative descriptive qualitative methodology was used to inductively identify items to include in the survey questionnaire used in this study.

Semi-structured interviews of 25 men diagnosed with LRPC explored the role they reported assuming with their physician in making a decision to go on AS, factors having an influence on the decision to go on AS, and resources required to support them while on AS. A three part survey questionnaire was developed and mailed to an additional cross-sectional sample of 110 men on AS for less than 10 years. Mainly descriptive statistics were used in the analysis.

A total of 73 men completed the survey questionnaire. The majority (68%) reported assuming either an active or collaborative role in treatment decision making with their urologist. Men reported being comfortable (82%) and satisfied (90%) with their decision to be on AS. Fifty-five percent reported low levels of anxiety about the cancer progressing while on AS. Three main factors having an influence on their treatment decision were urologist's opinion, current age, and impact of treatment on urinary function. Men wanted to access information on future treatment options, non-traditional treatments and eating a 'prostate friendly' diet.

Results suggest there is an opportunity for oncology nurses to develop a patient education program for men on AS. There is also a need to evaluate the impact of such a program on both uptake and continuance of AS.

Podium Session 3: Multiple Symptoms/Symptom Clusters

AJ

A SENTINEL SYMPTOM IN PATIENTS EXPERIENCING THE PAIN, FATIGUE, SLEEP DISTURBANCE SYMPTOM CLUSTER. C.H. Cherwin, School of Nursing, UW-Madison; K. Abbott-Anderson, School of Nursing, UW-Madison; R. Roiland, School of Nursing, UW-Madison; and K.L. Kwekkeboom, School of Nursing, UW-Madison

Investigators have suggested the idea of a "sentinel" symptom that is somehow central to the cluster, but little work has been done to define the construct or to identify sentinel symptoms. If such sentinel symptoms exist, they would be useful targets for symptom management and prevention efforts. The purpose of this work is to explore a possible sentinel symptom among patients experiencing the pain, fatigue, sleep disturbance symptom cluster.

Few symptom management models have addressed symptom clusters, and none have focused on sentinel symptoms. The current analysis is based on conceptualizations of sentinel symptoms as the most prevalent or problematic (severe) symptoms in the cluster.

Analyses were conducted using data from two trials of a cognitive-behavioral intervention for pain, fatigue, and sleep disturbance in patients receiving treatment for advanced lung, colorectal, prostate, or GYN cancer. Ninety-six patients who reported at least 2 of the 3 symptoms rated ≥ 3 (0-10 scale) in the past week agreed to participate and completed the MD Anderson Symptom Inventory as part of baseline assessments. Summary statistics regarding worst pain, fatigue, and sleep disturbance were calculated to identify the most prevalent and severe symptoms

across participants, by diagnosis, and by treatment modalities (chemotherapy, radiation therapy).

Fatigue was the most prevalent symptom, reported by 94 (98%) participants. Pain was reported by 82 (85%), and sleep disturbance by 85 (89%) participants. Fatigue was the most severe symptom ($\bar{X}$ = 5.64, SD = 2.43). Worst pain was mean = 3.7 (SD = 2.72) and worst sleep disturbance was mean = 4.43 (SD = 3.02). Fatigue was categorized as moderate-to-severe for 91 (95%) individuals, pain was moderate-to-severe for 35 (36%) and sleep disturbance was moderate-to-severe for 55 (57%). Similar findings were reported across nearly all cancer diagnoses and both treatment modalities. Fatigue was consistently the most prevalent and most severe symptom in the cluster. Findings suggest that fatigue may be a sentinel symptom in the pain, fatigue, sleep disturbance cluster. Other conceptualizations of sentinel symptoms and limitations of this work will be discussed.

AK

SYMPTOM CLUSTERS IN CHILDREN UNDERGOING CANCER CHEMOTHERAPY.

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Despite improvements in cancer survival, children with cancer continue to experience a multiple, concurrent symptoms associated with their disease and treatment.

An evaluation of symptom clusters is an emerging field of research in pediatric oncology. The purpose of this study was to evaluate the number and types of symptom clusters identified using symptom occurrence data in children and adolescents receiving myelosuppressive chemotherapy.

The Symptom Management Theory provided the theoretical framework for this study.

Patients (n=131), were predominantly male (57.3%), minority (63.4%), with a mean age of 14.8 (±2.5) years. The Memorial Symptom Assessment Scale for 10 to 18 year olds (MSAS 10-18), a symptom checklist with established validity and reliability, was used to evaluate the occurrence, frequency, severity, and distress of 31 symptoms. Data were collected at the start of a chemotherapy cycle with a one week recall period. The mean number of symptoms was 11.6 (± 5.6) and did not vary by age or gender. Twenty-six of 31 symptoms had occurrence rates of ≥ 25%. Following an exploratory factor analysis using symptom occurrence data, a latent variable analysis was done to further evaluate the model fit.

A three-factor solution provided the best fit between the data and the model (Chi-squared = 276.547, 250 df, p = 0.11, Comparative Fit Index = 0.958, Root Mean Square Error of Approximation = .028). All loadings for the three factors were significant and in the theoretically and clinically meaningful direction. The factors (i.e., "symptom clusters") identified were labeled as "Chemotherapy Sequelae", "Mood Disturbance", and "Neuropsychological Discomforts". This study is the first to identify symptom clusters in a relatively homogenous sample of children undergoing active treatment for their cancer. These data will be used to design intervention studies to decrease the specific symptom clusters. In addition, comparisons between symptom clusters experienced by pediatric and adult patients with cancer may provide insights into their underlying mechanisms.

AL

A COMPARISON OF SYMPTOM PROFILES AND QUALITY OF LIFE (QOL) OUTCOMES IN WOMEN WHO DID AND DID NOT RECEIVE CHEMOTHERAPY (CTX) PRIOR TO RADIATION THERAPY (RT) FOR BREAST CANCER.

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Breast cancer is the most common cancer diagnosis among women. While incidence has increased the last decades, mortality rates are relatively stable. Breast cancer and its treatment produce multiple symptoms that have negative effects on patients' functional status and QOL. Very few studies describe multiple symptoms in women who did and did not receive CTX prior to the initiation of RT for breast cancer.

The purposes of this study, in a sample of women who did and did not receive CTX, were to evaluate for differences in: the occurrence rates of symptoms, total number of symptoms, symptom severity scores, and in QOL prior to commencing RT.

The UCSF Symptom Management Theory served as the conceptual framework for this study.

This descriptive study recruited patients from a RT department. Baseline data (n = 188) were collected prior RT. Patients completed a demographic questionnaire and the Memorial Symptom Assessment Scale (MSAS) to assess the occurrence, severity and total numbers of symptoms, and the SF-12 to assess QOL. Data were analyzed using nonparametric statistics to evaluate for between group differences.

Of the 32 symptoms listed in the MSAS, 21 symptoms occurred in more than 20% of the total sample at baseline. The five most frequently occurring symptoms were 'lack of energy', 'worrying', 'difficulty sleeping', 'feeling drowsy', and 'sweats'. Patients who had CTX (n=86) reported a significantly higher number of symptoms than patients who did not receive CTX (n = 102). The difference remained significant after adjusting for demographic and clinical characteristics. In addition, patients who received CTX, reported significantly lower Physical Component Scores, but not Mental Component Score on the SF-12 compared to women who did not receive CTX. These data suggest that women with breast cancer, especially the ones that received CTX, have an enormous symptom burden at the beginning of RT. Symptoms need to be assessed in these women in order to provide effective symptom management.

AM

ALTERNATIVE ANALYTICAL DECISIONS FOR COMMON FACTOR ANALYSIS TO IDENTIFY SYMPTOM CLUSTERS.

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The purpose of this study was to propose guidelines for analytical decisions in common factor analysis (CFA) methods used for symptom cluster identification. In exploratory research, symptom clusters associated with cancer patients have been identified by alternative analytical approaches, but there is no optimal approach. We propose the common factor model is a theoretically appropriate method with potential to inform symptom management strategies, as it represents multiple interrelationships among symptoms and unobserved common factors/mechanisms that influence symptoms. From the many options available in statistical software for CFA, key decisions include: (1) determining the number of factors to retain, (2) the method of extraction, (3) the method of rotation, and (4) identification of variables associated with factors.

The strengths and weaknesses of the different CFA analytical options will be presented. A secondary analysis of 219 cancer outpatients with mixed diagnoses will be used to illustrate these key issues.

In this study, five symptom clusters were identified: musculoskeletal-discomforts/lethargy, oral-discomforts, gastrointestinal-discomforts, vasomotor-symptoms, and gastrointestinal toxicities. For symptom data, we propose principal axis factoring or unweighted least squares, oblique rotation, the scree plot, and Minimum Average Partial procedures. The implementation of alternative analytical decisions in CFA has implications for the symptom clusters identified. The potential of CFA for symptom management is to understand the complex relationships among symptoms that may lead to future investigation of pathological mechanisms. Guidelines for CFA are presented for researchers to consider appropriate analytical decisions.

Podium Session 4: Cancer Screening

AN

THE EFFECT OF "KOREAN IMMIGRANTS AND MAMMOGRAPHY: CULTURE-SPECIFIC HEALTH INTERVENTION" (KIM-CHI) FOR KOREAN-AMERICAN WOMEN. E. Lee, School of Nursing, University of California, Los Angeles; U. Menon, College of Nursing, Arizona State University, Phoenix, AZ; Y. Cho, Survey Research Lab, University of Illinois at Chicago; A.M. Miller, College of Nursing, Rush University, Chicago, IL; L. Fogg, College of Nursing, Rush University, Chicago, IL; F. Kvitz, School of Public Health, University of Illinois at Chicago; and H. Park, College of Nursing, University of Illinois at Chicago

The Korean Immigrants and Mammography: Culture-Specific Health Intervention (KIM-CHI) leverages cultural context in a couples' intervention to increase mammography use among Korean American (KA) women. The KIMCHI is unique in its focus on women in the context of their relationships with their husbands.

Breast cancer is the most frequent cancer in KA women, and the incidence rate continues to increase. However, mammography screening rates remain significantly low in KA women. Using an educational culture-specific DVD directed at KA couples, this project sought to increase mammogram use among KA women by changing their beliefs, knowledge, self-efficacy, and perceived support from their husbands.

The project is driven by the Health Belief Model supplemented by the Cultural Explanatory model.

A total of 404 KA women age 40 or older and non-adherent with mammography in the past year were recruited—along with their husbands—for a two-group, longitudinal cluster randomized study (200 couples in the intervention group and 204 couples in the attention control group). The intervention consisted of (1) showing a culture specific DVD at KA religious organizations to groups of women and their husbands separately; (2) holding a group discussion session immediately after the showing; and (3) requiring each couple to complete a discussion activity together related to the education they received. Statistical comparisons were made between these two groups in terms of their demographic characteristics and major study variables including health beliefs, knowledge, self-efficacy, and spousal support.

The mean age of the women was 53 years; mean years of education was 14.2 years; and mean years of marriage was 28.1 years. There was a significant increase in the proportion of women obtaining mammograms in the intervention group compared to the control group at 15 months post-baseline (50.5% VS. 38.5%, P<.001). The women in the intervention group reported significant improvement in perceived support from their husbands, perceived susceptibility to breast cancer, knowledge about breast cancer and screening, and perceived self-efficacy compared to the women in the control group. The findings indicate that the KIM-CHI program is effective in increasing mammography uptake in KA women. The DVD-based education was easy to implement and has high potential for community-wide dissemination.

AO

EXPLORING PATIENT NAVIGATION SOLUTIONS TO MAMMOGRAPHY SCREENING: THE NEED FOR SYSTEM CHANGES. B.H. Damron, Cancer Center, University of New Mexico, Albuquerque, NM; D. Helitzer, Family and Community Medicine, University of New Mexico, Albuquerque, NM; C. Iriart, Family and Community Medicine, University of New Mexico, Albuquerque, NM; G. Cardinali, Family and Community Medicine, University of New Mexico, Albuquerque, NM; and S. Newbill, Folkstone Consultants, Albuquerque, NM

Breast cancer mortality rates have decreased among non-Hispanic White women. In New Mexico, mortality has increased among Hispanic women, which is related to less frequent screening mammography and later stage diagnosis.

The aims of the study were: 1) to conduct an exploratory analysis of the barriers to mammography screening among Hispanic women and the experiences of providers, including Promotoras, in offering breast cancer screening to Hispanic women; 2) elicit recommendations for patient navigation (PN) to increase access to mammography services, 3) develop hypotheses about (PN) interventions to increase mammography utilization among Hispanic women.

Grounded theory was used to build theory about the effectiveness of PN solutions to increase mammography utilization in Hispanic women from data collected from health care providers, Promotoras, and Hispanic females.

Focus groups were conducted with: 1) eight clinicians and staff from community clinics, 2) Promotoras in five settings, and 3) nine focus groups with women. Qualitative analysis of the data was developed through the process of content analysis of the transcriptions. The structure was imported into NVivo 8, and was systematically coded and analyzed. During the process, explicit hypotheses were played against the coded data.

Eighteen recommendations to increase patient navigation, not previously identified in the literature, were provided by the participants. The primary navigation solution requires a system change. The following changes are the resulting testable theory that evolved from this study: (1) Every woman who goes for a chronic/acute visit gets a screening mammography referral, (2) Permit registered nurses (RNs) to refer patients for screening mammography rather than exclusively the provenance of the physician, (3) Train RNs to conduct Clinical Breast Examinations and refer patients for mammography.

AP

WHAT DO CHINESE AMERICAN IMMIGRANT WOMEN THINK ABOUT BREAST CANCER? FINDINGS FROM FOCUS GROUPS. F. Lee-Lin, School of Nursing, OHSU, Portland, OR; L. Nail, School of Nursing, OHSU, Portland, OR; and U. Menon, School of Nursing, Arizona State University, Phoenix, AZ

Despite progress in increasing cancer early detection, morbidity and mortality benefits are not equally distributed among ethnic minority groups. Early detection of cancer through regular screening plays a vital role in reducing mortality from breast cancer (BC).

BC remains the most commonly diagnosed cancer among Asian American women; however, mammography screening rates are well under the Healthy People 2010 projected goals of 70%. Asian Americans also consistently have the lowest mammography rate of all races. This presentation describes how a cancer screening research program was launched for Asian Americans, especially for Chinese Americans, the largest Asian population in the US. The purpose of this focus group study was to better understand Chinese American women's beliefs about BC screening and to refine the development of a targeted, culturally-responsive BC screening education program, which is currently being tested in a randomized controlled trial, for Chinese Americans.

The development of the discussion topics was guided by two popular models of health behavior change—the Transtheoretical Model of Change (TTM) and the Health Belief Model (HBM).

Thirty-eight foreign-born women, ages 40 and older, participated in 5 focus groups where discussion was facilitated through a semi-structured discussion guide. Focus group discussions in Chinese were audio taped, transcribed, and translated into English. Data were examined using constant comparison and content analysis. Three primary themes emerged through iterative coding: knowledge and beliefs; support, communication and educational needs; and access to care. Within these categories, several subthemes were also identified. Further, several women were profoundly affected by the mostly negative BC-related experiences of relatives and friends. Some common myths remain about causes and treatment of BC, and may impact adherence to screening.

Nurses in primary care settings should be aware of culturally driven motivations or barriers to mammography among Chinese American women. Such awareness could be the first step in opening a dialogue around BC that is culturally responsive, and that could elicit trust and adherence from the patient. Provider-client interactions should involve more discussion about women's BC risks and screening harms and benefits.

AQ

COST EFFECTIVENESS ANALYSIS OF COLORECTAL SCREENING BY COLONOSCOPY IN MASSACHUSETTS (2000–2010).

J.A. Toro, Nursing, Boston University, Boston, MA

Cost effectiveness studies, which are routinely used in Europe to guide health policy, are becoming increasingly more important in the United States.

Colorectal cancer is the third leading cause of cancer deaths in Massachusetts after lung cancer and breast/prostate cancers. The escalating colorectal cancer treatment costs of surgery and adjuvant chemotherapy are contributing to making screening more cost effective. This analysis is complicated by recent findings that screening by colonoscopy does not reduce mortality from right side bowel colon cancer. The purpose of this cost effectiveness analysis is to compare screening for colorectal cancer by colonoscopy with not screening in terms of costs and lives saved.

Cost effectiveness analysis is performed by measuring costs over life years saved. In this analysis, it is assumed that colorectal cancer would be discovered at a later stage without screening, with 95% mortality at 5 years and that colonoscopy would prevent left side colon cancer by the removal of polyps.

Cost of screening is calculated by using the Medicare colonoscopy reimbursement rate for the population 65 and older ($439.50 plus 20% copay = $527.40), and the Massachusetts Harvard Pilgrim Health Plan published reimbursement rate ($2000) for the population ages 50-65. These costs are discounted at a rate of 3% over 10 years. Costs of treating colon cancer are used using a literature average of $30,000 with a 95% mortality by 5 years. The Massachusetts Cancer Registry provided the data for incidence per gender and race and the location and stage at diagnosis. Life years saved are also discounted using a 3% rate.

Total cost for colonoscopy screening in Massachusetts to screen individuals ages 50 to 74 using a 3% discount rate: $770,195,065.2. CE ratio $48936.97 per life year saved, with the loss of 8,810 lives. Not screening will cost $107,023,591 in treatment (using a 3% discount rate over 10 years), with a CE ratio of 30,599.20 and 20,330 lives lost. A more cost effective method for colorectal screening is needed.

Podium Session 5: Cancer-Related Infection

AR

INFECTION RATES ASSOCIATED WITH GLYCEMIC STATUS IN ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANT RECIPIENTS.

M.J. Hammer, College of Nursing, New York University, New York, NY; and D.L. Berry, Phyllis F. Cantor Center for Nursing Research and Patient Care Services, Dana-Farber Cancer Institute, Boston, MA

Infections are a major contributor to the morbidity and mortality associated with hematopoietic cell transplantation (HCT). Evidence is emerging regarding the contribution of abnormal glycemic status, newly termed malglycemia, to infections and related complications among allogeneic HCT recipients. Ultimately, better glycemic control may contribute to better infection control among HCT recipients.

More than 80% of HCT recipients incur infections within the first year post HCT. Complications from infections, including mortality, can effect up to 60% of patients. To better understand the contribution of glycemic status to infections, the aims of this study were to 1) describe the magnitude and frequency of malglycemic levels, 2) describe the incidence rate of infections, and 3) determine associations between glycemic status and risk for infection, all from day of HCT through 99 days post HCT.

The theory of cancer immune surveillance was used to create a physiological conceptual model for how malglycemia can contribute to infections in HCT recipients. Similar to how impaired immune function can allow for both malignancies to manifest and infections to thrive, malglycemia can impair immune cell signaling, allowing invasive microorganisms to remain undetected, thus leading to infections.

A retrospective cohort study was conducted. Descriptive statistics and the Cox proportional hazards model were used to evaluate glycemic status, infection incidence, and associations between glycemic status and infection onset among allogeneic HCT recipients who received treatment at the Fred Hutchinson Cancer Research Center between 2000 and 2005. The covariates of graft-versus-host disease, severity of malignancy, donor type, and age were adjusted for in the Cox model.

In total, 66,062 blood glucose (BG) measurements from 1,175 patients were analyzed. Mean BG was 145.04 mg/dL (range, 26–1,159 mg/dl). Infection incidence was 75.14% and 45% of patients had multiple infections. The hazard ratio for infection risk for every 100 mg/dl increase in BG was 1.21 ($p = 0.021$), with and without adjusting for covariates. Further studies with more specific analyses pertaining to infections and investigation of associations between glycemic status and infection rates among patients with various malignancies are warranted.

AS

IMPLEMENTATION OF AN EVIDENCE-BASED ORDER SET TO IMPACT INITIAL ANTIBIOTIC TIME INTERVALS IN ADULT FEBRILE NEUTROPENIA.

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The purpose of this evidence-based project was to evaluate the impact of the implementation of a standardized order set on the time interval in initiation of antibiotic therapy for adult patients admitted to the oncology unit of an urban hospital with a diagnosis of cancer and febrile neutropenia.

An inpatient order set was developed by an interdisciplinary team in collaboration with infectious disease, oncology, and emergency room physicians with extensive physician and staff education prior to implementation. The hospital's neutropenia policy, diet restrictions, and patient education materials were evaluated and revised to reflect current evidence.

At the conclusion of the data collection, there was an overall reduction in time intervals for initiation of antibiotic therapy for both presentation ($t = 2.25$; $df = 37$; $p = 0.031$) and order ($t = 2.76$; $df = 40.17$; $p = 0.012$) to antibiotic administration.

Findings, in the presence of low order set use (31% inpatient; 71% emergency department)suggest that staff education and the placement of the most commonly ordered antibiotics in the unit medication dispensing machines also had a positive impact on the reduction of time intervals for initial antibiotic therapy.

AT

BUILDING AN EVIDENCE-BASED PRACTICE PROGRAM FOR STAFF NURSES: NURSING RESEARCH TO NURSING EDUCATION PROJECT EXEMPLAR—VAD SKILLS DAY.

J. Hanson, Nursing Research and Education Department, City of Hope, Duarte, CA; M. Grant, Nursing Research and Education Department, City of Hope, Duarte, CA; and M. Scott, Professional Practice and Education Department, City of Hope, Duarte, CA

Building on an Evidence-Based Practice (EBP) educational program for staff nurses, a single focus nursing skills day was implemented to institute EBP Vascular Access Devices (VAD) care.

In a cancer center in southern California, a three-year grant provided the funding foundation for developing EBP workshops and projects. Following educational sessions, where unit-based EBP projects were developed, nurse-led projects were implemented. Long-term support was provided by nursing research; EBP interest grew steadily over three years. Successful projects were turned into posters, which were displayed in nursing areas throughout the hospital and at local and national nursing meetings. Projects were discussed at staff meetings and at the Research and Education Council meetings. As grant support decreased, interest by the Nursing Professional Practice and Education Department increased, and resources were used to institutionalize the EBP methods.

80% of this vulnerable cancer center population has VADs and complications are devastating. Reducing VAD complications is within the domain of the professional nurse. The need for implementing EBP-VAD skills was identified and an all-nursing staff VAD skills day resulted.

Staff nurses were required to attend the VAD Skills Day which included ten stations addressing EBP-VAD care. Staff nurses, in collaboration with APRNs, provided the education. Stations included: a poster of content; a didactic portion; and a demonstration with a return-demonstration to validate competency. Post-course evaluations were collected along with blank cards for individual questions. Questions were answered by APRNs and posted in all nursing units. In six months, APRN direct observation will evaluate persistence of EBP-VAD competency. If needed, 1:1 training will be repeated.

Ninety-eight percent of the staff nurses participated in one of the eight sessions. Evaluation results showed 100% of the participants rated the skills day as extremely or very highly valuable.

Building on a carefully crafted EBP pilot project, a hospital-wide program grew. Projects provided opportunities for the nurses to apply EBP in clinical practice. The outcome from the VAD Skills Day project exemplar demonstrates a successful approach in instituting EBP-VAD nursing care.

AU

NURSES OPTIMIZING OPERATIONS TO REDUCE SURGICAL SITE INFECTIONS IN GYNECOLOGY ONCOLOGY PATIENTS.

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Surgical site infection (SSI) significantly impacts the quality of life for gynecology (GYN) oncology patients. GYN patients may be at greater risk following gynecologic surgery due to existing health behaviors, cancer diagnosis, treatment, and available resources for preoperative and postoperative care. SSIs contribute to increased risk for postoperative adverse events, extended length of postoperative stay, increased rates of readmission, and overall soaring healthcare expenses. GYN surveillance data collected for infection control at our Institute indicated a rise in SSIs over the last three years. The purpose of this optimizing operations project is to: 1) reduce surgical site infections, 2) improve quality of life, and 3) engage oncology nurses at all levels to optimize operations through evidence-based practice.

The Nursing Optimizing Operations team is focused on three major "points of care" (Preoperative, Intra-operative, & Postoperative).Our plan is to 1) standardize and improve patient and staff education, 2) explore best available evidence and implement the use of antiseptic, antimicrobial skin cleansers in preoperative kits for patients and compare infection control data for pre and post intervention, 3) assess pre-operative clippings/skin shaving and its relationship to SSI, 4) explore best available evidence and trial the use/type of abdominal binder postoperatively. Retrospective data will be collected to compare postoperative complications pre and post 3 month trial period, 5) develop a GYN SSI risk assessment tool and pilot the risk assessment tool, and 6) develop education and patient care algorithms for patients and staff.

The Organization's infection control department reports SSI data quarterly. This data will be utilized as a benchmark to determine effectiveness of the interventions.

Oncology nurses across the Institute are focused on action plans related to reducing surgical site infection. Collaboration, communication, and education among nurses and across disciplines are critical to improve patient outcomes. Oncology nurses at every level of care contribute significantly in identifying potential patient risks. Nurses are positioned to optimize operations of care by assessing the patient's risk to develop an SSI, explore and test new processes, evaluate, educate, and implement change to improve patient outcomes.

AV

INVITRO EVALUATION OF LUER-ACTIVATED SILVER-BASED VASCULAR ACCESS CONNECTOR TECHNOLOGY.

C. Chernecky, Medical College of Georgia, Augusta, GA

Use of connectors is required for chemotherapy and vascular access therapy for the majority of cancer patients. There are 17 different connectors on the market today, including coated and impregnated catheters with silver. Which one should you use in your facility? The answer to this question is becoming more apparent through current research associated with bacterial colony forming units as outcomes.

Purpose is to evaluate the antimicrobial effectiveness of the interior of needleless IV silver coated connector devices. Connectors are used to administer chemotherapy, antibiotics, withdraw blood samples and infuse medications and nutrition in patients with cancer. It is imperative to reduce or negate bacterial growth to avoid infection and sepsis in immunocompromised patients.

No samples were manipulated in any way prior to testing. Stock cultures of Staphylococcus aureus and Staphylococcus epidermidis were used. All samples were prepared and tested in a HEPA-filtered hood. At 0 hours, a sterile 10 ml saline syringe was attached to the top of each needleless IV connector device and bovine blood drawn up through each device until blood was seen in the syringe at which time the saline was flushed through the device and the flush and syringe discarded. The device sat for 4 hours in the hood. This process was repeated 3 times. After the fourth cycle, a syringe filed with the bacteria was attached to the top of each device and 2 mls of the prepared inoculums were flushed through the devices. Samples remained in the incubator for 15 hours. Tops of devices were swabbed with 70% isopropyl alcohol and flush was collected and plated. Plates were scored for growth. There were 4 sets of controls, positive, negative, neutralization and no flush controls.

All silver coated catheters grew Staphylococcus aureus and Staphylococcus epidermidis bacteria over time. The growth is enough bacteria to induce infection.

Once blood comes in contact with a silver coated connector it creates a coating effect making the silver ineffective towards minimizing or negating bacterial growth of Staphylococcus bacteria.

Since connectors are in contact with blood multiple times, with either drawing of blood samples for laboratory analysis and/or verifying placement, the current coated catheters need further clinical evaluation. Additional research should be initiated on silver impregnated catheters as well along with comparative evaluative research on coated versus impregnated silver connectors.

Podium Session 6: Sleep Problems

AW

RELATIONSHIPS BETWEEN SLEEP AND THE HOSPITAL CARE ENVIRONMENT IN CHILDREN WITH CANCER. L. Linder, College of Nursing, University of Utah, Salt Lake City, UT

Disturbed sleep affects 30 to 45% of children with cancer and may compromise normal immune system regulation, tissue healing, and growth. These consequences are concerning for children who must recover from the effects of cancer and its treatment.

In the hospital, sound and light levels, nursing care activities, and other symptoms may disrupt sleep. The study purpose was to describe nighttime sleep-wake patterns among children receiving inpatient chemotherapy and to describe relationships between sleep-wake patterns and the hospital care environment.

The UCSF Symptom Management Theory guided this exploratory study describing nighttime sleep-wake patterns in hospitalized children with cancer and the context in which sleep disruptions were occurring.

Participants were 15 children with cancer 5 to 12 years old ($\bar{X}$ = 8.8; SD = 2.3) receiving inpatient chemotherapy 3 days or longer on a pediatric oncology unit in a tertiary pediatric hospital. Wrist actigraphs and sleep diaries measured sleep-wake patterns. Data loggers and sound pressure level meters measured bedside light, temperature, and sound levels. Medication doses and occurrences of pain, nausea, and vomiting were identified through chart review.

Average nighttime sleep minutes were 527.7 (SD = 89.9). Sleep was marked by frequent awakenings ($\bar{X}$ = 12.4; SD = 5.3) with mean sleep episodes of 53.4 minutes (SD = 25.4). Mean sound levels were greater than 45 dB with spikes above 80 dB. Sleep minutes varied based on time of night ($F = 56.27$, $p < 0.01$) with sleep onset delayed past 10:00 pm.

A basic mixed linear model identified significant fixed effects for both sound ($F = 50.87$, $p < 0.01$) and light ($F = 7.04$, $p < 0.01$) on number of sleep minutes. A backward regression model including sound, light, medication doses, pain, and nausea accounted for 57.4% of the variance in sleep minutes ($F = 62.85$, $p < 0.01$).

Nighttime sleep was less than the 600 minutes recommended for school-age children. Sleep was marked by frequent awakenings, limiting children's ability to experience full sleep cycles. Bedside sound levels exceeded World Health Organization recommendations for hospitals and compared with those in pediatric critical care settings. Multiple potentially modifiable factors contribute to disturbed sleep among hospitalized children. Areas for future research include developing and testing individualized and system-based interventions to modify the hospital care environment to promote nighttime sleep.

AX

DIFFERENCES IN SYMPTOMS AND QUALITY OF LIFE OUTCOMES BETWEEN WOMEN WITH AND WITHOUT SLEEP DISTURBANCE PRIOR TO BREAST CANCER SURGERY. C.N. Van Onselen, School of Nursing, University of California, San Francisco; B.E. Aouizerat, School of Nursing, University of California, San Francisco; M. Dodd, School of Nursing, University of California, San Francisco; K. Lee, School of Nursing, University of California, San Francisco; C. West, School of Nursing, University of California, San Francisco; S.M. Paul, School of Nursing, University of California, San Francisco; and C. Miaskowski, School of Nursing, University of California, San Francisco

Sleep disturbance can have a significant negative impact on patients' ability to function and their quality of life (QOL). However, little is known about the occurrence of sleep disturbance in women prior to surgery for breast cancer.

The purposes of this study, in a sample of women (N = 398) prior to breast cancer surgery, were to determine the occurrence rate for clinically significant sleep disturbance and to evaluate for differences in demographic characteristics, symptoms, and QOL outcomes between patients with and without sleep disturbance.

In the UCSF Theory of Symptom Management, the symptom experience (i.e., sleep disturbance) is influenced by the person domain and other symptoms and can have an effect on patient outcomes.

Prior to surgery, women completed the General Sleep Disturbance Scale (GSDS), Spielberger State Anxiety Inventory, Center for Epidemiologic Studies-Depression Scale, Lee Fatigue Scale, and Multidimensional Quality of Life Scale Cancer. A cutoff score of >43 for the GSDS total score was used to categorize patients as having or not having sleep disturbance. Differences in demographic characteristics, symptom severity, QOL outcomes were evaluated using independent sample t-tests.

The occurrence rate for sleep disturbance prior to surgery was 57%. No differences in demographic characteristics were found between the two patient groups. Women in the sleep disturbance group reported significantly higher anxiety (45.3 vs 36.9, $p < 0.0001$), depressive symptoms (17.7 vs 8.5, $p < 0.0001$), and fatigue (4.1 vs 1.8, $p < 0.0001$) and a poorer QOL (5.9 vs 7.2, $p < 0.0001$) than women without sleep disturbance. Findings from this study suggest that sleep disturbance is a significant problem in women prior to breast cancer surgery, is associated with clinically significant levels of anxiety, depressive symptoms and fatigue. In addition, sleep disturbance has a negative impact on patients' QOL. The effects of sleep disturbance on patient outcomes following surgery warrant additional investigation.

AY

COMPARING SUBJECTIVE AND OBJECTIVE MEASURES OF SLEEP IN PERSONS WITH CANCER. S. Young-McCaughan, Psychiatry, University of Texas Health Science Center at San Antonio; S.M. Arzola, The Geneva Foundation, Brooke Army Medical Center, Fort Sam Houston, TX; and M.U. Nowlin, The Geneva Foundation, Brooke Army Medical Center, Fort Sam Houston, TX

Sleep disturbances are widely reported in persons with cancer with between 30% and 75% of individuals reporting difficulty sleeping.

Valid and reliable measures of sleep are available, but a challenge of advancing the science has been understanding the apparent discrepancies between subjective and objective measures of sleep. The purpose of this analysis was to compare subjective and objective measures of sleep in persons with cancer.

The Roy Adaptation Model guided this investigation. This was a descriptive assessment of baseline data collected as part of a randomized clinical trial. Fifty-one participants underwent baseline testing. Sleep assessments included both subjective (i.e., Pittsburgh Sleep Quality Index [PSQI] and the General Sleep Disturbance Scale [GSDS]) and objective (i.e., actigraph) measures. T-tests were used to analyze the data.

Participants were predominantly Caucasian, married, and well-educated. Two-thirds of the participants were female (n = 31, 61%). Ages of participants ranged from 27 to 78 ($\bar{X}$ = 57, ±11.7). Participants had various cancer diagnoses and all stages of disease. All were all within six-months of having completed their cancer treatment. About two-thirds of the sample reported sleep disturbance regardless of the measure used to asses sleep; 65% scored >9 on the PSQI, 63% reported ≥3 nights per week of sleep disturbance

on the GSDS, and 58% slept less than 7 hours/night as assessed by the actigraph. The actigraphs recorded that individuals took on average 25 minutes to fall asleep (±30.7), slept an average of 6.4 hours/night (±98.8 minutes), awoke an average of 13 times (±5.7), and took an average of 5 naps during the day (±4.9) for a total of 53 minutes (±71.2). Yet, when the actigraph measures for those who reported sleeping well on either the PSQI or the GSDS were compared to those who reported sleep disturbance, there were no significant differences ($p > 0.05$). These data raise the possibility that an individuals' expectation of a "good night's sleep" may vary resulting in different subjective assessments of sleep with similar objective assessments of sleep. This possibility needs to be explored to better understand sleep wake disturbances in persons with cancer.

AZ

DIFFERENCES IN ONCOLOGY PATIENT OUTCOMES BASED ON SUBJECTIVE AND OBJECTIVE MEASURES OF SLEEP DISTURBANCE AT THE INITIATION OF RADIATION THERAPY (RT).

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Previous research has demonstrated that subjective and objective measures of sleep disturbance exhibit extremely low correlations. However, little is known about symptom severity and quality of life (QOL) outcomes in patients who self-report and objectively demonstrate high levels of sleep disturbance.

The purposes of this study, in a sample of oncology patients (n=185) prior to the initiation of RT, were to determine and evaluate for differences in symptom severity and QOL outcomes based on their subjective and objective measures of sleep disturbance.

In the UCSF Theory of Symptom Management, patients' symptom experiences, as well as their demographic and clinical characteristics, can have an effect on patient outcomes (i.e., QOL).

Patients completed a demographic questionnaire, the Pittsburgh Sleep Quality Index (PSQI), Spielberger State Anxiety Inventory, Center for Epidemiologic Studies-Depression Scale, Lee Fatigue Scale, and Multidimensional Quality of Life Scale Cancer. In addition, patients wore a wrist actigraph to evaluate for sleep disturbance. Based on PSQI cutoff scores of >5 and sleep efficiency index scores of <85%, patients were classified into one of four groups (i.e., no sleep disturbance (22.7%), only subjective sleep disturbance (26.2%), only objective sleep disturbance (22.1%), and both subjective and objective sleep disturbance (29.0%)). Analysis of variance was used to evaluate for differences among the groups.

Compared to the no sleep disturbance group, patients in the only objective and both subjective and objective sleep disturbance groups had significantly higher depression, anxiety, and fatigue scores as well as lower QOL scores (all $p < 0.0001$). These findings suggest that sleep disturbance is common in patients at the initiation of RT. In addition, the use of objective measures of sleep disturbance may provide useful information to facilitate the clinical evaluation of these patients and the initiation of appropriate interventions.

Podium Session 7: Nursing Care Supported by Evidence-Based Practice

BA

PREOPERATIVE ASSESSMENT OF THE OLDER ADULT HAVING SURGERY FOR CANCER: TRANSLATING INFORMATION TO ASSIST NURSES TO IMPROVE POSTOPERATIVE CARE.

J. Coleman, Department of Surgery, Johns Hopkins Hospital, Baltimore, MD

Nurses need accurate preoperative information about the older adult having surgery to provide proactive interventions for optimal patient care.

Aging is the most significant risk factor for the development of cancer. The number of persons 65 years and older in the United States is rapidly growing which accounts for increasing surgical oncology treatment in this population. There is a paucity of data on what nurses perceive as necessary preoperative information about the older patient having surgery for cancer in order to provide individualized, quality care to improve patient outcomes.

A quality improvement project was implemented using an established tool to help translate important preoperative information for nurses and a nursing questionnaire to ascertain information needed to assist nurses in improving postoperative care. Thirty patients, 65 years and older, having elective surgery for hepatobiliary or pancreas cancer were administered the Preoperative Assessment of Cancer in the Elderly (PACE) tool. Results were provided to the nurses caring for the patients postoperatively. A nursing questionnaire was administered to each nurse who cared for a patient to assess information identified as necessary for providing care, instituting safety measures, and aid in discharge planning.

A total of 30 questionnaires were obtained either at the time of or after the patient's discharge. Knowledge of the older patient's preoperative performance status was perceived by the nurses as significant in order to provide appropriate and adequate postoperative care (Pearson correlation 0.01). Nurses perceived the following information was also helpful or necessary: activities of daily living (96.8%), current medications (96.8%), and family involvement in care (96.8%). Knowledge of the older patient's living condition and comorbidities were also perceived to be helpful by more than 90% of the nurses.

This quality improvement project demonstrated that documentation of performance status using a valid and reliable instrument was most valuable to nurses caring for postoperative older patients. This information should be part of the documented preoperative assessment of the older patient. Focusing on what nurses deem critical information may allow for an expedited assessment by one or a couple of key instruments.

BB

THE IMPACT OF AN ORAL HYGIENE EDUCATION MODULE ON ONCOLOGY PATIENT PRACTICES AND NURSING DOCUMENTATION.

K. Otten, Nursing, Rush University Medical Center, Chicago, IL; C. Davis, Nursing, Rush University Medical Center, Chicago, IL; B. Staffileno, Nursing, Rush University Medical Center, Chicago, IL; L. Coke, Nursing, Rush University Medical Center, Chicago, IL; L. Wagner, Nursing, Rush University Medical Center, Chicago, IL; and S. Walters, Nursing, Rush University Medical Center, Chicago, IL

Inconsistencies in oral hygiene care has been a concern among our oncology patients and continues to be a national patient care issue. Diligent oral hygiene for all oncology patients is important for comfort and maintenance of nutritional status. The purpose of this study was to: (1) develop an evidence-based educational module for nurses and patient care technicians (PCTs) and (2) evaluate patient understanding of oral hygiene practice post module implementation, and (3) to monitor staff education and documentation of oral hygiene care.

This was a pre-post education module data collection. Patient oral hygiene knowledge was assessed by patient interview using a developed oral hygiene assessment tool. Nursing documentation was determined by chart review. The oral hygiene education module included: (1) 10 minute oral hygiene care in-service for nurses and PCTs; (2) development of an EPIC computerized screen for nurses to document the assessment of the oral cavity; (3) placement of oral hygiene reminder signs in patient rooms; and,

(4) availability of penlights and non-oil based lip moisturizers for patients. Post module data (N = 22 patients/EPIC documentation) was collected 8 weeks post implementation. Data were analyzed using frequencies and Mann-Whitney U.

Post-module, there was a 350% increase in unit based admission teaching (19% vs 68%, p = 0.01); a 3 fold increase (9% vs 27%) in patients receiving education and greater improvement in patient oral hygiene practices (Biotene rinse 14% vs 64%, p = 0.025; soft toothbrush 5% vs 41%, p < 0.01; flossing 0% vs 20%, p = 0.008) post module. Documentation of oral hygiene in EPIC increased on average 36% vs 50% over a 3 day chart audit. There was a 23% increase in the number of PCTs teaching oral hygiene care.

Focused oral hygiene modular education including patients, nurses, and PCTs improved patient compliance and documentation of oral hygiene practice.

BC

ONGOING EFFORTS TO REDUCE FALLS AND FALLS WITH INJURY: A FOUR YEAR FOLLOW-UP. N.E. Kline, Memorial Sloan-Kettering Cancer Center, New York, NY; M. Lange, Memorial Sloan-Kettering Cancer Center, New York, NY; A.C. Margolies, Memorial Sloan-Kettering Cancer Center, New York, NY; and B. Thom, Memorial Sloan-Kettering Cancer Center, New York, NY

Falls are a leading cause of injury among hospitalized patients. At a cancer hospital, injuries sustained from falls can be severe, which can bear significant financial burden to institutions, insurance carriers, and patients, in addition to the associated negative impact on patient quality of life.

A nursing-led interdisciplinary performance improvement team was established in 2005 at a comprehensive cancer center to implement fall-reduction strategies. Following the development, pilot-testing, and implementation of a patient falls risk assessment instrument in 2006, a new model of care delivery was implemented related to patient safety and, specifically, to reducing patient falls through a comprehensive unit-based demonstration program. This presentation details ongoing efforts toward sustaining program successes in reducing falls and associated injuries through psychometric research.

The Swiss Cheese Model, developed by Dr. James Reason, provided the theoretical basis for this project. According to the Swiss Cheese Model, gaps in defensive barriers are caused by active failures and latent conditions. Active failures were identified as inaccurate risk assessment by the nurse, high-risk patients left unassisted in the bathroom, or a lapse in coverage during breaks or change of shift. Latent conditions were identified as environmental hazards, lack of toileting rounds, and lack of a safety culture on the unit.

The psychometric properties of the original risk assessment tool were reassessed through evaluation of positive/negative predictive values, sensitivity, and specificity, along with standard measures of reliability and validity. The team reviewed both individual fall record data and nursing falls risk assessments from the medical record from the previous four years.

Over the course of four years, fall/falls with injury rates continue to show a statistically significant decline throughout the hospital ($p<0.05$) and, in particular, on the hospital's main demonstration unit ($p < 0.001$). Specific psychometric findings will be discussed, including a 35% increase in the positive predictive value of the instrument. Additionally, authors will discuss the methodological process behind the evaluation. Re-evaluation of the instrument helps to ensure that patients' fall risk is correctly identified, thereby allowing nurses to implement and document appropriate interventions.

BD

CLINICAL RELEVANCE OF POST-OPERATIVE EKG CHANGES IN PATIENTS UNDERGOING AN EXTRAPLEURAL PNEUMONECTOMY. C.J. Wickersham, Thoracic Surgery, Memorial Sloan-Kettering Cancer Center, New York, NY; N. Kline, PhD, RN, CPNP, FAAN, Thoracic Surgery, Memorial Sloan-Kettering Cancer Center, New York, NY; B. Thom, MS, Thoracic Surgery, Memorial Sloan-Kettering Cancer Center, New York, NY; and R.M. Flores, MD, Thoracic Surgery, Memorial Sloan-Kettering Cancer Center, New York, NY

Extrapleural pneumonectomy (EPP) is a unique surgical procedure involving the removal of the lung, pleura, pericardium and diaphragm for patients diagnosed with mesothelioma, sarcoma, or another malignancy involving the pleura. Clinical nurses frequently observe EKG changes post-operatively. The findings vary and include nonspecific changes, ST changes suggesting ischemia, and elevated T waves suggesting an acute myocardial infarct, yet these results are usually falsely positive.

Since nurses and physicians often misinterpret EKG results in these patients, the purpose of this study is to describe EKG changes and corresponding clinical relevance in patients who have undergone an extrapleural pneumonectomy.

Roy's Adaptation model guided the study using the premise that adaptive responses maintain system integrity, and ineffective responses do not promote adaptation and may threaten system functioning.

A retrospective review of 160 patient charts was conducted, and results of EKGs, echocardiograms, and laboratory data were extracted, along with nursing and physician assessments and consult and operative notes.

Approximately 160 patients underwent an EPP between January 2000 and January 2009. The majority of patients had a pre-operative stress test to evaluate any underlying cardiac condition. Of the 120 patient charts analyzed to date, 78 (65%) show an abnormal post-operative EKG, and 8 an acute MI. The sensitivity and specificity of EKG findings is 0 and 25% respectively. Descriptive statistics and cross-tabulations will be presented for the emergent EKG result groupings: normal, abnormal, acute MI, and no EKG documentation. Chi-square testing and odds ratios relating outcomes to clinical and demographic variables will also be presented. Understanding this surgery, the patient's diagnosis, and the potential post-operative complications are vital in the patient's care. Nurses are often first to identify the associated warning signs that can lead to a true myocardial infarct. Post-operative EKG's may not be the most beneficial diagnostic test to indicate cardiac ischemia after an EPP. Nurses and physicians need to focus on all clinical parameters including vital signs, pain assessment and urinary output.

Podium Session 8: Complementary and Alternative Therapy

BE

EFFECTS OF MASSAGE ON PAIN INTENSITY, MOOD STATUS, RELAXATION, AND SLEEP QUALITY IN TAIWANESE PATIENTS WITH ADVANCED CANCER: A RANDOMIZED CLINICAL TRIAL. S. Jane, Department of Nursing, Chang Gung Institute of Technology, Kwei-Shan, Tao-Yuan, Taiwan; J. Fan, Department of Nursing, Chang Gung Institute of Technology, Kwei-Shan, Tao-Yuan, Taiwan; D. Wilkie, College of Nursing, University of Illinois at Chicago; Y. Lin, Division of Hematology/Oncology, Department of Internal Medicine, Chang Gung Memorial Hospital, Kwei-Shan, Tao-Yuan, Taiwan; S. Chen, School of Nursing, Hung Kuang University, Sha-Lue, Tai-Chang, Taiwan; S. Foreman, Biobehavioral Nursing and Health Systems, University of Washington, Seattle, WA; M. Lu, Department of Nursing, Chang Gung Memorial Hospital, Kwei-Shan, Tao-Yuan, Taiwan; Y. Wang, Department of Nursing, Chang Gung Memorial Hospital, Kwei-Shan, Tao-Yuan, Taiwan; and M. Liao, Administration Center of Medical

Research Department, Chang Gung Memorial Hospital, Kwei-Shan, Tao-Yuan, Taiwan

Patients with advanced cancer, such as metastatic cancers are more likely to have pain compared to patients without metastatic cancer. Bone involvement, a hallmark of advanced disease, afflicts 34% to 45% of cancer patients in terms of intolerable pain, substantial morbidity and disruptive quality of life. A form of complimentary alternative medicine (CAM), massage therapy (MT), is included as an adjunct to conventional medical modalities for bone pain management. MT is also ranked as one of the most frequently employed therapies for managing pain among cancer patients.

In the existing studies; however, a small portion of studies conducted in patients with bone metastases and the effects of MT in this cancer population remains unclear. To date, no controlled trial has been performed to validate the efficacy of MT specifically in patients with metastatic bone pain. Thus, the purpose of this randomized clinical trial was to compare the efficacy of MT to social attention in Taiwanese cancer patients with bone metastases.

A modified Gate Control Theory of Pain as proposed by Mezlack & Wall served as a theoretical framework for exploring the underlying mechanism of massage therapy.

This 5-day randomized clinical trial, single blinding, with pretest and posttest design was conducted at inpatient oncology units in a teaching medical center in the northern Taiwan. A total of 72 participants, who were radiologically diagnosed with evident bone metastases and experiencing with moderate bone pain, consented to participate this study. After randomization, participants received three consecutive sessions of 45-min MT or presence of a caring therapist. The baseline of four outcome measures, including a single item of PPI-VAS (present pain intensity) and Relaxation-VAS, a five-item of Mood-VAS and Sleep-VAS, were obtained prior to and post each session of intervention with designed measurement interval. Massage effects were examined with independent and paired t-tests, multivariate analysis of covariance (MANCOVAs), and repeated-measures analysis of covariance(RANCOVAs) over time.

Massage was shown to have the within or between subjects effects on improving pain intensity, mood, muscle relaxation, and sleep quality. More importantly, the reduction in pain with massage was not only statistically but also clinically significant improved and the massage effects on muscle relaxation even sustained at least for 16-18 hours after intervention. Results from RANOVA further demonstrated that massage had a significant trend of improvement in the mood status, $F(2, 67) = 7.01$, $p = 0.002$, and muscle relaxation, $F(2,68) = 6.79$, $p = 0.002$, over time. In contrast, massage effects on sleep were less evident solely with within-subjects effects at the first two sessions of MT, but no significant between-subjects effects occurred at any session of MT. Overall, massage had statistically superior benefits over social attention in pain intensity, mood, and muscle relaxation, so the healthcare providers may consider to incorporate MT in this population, enhancing cancer pain management. Future studies are suggested to increase sample size to detect statistical difference on the small effect size variable, such as sleep quality and may consider to educate family caregivers delivering a home-based massage in this particular population.

BF

POWERFUL MESSAGES COMMUNICATED THROUGH MUSIC VIDEOS BY ADOLESCENTS/YOUNG ADULTS UNDERGOING STEM CELL TRANSPLANT.

J.E. Haase, Nursing, Indiana University School of Nursing, Indianapolis, IN; S.L. Robb, Nursing, Indiana University School of Nursing, Indianapolis, IN; and A.N. Fort, Indiana University School of Nursing/Methodist Hospital, Indianapolis, IN

Adolescents/young adults (AYA) undergoing stem cell transplants (SCT) endure difficult challenges, including high symptom distress and awareness of their existential plight.

Interventions are needed to assist AYA to deal with life threatening illness and treatments, to communicate, and derive meaning from their experiences. This presentation describes experiences of AYA undergoing SCT and messages they communicate to others in a Children's Oncology Group randomized clinical trial (RTC) of a therapeutic music video (TMV) intervention.

Robb's Contextual Support Model of Music Therapy specifies 3 forms of contextual support as essential to the TMV intervention. The TMV intervention was designed to reduce risk factors (illness-related distress, defensive coping) and promote protective factors (derived meaning, perceived friend/healthcare provider support, family environment, positive coping) identified in Haase's Resilience in Illness Model.

Empirical phenomenology, an adaptation of Colaizzi's method, was used. The sub- sample (N = 21) included AYA with cancer, 11 to 24 years, hospitalized for SCT, randomized to the TMV. In 6 sessions over 3 weeks, participants wrote and recorded song lyrics, selected visual images, and premiered their music video (DVD). For analysis, meanings were formulated from multiple data sources—DVD transcribed lyrics, visual images, and intervener field notes and then organized into theme clusters and categories and collaboratively validated by the researchers.

From eight theme categories mirroring RIM concepts, seven themes with lyric exemplars follow; all will be presented. Illness-related distress: Symptom/SCT treatment weariness and distress ("The cupcakes cried, 'Not the oven!' one more time"). Family Environment: Family meaningfulness, gratitude for, and comfort ("Remember when, the sound of family met brought such joy"). Friend support: Gratitude/ appreciation ("All of my friends sittin' back and drinkin'- thinkin' about them keeps me going"). Defensive coping: Desire to escape ("Restin' up for running away"). Courageous coping: ("Don't you worry, I'm alright"). Derived meaning: Peace through faith ("Through the storms and tribulations, I'm reminded of … Your Son"). Resilience: ("We're gonna win no matter what; …cause we believe in ourselves!"). The DVDs were powerful and developmentally appropriate means for AYA to communicate.

BG

PARENTAL PERCEPTIONS OF HELPFULNESS AND MEANINGFULNESS OF A THERAPEUTIC MUSIC VIDEO INTERVENTION FOR ADOLESCENTS AND YOUNG ADULTS UNDERGOING STEM CELL TRANSPLANTATION.

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Stem cell transplantation (SCT) is now considered standard therapy for many life-threatening pediatric hematologic and oncologic diseases. The morbidity associated with SCT is intensive and enduring. Recent studies suggest that SCT is particularly stressful for adolescents and young adults (AYA) and may result in significant short- and long-term decrements in quality of life.

The purpose of this study is to describe parental perception of the helpfulness and meaningfulness of a music therapy intervention for AYAs undergoing SCT.

The Stories and Music for Adolescents/Young Adult (AYA) Resilience during Transplant (SMART) study) was based upon the Resilience in Illness Model and Robb's Contextual Support Model of Music Therapy. The study was designed to test the efficacy of a therapeutic music video (TMV) intervention to increase individual, family and social environment protective factors, decrease

individual and illness-related risk factors to improve resilience and quality of life outcomes of AYA undergoing SCT compared to a low dose, audio-books control group.

The SMART study is a multi-site longitudinal, mixed method, randomized controlled trial conducted in the Children's Oncology Group. The data for this analysis included qualitative interviews (N=15) conducted with a parent or guardian of an AYA from the TMV group at 100 days post-transplant. A semi-structured interview focused upon the perceived helpfulness and meaningfulness of the TMV intervention. Audiotaped interviews were transcribed into written text and analyzed using an adaptation of Colaizzi's method of phenomenological analysis. Investigators from 6 sites across the US participated in a consensus process to build the central theme structure.

Findings were organized into eight central themes including: AYA Participation Decisions; Symptom Influences on Participation; Myriad of TMV Intervention Mechanisms to Positively Impact: AYA Suffering and Parent Suffering; A Myriad of Benefits through the Intervention Process; Power of the Intervention to Enhance Connectedness Among AYA, Family, and Friends; The TMV Intervention as a Valued Way for Parents to Respect and Support AYA Privacy and Independence; AYA's DVD as a Legacy and Source of Insight, Pride, and Joy. The results of this study support the significant impact of a therapeutic music video intervention for AYAs undergoing SCT.

BH

EFFICACY OF NIA IN BREAST CANCER PATIENTS UNDERGOING RADIATION THERAPY. D. Reis, Outpatient Oncology, Flower Hospital, Sylvania, OH; and M. Walsh, Jobst Vascular Center, Toledo Hospital, Toledo, OH

Exercise has been shown to reduce fatigue, a common side effect in cancer patients. Oncology nurses are uniquely positioned to educate patients about exercise. Many cancer patients use complementary therapies, including non-traditional exercise, yet little research has addressed its efficacy. Nia, a non-traditional exercise, provides cardiovascular and whole body conditioning using a comprehensive, holistic approach that integrates body, mind, and spirit. Unlike traditional exercise interventions, Nia includes five primary concepts of physical activity (strength, flexibility, mobility, stability and agility).

The purpose of this study was to determine the efficacy of Nia in breast cancer patients undergoing radiation therapy on reducing fatigue, improving overall quality of life, increasing aerobic capacity and shoulder flexibility.

The Roy adaptation model served as the theoretical framework.

This was a randomized study stratified by disease stage and age. The Nia group exercised 3 times per week for 20–60 minutes. Both groups maintained exercise logs and completed baseline, 6 and 12 week testing. The study was powered to detect an effect size of 0.9 with type I error of 0.025 to account for the 2 primary endpoints, Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F) fatigue subscale score and FACIT-F total score with 80% statistical power. Secondary endpoints included the 6 minute walk test, shoulder flexion and extension. Continuous endpoints were assessed using quantile-quantile plots. A mixed effects linear model was used to evaluate changes over time.

Forty-one women (Nia 22, Control 19) ages 35–87 years with stage I (51%), II (29%) and III (20%) breast cancer were enrolled. Three patients did not complete 12 week testing (Nia 1, Control 2). There were no significant differences in the primary endpoints. However, at 12 weeks the Nia group had a significant improvement in left shoulder flexion ($p = 0.02$) and an increased walking distance, although not significant. This study contributes to the limited research on non-traditional exercise. Improved shoulder mobility and walking distance may provide other functional benefits for breast cancer patients; a potential area for future research. Oncology nurses need to be aware of non-traditional exercise interventions to enhance education and management of breast cancer patients undergoing radiation treatment.

Podium Session 9: Cancer Genomics Research

BI

WOMEN RECEIVING NEWS OF A FAMILY BRCA1/2 MUTATION: MESSAGES OF FEAR AND EMPOWERMENT. C.B. Crotser, Nursing, Roberts Wesleyan College, Rochester, NY; and S.S. Dickerson, Nursing, University at Buffalo, Buffalo, NY

Identifying women at high risk for breast cancer with genetic testing is important to clarify needs for enhanced screening and consider risk-reducing options. Genetic counseling standards recommend encouraging communication of results to at-risk relatives, yet needs of news recipients are not well understood.

Inherited gene mutations cause 5%–10% of breast cancer in women. Communicating genetic test results to at-risk family is complicated considering family dynamics and the complexity of cancer genetics. Aims of this study are to understand experiences of young and middle age women receiving news of a family member's BRCA1/2 test results from a relative, the meaning risk has on their lives, and gain an understanding of practical knowledge used in communicating and living with risk.

Individuals are self-interpretive beings influenced by family culture, history, and communication patterns. Humans express meaning through language and stories.

Heideggerian Hermeneutics guided individual interviews and team interpretation of data. Using purposive sampling, 19 women age 18-50 who received news of a family BRCA1/2 mutation from a biologic relative were recruited from support groups and two health facilities in upstate New York.

Analysis revealed five themes (a) Situating the story, (b) Receiving the message from family, (c) Responding to the message, (d) Impacting family communication, and (e) Advice for communicating risk. Constitutive patterns identified include communicating risk as messages of fear and empowerment, and integrating the message by taking one step at a time. Health professionals (HCPs) have an important role in provision of anticipatory guidance for communication of genetic test results including the potential responses to family risk communication, support needs, and content desired by recipients. Women sought comprehensive, balanced information from HCPs. Recommendations for practice include patient-centered communication to assure understanding of the individual's context and promote successful adaptation to knowledge of potential risk. Future research is indicated to understand the impact of patient-provider communication on responses to family risk communication and the role of HCPs in family risk communication.

BJ

PRELIMINARY EVIDENCE OF A GENETIC ASSOCIATION BETWEEN *IL6* AND THE SEVERITY OF SELF-REPORTED ATTENTIONAL FATIGUE. J.D. Merriman, School of Nursing, University of California, San Francisco; B.E. Aouizerat, School of Nursing, University of California, San Francisco; M. Dodd, School of Nursing, University of California, San Francisco; K. Lee, School of Nursing, University of California, San Francisco; S.M. Paul, School of Nursing, University of California, San Francisco; B.A. Cooper, School of Nursing, University of California, San Francisco; C. Miaskowski, School of Nursing, University of California, San Francisco; and L. Dunn, School of Medicine, University of California, San Francisco

Attentional fatigue is experienced as decreased ability to concentrate and maintain purposeful activity when attentional demands are high, such as during diagnosis and treatment for cancer.

Little is known about genetic correlates of attentional fatigue. Therefore, the purpose of this study was to determine relationships between *IL6* -597G>A and baseline and mean levels of attentional fatigue.

In the Theory of Symptom Management, genetic makeup is incorporated in the domain of person, like age or gender. Based on a literature review of associations between proinflammatory cytokines and attentional fatigue, we hypothesized that susceptibility for attentional fatigue was due in part to variation in *IL6* as measured by the -597G>A (rs1800797) promoter polymorphism.

Self-reported attentional fatigue was evaluated in 252 patients and family caregivers using the Attentional Function Index (AFI) before radiation therapy and at six additional assessments over six months. DNA was recovered from archived plasma. *IL6* -597G>A was collected using Taqman® Allelic Discrimination assay, and genotypes met Hardy-Weinberg expectations. Using a dominant model (GG versus GA+AA), differences in baseline and mean levels of attentional fatigue were evaluated using univariate analysis of covariance.

Genotype groups differed significantly in age ($p = 0.016$) and ethnicity ($p < 0.0001$), with only 11 non-Caucasian participants carrying the A allele. After controlling for age, an interaction approaching significance was found between genotype and ethnicity in baseline ($p = 0.063$) and mean ($p = 0.076$) AFI scores, with non-Caucasians who carried the A allele reporting more severe attentional fatigue. The interaction of *IL6* -597G>A and ethnicity may be explained by different patterns of linkage disequilibrium between the A allele and functional polymorphisms by ethnic group. Therefore, non-Caucasians who carry the A allele may produce more IL-6 than Caucasians who carry the same allele. Future studies need to confirm the differential effects of this genomic marker in larger samples using ancestry informative markers so that this and other genetic markers could be used to identify patients at greatest risk for attentional fatigue.

BK

ASSOCIATION BETWEEN SEROTONIN TRANSPORTER POLYMORPHISM AND DEPRESSIVE SYMPTOMS IN WOMEN WITH BREAST CANCER.

L.B. Dunn, Psychiatry, University of California, San Francisco; B.E. Aouizerat, School of Nursing, University of California, San Francisco; B.A. Cooper, School of Nursing, University of California, San Francisco; M. Dodd, School of Nursing, University of California, San Francisco; K. Lee, School of Nursing, University of California, San Francisco; C. West, School of Nursing, University of California, San Francisco; S.M. Paul, School of Nursing, University of California, San Francisco; and C. Miaskowski, School of Nursing, University of California, San Francisco

Depressive symptom, which occur in up to 50% of women with breast cancer, have detrimental effects on quality of life.

Little is known about factors that contribute to inter-individual variability in depressive symptoms. In major depressive disorders, alterations in the serotonergic system are implicated as a risk factor for depression. In this study, differences in the frequency of the rs2020942 polymorphism in the serotonin transporter gene (SLC6A4), a key regulator of serotonergic neurotransmission, were evaluated in subgroups of women with breast cancer who differed in their experience with depressive symptoms.

The Symptom Management Theory provided the theoretical framework, with genotype conceptualized as part of the "Person" domain.

At seven timepoints (i.e., just prior to and monthly for six months following surgery for breast cancer), 398 women with breast cancer completed the Center for Epidemiological Studies-Depression (CES-D) scale. Growth mixture modelling was used to identify latent classes of patients with distinct depressive symptom trajectories. A Chi-square test was used to evaluate for differences in SLC6A4 genotype frequency among the classes.

Four latent classes of patients with distinct depressive symptom trajectories were identified: Low Decelerating (39.2%), Intermediate Decelerating (45.3%), Late Accelerating (11.2%), and Parabolic (4.3%) groups. Patients who were younger were more likely to be classified in the Intermediate Decelerating Group, and those with higher baseline levels of trait and state anxiety were more likely to be classified in the Intermediate Decelerating, Late Accelerating, or Parabolic groups. The frequency of the rs2020942 minor A allele was 32.4% and the distribution of AA homozygotes differed among the latent classes ($p = 0.005$). Patients in the Intermediate group were less likely to be AA homozygotes than patients in the Low Decelerating Group ($p < 0.005$). This study provides preliminary evidence of distinct groups of breast cancer patients that differ in their experience with depressive symptoms over time. Moreover, these findings provide preliminary evidence of a genetic association between the serotonin transporter and depressive symptoms in patients with breast cancer. Latent class methods may be useful to identify patients at higher risk for depressive symptoms, along with genetic risk factors. Such findings may point toward more targeted clinical interventions.

BL

ASSOCIATION BETWEEN DEPRESSIVE SYMPTOMS AND TUMOR NECROSIS FACTOR ALPHA (TNF-A) POLYMORPHISM IN PATIENTS AND FAMILY CAREGIVERS (FCS) AT THE INITIATION OF RADIATION THERAPY (RT).

D.J. Langford, Physiological Nursing, University of California, San Francisco; B.E. Aouizerat, Physiological Nursing, University of California, San Francisco; B.A. Cooper, Physiological Nursing, University of California, San Francisco; M. Dodd, Physiological Nursing, University of California, San Francisco; C. West, Physiological Nursing, University of California, San Francisco; S.M. Paul, Physiological Nursing, University of California, San Francisco; C. Miaskowski, Physiological Nursing, University of California, San Francisco; and L. Dunn, Psychiatry, University of California, San Francisco

Depressive symptoms that occur in 10% to 40% of oncology patients and in 30% to 50% of their FCs and have deleterious effects on their quality of life.

Recent work suggests that inflammatory processes play a major role in depression. However, little is known about genetic polymorphisms in inflammatory cytokines and depressive symptoms. In this study, differences in the frequency of the rs1800629 polymorphism in the TNF-A gene, a major pro-inflammatory cytokine, were evaluated in subgroups of patients and FCs who differed in their experience with depressive symptoms.

The Symptom Management Theory provided the theoretical framework, with genotype conceptualized as part of the "Person" domain.

Just prior to RT and monthly for six months, 167 patients and 85 FCs completed the Center for Epidemiological Studies-Depression scale. Growth mixture modelling was used to identify latent classes of participants with distinct depressive symptom trajectories. Chi-square test was used to evaluate for differences in TNF-A genotype frequency among the classes.

Four latent classes of participants with distinct depressive symptom trajectories were identified: Low Decelerating (56.3%), Intermediate Decelerating (35.2%), Late Accelerating (5.2%), and Parabolic (6%). No differences were found among the latent classes in the distribution of patients and FCs. Participants who were younger were more likely to be classified in the Low Decelerating Group. Those with higher baseline levels of trait anxiety were more likely to be in the Intermediate Decelerating, Late Accelerating, or Parabolic groups. Frequency of the rs1800629 major G allele was 70.7%. The distribution of GG homozygotes differed among the latent classes ($p = 0.004$). Patients in the Intermediate group were more likely to be GG homozygotes than patients in the Low Decelerating Group ($p < 0.007$). This study provides preliminary

evidence of distinct groups of patients and FCs who differ in their experience with depressive symptoms. Moreover, these findings provide preliminary evidence of a genetic association between a pro-inflammatory cytokine and depressive symptoms. Latent class methods may be useful to identify individuals at higher risk for depressive symptoms, along with genetic risk factors. Findings may point toward more targeted clinical interventions

BM

A LONGITUDINAL PERSPECTIVE OF THE SYMPTOM EXPERIENCE OF PATIENTS NEAR THE END OF LIFE.

C.P. Hermann, School of Nursing, University of Louisville, Louisville, KY; and S.W. Looney, Department of Biostatistics, Medical College of Georgia, Augusta, GA

An essential component in achieving better care for dying patients is to decrease suffering through the control of symptoms. There is a significant knowledge gap in care of patients near the end of life (EOL). Understanding patients' symptom experience is paramount in enhancing quality of life (QOL).

The purpose of this study was to explore the symptom experience of advanced lung cancer patients near the EOL. Specific aims were to: (1) identify the most problematic symptoms as measured by the Memorial Symptom Assessment Scale (MSAS); and, (2) examine changes in symptom frequency, severity and distress near the EOL.

This study was based on the framework of QOL, viewed as a multidimensional concept.

Data were collected within 1 month of diagnosis (n = 80), at 2 months (n = 55) and 4 months (n = 41). Except for one patient, all attrition was from death. Longitudinal data were summarized using "area under the curve" (AUC) which combines results at all 3 time points into an overall value of the measure for each subject.

The 6 most problematic symptoms (highest mean overall MSAS scores for all time points) were lack of energy, pain, shortness of breath, cough, difficulty sleeping and dry mouth. For symptom frequency, the mean score was significantly higher at baseline than 2 months ($p = 0.036$) or 4 months ($p = 0.041$). For symptom severity, the mean score was significantly higher at baseline than 4 months ($p = 0.019$). There was no significant change in symptom distress. For total MSAS score (frequency, severity and distress combined), the mean score was also significantly higher at baseline than at 4 months ($p = 0.028$). The six most problematic symptoms were analyzed individually for changes over time. There were significant increases in pain frequency. There were significant decreases in dry mouth frequency, difficulty sleeping severity, and shortness of breath distress. Patients experienced a wide variety of symptoms near the EOL. Although their average symptom frequency and severity decreased over time, their symptom distress did not. Moreover, pain frequency increased. Interventions aimed at decreasing distress associated with symptoms and at decreasing the severity of symptoms, particularly pain and lack of energy, are needed to enhance patients' QOL.

BN

DEVELOPMENT OF THE CONTINUING BONDS MODEL IN PEDIATRIC PALLIATIVE CARE.

T. Foster, School of Nursing, Vanderbilt University, Nashville, TN; M. Gilmer, School of Nursing, Vanderbilt University, Nashville, TN; B. Given, College of Nursing, Michigan State University, East Lansing, MI; and P.S. Hinds, Children's National Medical Center, George Washington University, Washington, DC

Our purpose is to describe the evolution of an empirically-based conceptual model of continuing bonds in pediatric palliative care that links legacy-making with family bereavement outcomes.

Despite the theoretical assumption that an emotional connection exists between loved ones prior to death, literature fails to explore the possible association between legacy-making (doing or saying something to be remembered) and continuing bonds (bereaved individuals maintaining connections with deceased loved ones). Legacy-making may link ill individuals to the existing continuing bonds model, as ill individuals across the age continuum participate in creating bonds, via legacies, that can continue in case of death. Perhaps conceptualization on continuing bonds should be expanded to include individuals living with life-threatening illnesses.

Methods included review of extant literature, critique of the existing theory of continuing bonds, a conceptual description of legacy-making, and a qualitative approach (content analysis of bereaved parent and sibling interviews) to model development. A longitudinal continuing bonds model with ill child and family variables was derived and included specified relationships among ill children's responses to stress, legacy-making, child suffering, bereaved family members' responses to stress, continuing bonds, and grief symptoms.

The conceptualization represented in the model of continuing bonds in pediatric palliative care indicates that palliative care experiences of seriously ill children have implications for the bereavement that their family members will subsequently experience. Legacy-making is theorized to be an ill child's effort to make more manageable the stressor of a life-threatening condition, reduce four types of personal suffering, and benefit family members before and following the child's death. Continuing bonds between the deceased child and bereaved family members can be a positive influence on the family's bereavement responses.

More work is needed to empirically measure the relationships specified in the Continuing Bonds Model in pediatric oncology. This model can provide guidance for care during a child's suffering and dying. Implementing a continuing bonds intervention while the seriously ill child with cancer is able to participate has the potential to contribute to immediate well being of dying children and subsequent well-being of their family members during bereavement.

BO

PSYCHOLOGICAL DISTRESS AND INTERVENTION TRIAL PARTICIPATION DURING TREATMENT FOR ADVANCED STAGE CANCER.

R.H. Lehto, Nursing, Michigan State University, East Lansing, MI; C.W. Given, Nursing, Michigan State University, East Lansing, MI; M. You, Nursing, Michigan State University, East Lansing, MI; and B. Given, Nursing, Michigan State University, East Lansing, MI

Psychological distress, characterized by ongoing anxiety and sleep disturbances, contributes to lowered quality of life and impaired cancer adaptation.

While an increasing literature demonstrates the ubiquity of such distress in cancer subgroups and accordant needs for targeted interventions, little is known about the role of psychological distress in predicting attrition among individuals facing treatment for advanced cancer. Study purposes were to determine if psychological distress was related to intervention completion; and secondly to determine if age, sex, cancer site, and time in trial affect attrition in randomized symptom management trials.

Interventions were based on cognitive-behavioral theory.

Data were derived from results of two randomized control trials testing effects from eight-week, six-contact symptom management interventions over a 10-week period. The study included 645 individuals diagnosed with advanced cancer (breast, colon, lung, other), who completed baseline interviews and either withdrew or remained in the 10-week trials. A total of 111 (17%) withdrew from the trials. The psychological distress measure included: severity (0–10 scale "not present to worse it could be"), interference (0–10 scale, "none to complete") of anxiety and insomnia, and nervousness extent (1–6 scale "none to all the time"). Exploratory and confirmatory factor analyses indicated one distress factor for all scales. Summed scores (range 0–46) were calculated. Univariate and multiple logistic regression models were used to examine predictive roles of psychological distress and above-mentioned secondary factors in intervention trial participation.

Participants with breast cancer tended to have higher psychological distress. Individuals with higher baseline distress were

more likely to withdraw from the trial($p < 0.0005$). Age, sex, and interactive effects were not significant. Cancer site (mainly lung cancer vs other) marginally and time duration($p < 0.0001$) predicted early attrition. The final model predicting attrition included psychological distress($p < 0.001$), time($p < 0.0001$), and lung cancer($p = 0.09$) approaching significance. Interactions between cancer site and distress, and site and time duration were not significant.

Psychological distress adversely affects intervention participation over time. Sustained anxiety and sleep disturbance may deplete cognitive resources making intervention participation more burdensome. Future research must consider evidenced-based strategies to early identify and track at-risk individuals most in need of intervention.

Podium Session 11: Lymphedema

BP

AN INNOVATIVE APPROACH TO EXAMINING LYMPHEDEMA OCCURRENCE: TRAJECTORIES AND AREA UNDER THE CURVE. J. Armer, Sinclair School of Nursing, University of Missouri, Columbia, MO; B.R. Stewart, Sinclair School of Nursing, University of Missouri, Columbia, MO; and R.W. Madsen, Sinclair School of Nursing, University of Missouri, Columbia, MO

The experience of lymphedema (LE) is variable as related to the pattern of LE emergence, with characteristics related to time since diagnosis, duration of the LE episode, frequency of limb volume change (LVC) events, and overall time spent in the state defined as LE. Recognition of these characteristics, examination of trajectories, and application of the ability to quantify the LE state through calculation of Area Under the Curve provide an opportunity to further examine the association of LVC with psychosocial and functional outcomes of interest.

Breast cancer (BC) survivors are at lifetime risk for developing lymphedema, a sequelae of cancer treatment that impacts functional outcomes. The goal of this report was to explore new ways to quantify LE occurrence to better examine impact of LE on survivorship outcomes.

The research was based on Armer's biopsychosocial model of post-breast cancer LE with predisposing, mediating, and outcome variables.

Participants were enrolled following BC diagnosis and followed every 6 months through 60 months. The criterion of 10% LVC (LePCT) by perometry was chosen to demonstrate use of trajectories and utility of calculating Area Under the Curve (AUC). We examined times when a subject met the criterion as a means of following the trajectory of LE and quantified the proportion of (calendar) time that a subject appeared to have LE by looking at the AUC determined by the individual's graph. As study time differed, rather than look at AUC alone, we looked at the percent of time that a subject met the LE criterion by dividing AUC by total study time.

Over the 60-month time-stamps of data collection points, we examined trajectories or patterns of events where participants met the LE criterion of interest. An individual may have a single LVC "spike" or may have multiple "spikes." These cases may be acute, transient, or chronic. Further, individuals may experience the LVC early or late in the survivorship trajectory. These variations contribute to varying AUC and percent of the (calendar) time that a subject meets the LE criterion. These approaches provide an opportunity to further examine the association of LVC with psychosocial and functional outcomes of interest in cancer survivorship.

BQ

IMPACT OF BODY MASS INDEX AND WEIGHT GAIN ON LYMPHEDEMA RISK IN WOMEN WITH BREAST CANCER. M. Singer, Cancer Center, Massachusetts General Hospital, Boston, MA; M. Skolny, Cancer Center, Massachusetts General Hospital, Boston, MA; T.A. Russell, Cancer Center, Massachusetts General Hospital, Boston, MA; J. O'Toole, Cancer Center, Massachusetts General Hospital, Boston, MA; M. Ancukiewicz, Cancer Center, Massachusetts General Hospital, Boston, MA; A. Taghian, Cancer Center, Massachusetts General Hospital, Boston, MA; B.R. Stewart, School of Nursing, University of Missouri, Columbia, MO; and J.M. Armer, School of Nursing, University of Missouri, Columbia, MO

Secondary lymphedema (LE) is a complication of breast cancer treatment that significantly impacts quality of life for survivors. The incidence is widely variable and can occur any time after treatment. Several studies have suggested that body mass index (BMI) and weight gain may play a role in LE risk. Given emerging data on the role of weight management in reducing breast cancer recurrence, there is a growing need to explore interventions related to lifestyle modification that may reduce both morbidity and mortality from breast cancer.

The purpose of this study is to evaluate the impact of BMI on the incidence of LE in a cohort of patients. The research question is "Do women with high BMI have a higher probability of developing LE than women with normal BMI?

The influence of BMI and weight gain on LE risk is not well understood. As part of a screening trial for early LE, data was collected to evaluate natural history, risk factors, arm functionality and quality of life. The current analysis represents an interim analysis of the relationship of BMI to risk of lymphedema, controlling for influence of other treatment related factors, such as axillary node sampling, radiation and medical therapies.

Data were available for 399 subjects from a large urban comprehensive cancer center, during the period of 2005–2009 with at least 12 months of follow-up measures. Descriptive, univariate, bivariate and multivariate analyses are reported. BMI > 25 was defined as overweight. Threshold for lymphedema diagnosis was set at a RVC (relative volume change) of 5% measured by perometry.

By bivariate analysis, both BMI >25 at baseline and ALND dissection were significantly correlated with incidence of LE (OR = 1.89 and 2.9 respectively); additional clinical factors were not significantly correlated with LE incidence by multivariate analysis, completed by logistical regression. After controlling for ALND and radiation to the axillary lymph nodes, BMI > 25 increased the OR for LE incidence by 2.09 ($p < 0.001$).

Weight control may have significant implications for risk reduction and management of LE in breast cancer survivors.

BR

BREAST CANCER SURVIVORS SPEAK: OUR DEEPEST THOUGHTS AND FEELINGS ABOUT LYMPHEDEMA. S.H. Ridner, School of Nursing, Vanderbilt, Nashville, TN

Approximately 30% of the 2.5 million breast cancer survivors (BCS) have lymphedema and all are at risk. BCS with lymphedema often describe lymphedema as being worse than having breast cancer. Little information is available to nurses regarding the psychological distress experienced by BSC with lymphedema.

Lymphedema treatment focuses on volume reduction. Arms seldom return to normal size and life-long self care is needed to maintain therapeutic gains in volume reduction, slow disease progression, and reduce infection risk. BCS with lymphedema experience psychological distress related to the chronic nature of lymphedema. An understanding of the psychological distress associated with this chronic condition is needed to assist in development of nurse sensitive interventions and to improve quality of life (QOL). These data were collected as part of a parent study that aimed to test the effects of expressive writing on physical and psychological symptoms and QOL in BCS with lymphedema.

Cognitive theory guided the parent study and suggests: simple venting of emotions does not improve health outcomes; cognitive processing (organization of memories into narrative structures) improves health outcomes; and written expression of emotions

in controlled conditions facilitates cognitive processing. Phenomenology guided the choice of writing instructions.

During four, 20-minute, home-based, writing sessions completed over two weeks, 51 BSC wrote their deepest thoughts and feelings about living with lymphedema. Completed writings were randomly ordered and qualitative content analysis was undertaken. Saturation was reached after analysis of writings from 39 participants. Themes were identified. Descriptive statics were used to determine demographic characteristics.

Participants had lymphedema for about 5 1/2 years, were 20% African American, and approximately 56 years old. Nine themes emerged: (1) marginalization; (2) fear; (3) loss; (4) body image disturbance; (5) disease management failure; (6) psychological distress; (7) value of psychosocial support; (8) spiritual coping; and (9) gratitude. Feelings of spiritual coping and gratitude were more apparent in later writings, suggesting that cognitive processing occurred. Identified themes would likely respond to nurse-sensitive interventions (e.g., patient education for disease management, psychosocial support/coping assistance). Nurses are in a unique position to offer supportive care to BCS with lymphedema.

BS

NEUROSENSORY AND FUNCTIONAL RECOVERY THROUGH TWO YEARS AFTER BREAST CANCER SURGERY.

R. Crane-Okada, School of Nursing, University of Missouri, Columbia, MO; R. Carroll-Johnson, Nursing Research, City of Hope, Duarte, CA; P. Mirzadehgan, John Wayne Cancer Institute, Santa Monica, CA; L.M. Deacon, John Wayne Cancer Institute, Santa Monica, CA; D. Elashoff, John Wayne Cancer Institute, Santa Monica, CA; and A.E. Giuliano, John Wayne Cancer Institute, Santa Monica, CA

Queries by women about symptoms after breast cancer surgery are coupled with concerns about resumption of activities of daily living, signs of recurrence, and risk of lymphedema. Nurses have minimal scientific evidence to guide them when assessing subjective and objective symptom patterns over time. This is particularly true following SLNB.

The objective of this longitudinal prospective panel study was to compare, over two years, the subjective and objective incidence, chronicity, and severity of postoperative sensory changes, lymphedema, and range of motion (ROM) in women following complete axillary lymph node dissection (ALND) or SLNB for breast cancer.

The study was based on cancer survivorship and quality of life conceptual frameworks.

Study participants completed questionnaires about upper arm use, and symptoms in the arm, shoulder, chest or breast before surgery and at 6, 12, 18 and 24 months postop. An advanced practice nurse conducted simultaneous assessments for upper extremity ROM (abduction), arm circumference, and neurosensory changes. Inferential and nonparametric statistics were used for description of the sample; chi-square and t-tests for evaluating differences between groups by age and surgical procedure.

Mean age of participants (N = 129) was 57 years (32–87); the majority were married, White, and treated with lumpectomy and SLNB. The most frequent symptoms immediately after surgery were breast/chest or axilla pain, shoulder abduction limitation, weakness and stiffness. In addition to these, numbness of the axilla and arm were significantly greater for ALND participants. Most early postop symptoms declined over time, with only two significant differences noted by surgery type at 6 and 18 months. Breast or chest pain or tenderness persisted for many. On physical examination ALND participants were significantly more likely than SLNB participants to have decreased or absent soft, pressure, and sharp sensation on the ipsilateral proximal anterolateral arm to touch with cotton wool, 4.31 monofilament, and needle at each time point after surgery. Few participants had arm circumference measures of > 2 cm at any time. Preoperative identification of ipsilateral arm and shoulder symptoms and understanding of symptom patterns over time will better guide nurses and other healthcare providers in promoting long-term survivorship with minimal complications.

Podium Session 12: Qualitative Research Studies

BT

COPING WITH BREAST CANCER; THE LEBANESE EXPERIENCE.

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Breast cancer is the most common malignancy affecting women worldwide. In Lebanon, a country of 4 million people, breast cancer is also the most prevalent type of cancer among Lebanese women. It is noted that the survival rates of breast cancer is increasing; therefore, the number of women living with long-term consequences of breast cancer treatment is also augmenting. Women's responses to and coping with the diagnosis of breast cancer have become an area of growing concern to many researchers. However, the majority of research on women's coping with breast cancer has been conducted in western countries. So far, no documented research study is found on the experience of coping in Lebanese women with breast cancer.

The purpose of this study was to gain a more in depth understanding of the coping strategies espoused by breast cancer Lebanese women.

This was a phenomenological hermeneutic study. The study followed purposeful sampling and saturation principles in which 10 female participants diagnosed with breast cancer, stages I-III were interviewed based on their genuine knowledge of the phenomena, and their willingness to communicate that information. All interviews were audio taped and transcribed verbatim. Data were analyzed following a hermeneutical process as described by Diekelmann and Ironside.

Seven main themes and one constitutive pattern emerged from the study describing the Lebanese women's coping strategies with breast cancer. Results revealed that different coping strategies have different impacts on the participants' lives and morale. Emerging positive coping strategies and hindering factors are similar to experiences and coping strategies of other breast cancer women; however, the negative stigma of cancer in the Lebanese culture, the role of women in the Lebanese families, and the imbedded role of religion in Lebanese society are bases of the differences in the coping strategies of Lebanese women with breast cancer. The results of the present study add to the knowledge base, as they portray subjective experiences of coping with breast cancer. These findings cannot be directly generalized but they could act as a basis for further research on which to base a development of a framework for an approach to care that promotes coping processes in Lebanese women living with a breast cancer.

BU

SELF-REPORTED SIDE EFFECTS AND SIDE EFFECT SEVERITY REGARDING MEDICATION-TAKING FOR WOMEN WITH BREAST CANCER TAKING ORAL AROMATASE INHIBITOR THERAPY.

K. Wickersham, School of Nursing, University of Pittsburgh, Pittsburgh, PA; M. Happ, University of Pittsburgh, Pittsburgh, PA; and C.A. Bender, School of Nursing, University of Pittsburgh, Pittsburgh, PA

Aromatase inhibitor therapy improves clinical outcomes for post-menopausal women with breast cancer. Although adherence to aromatase inhibitors such as anastrozole is essential for optimum therapeutic effect, non-adherence rates as high as 50% have been reported.

Side effects of aromatase inhibitors have been reported to be a primary reason for non-adherence. Unfortunately, reports of medication nonadherence and discontinuation rates do not provide a

complete assessment of the medication-taking experiences, including side effects, associated with aromatase inhibitors. The purpose of this study is to comprehensively describe women's views concerning side effects as they relate to medication-taking experiences for women with breast cancer receiving anastrozole therapy.

Qualitative description within a Grounded Theory framework was used to generate descriptive theory grounded in the medication-taking experiences of women with breast cancer treated with anastrozole.

This study employed basic qualitative description. Criterion-related sampling was used to select a representative sample (12–20) of adult, post-menopausal women with early stage breast cancer in Western Pennsylvania who completed the first six months of anastrozole therapy. High- (100%), medium- (80%–99%), and low- (79% or below) adherers (measured with a medication event monitoring system [MEMS]) receiving anastrozole therapy alone or with chemotherapy, as well as those who discontinued anastrozole, were invited to participate in in-depth, audio-recorded interviews. Qualitative content analysis with constant comparison was used to ensure proper fit between categories and the women's views.

Twelve women aged 58–67 were interviewed. All underwent surgery and radiation therapy; most (10) received anastrozole without chemotherapy. MEMS adherence (183–575 days) indicated two high-adherers (100%), eight moderate-adherers (84.2%–99.9%), and two low-adherers (38.3%–52.2%). Analyses revealed thorough description of women's individual perceptions of side effects related to medication-taking. Most commonly reported side effects included hot flashes, joint/bone/muscle pain, and fatigue. Dimensions included timing, duration, severity, characterization, frequency, causality, and management strategies. Most women (11/12) indicated that side effects did not deter them from taking anastrozole. Findings suggest side effect trajectories vary, indicating a need for ongoing side effect assessment after therapy is well-established. Findings provide the basis for future investigations of medication-taking experiences of oral hormonal therapies for women with breast cancer.

BV

ORAL MUCOSITIS, DYSPHAGIA, AND CHANGES IN SALIVATION IN PATIENTS RECEIVING RADIOTHERAPY FOR HEAD AND NECK CANCER: A QUALITATIVE STUDY.

C.G. Brown, School of Nursing, College of Health Sciences, University of Delaware, Newark, DE

Nearly all patients with head and neck cancer who receive radiotherapy will experience mucositis. Less is known about the problems of dysphagia and salivary changes that often accompany mucositis in these patients.

The purpose of this hermeneutic phenomenological qualitative study was to describe the experience of oral mucositis, dysphagia, and changes in salivation in patients who had recently undergone radiotherapy for head and neck cancer.

Hermeneutic Phenomenology and Giorgi's Phenomenological Methodology guided this study.

Participants consisted of adults (n = 7) from a National Cancer Institute Community Cancer Center in the Mid-Atlantic United States who were interviewed approximately 4–6 weeks after completing radiation therapy. These singular, taped interviews were transcribed and then analyzed by a group of researchers using phenomenological techniques. Three qualitative researchers each coded the patient transcripts and then the team of researchers uncovered overall themes related to the lived experience of oral mucositis. ATLAS.ti, a workbench of software for the qualitative analysis of large bodies of textual, graphical, audio and video data, was utilized to assist with the organization and analysis of the qualitative data.

Qualitative analysis revealed specific themes surrounding problems with oral mucositis (pain, alteration in mood), dysphagia (fear of choking, difficulty eating/drinking), and changes in saliva (hypo/hypersalivation). Findings from this study helped uncover the lived experience of oral mucositis, dysphagia, and changes in salivation from the patient's perspective. These patient centered findings, often presented in their own words, will add impetus to this difficult conglomeration of factors adding to a much larger symptom problem. The findings will help oncology providers understand how oral mucositis, dysphagia, and changes in salivation affect quality of life and alterations in daily living. This understanding will be the first step in designing clinical interventions to assist patients during and after cancer treatment.

BW

"SEEING COFFINS IN THEIR EYES": UNSUPPORTIVE INTERACTIONS EXPERIENCED BY WOMEN IN THE INITIAL DAYS FOLLOWING BREAST CANCER DIAGNOSIS.

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Extensive research indicates that social support is essential to the mental wellbeing and adjustment of women with breast cancer. It is also imperative however to identify social interactions that women with breast cancer perceive as unsupportive as these encounters are associated with reduced disclosure of concerns and poorer emotional wellbeing. Several forms of unsupportive interaction have been identified, such as minimizing women's concerns or distancing emotionally or physically.

Research on unsupportive interactions is limited. Particularly unexplored are interactions perceived by women to be unsupportive during the highly stressful period initially following breast cancer diagnosis when the first disclosures of the new diagnosis are made to friends and family.

The purpose of this analysis was to identify interactions with friends, family and others that women perceived as unsupportive during the period initially following breast cancer diagnosis.

Qualitative descriptive methodology was used to explore women's experiences following breast cancer diagnosis and identify thoughts and behaviors associated with initial adjustment.

A purposive sample of 26 women ranging in age from 39–81 years, diagnosed with stage 0–II breast cancer within the prior 35 days (mean) participated in open/semi-structured interviews prior to and after surgery. During the course of interviewing, women were asked, "Who have you told about your diagnosis and what were their reactions?"

Directed content analysis was used by members of the research team to independently and jointly analyze the transcribed interviews. Themes previously identified by Ingram et al. were used to categorize incidents of unsupportive interactions. Incidents not fitting preexisting themes led to creation of new themes.

In addition to distancing and minimizing responses, our analysis revealed new unsupportive responses including Premature grieving, Providing ill-timed/incorrect information, and Spreading the word that women both experienced and altered their behavior to avoid.

These new findings contribute to the literature on unsupportive social interactions experienced by women with newly diagnosed breast cancer. Future research should explore the influence of these interactions on psychological adjustment. Nurses may use these findings to guide patients' families and friends and provide anticipatory guidance to women to manage unsupportive interactions thus potentially facilitating their psychological adjustment

Podium Session 13: Research: Methods and Careers

BX

NURSING PRACTICE ENVIRONMENT AND OUTCOMES FOR ONCOLOGY NURSING.

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C.R. Friese, School of Nursing, University of Michigan, Ann Arbor, MI

The Institute of Medicine report "Keeping Patients Safe" identified the importance of favorable nursing practice environments for patient safety. Although unfavorable nursing practice environments have been linked to adverse outcomes, studies focused on oncology settings are limited by small sample sizes and absence of important covariates.

This study compared outcomes between nurses working in oncology units and medical/surgical units, and identified factors that affect oncology nurse outcomes.

Quality Health Outcomes model which outlines the relationships between organizational factors and outcomes was used to guide the analysis.

This secondary analysis used 2006 nurse survey data from three states. First, nurses working in oncology units were compared with those working in medical/surgical units on nursing practice environment, and nurse outcomes (emotional exhaustion, job dissatisfaction, intention to leave current position, and nurse-reported quality of care). Logistic regression was then used on the oncology nurse sample to examine the relationship between nursing practice environment subscales and these nurse outcomes, controlling for demographics, nurse staffing and clustering within hospitals.

The dataset included 708 oncology nurses and 3339 medical/surgical nurses from 442 acute care hospitals. Compared with med/surg nurses, oncology nurses reported significantly lower emotional exhaustion ($p < 0.05$), lower job dissatisfaction ($p < 0.05$), more favorable practice environments and higher quality of care ($p<0.01$). For the oncology nurses, logistic regression results suggest that favorable nursing foundations for quality and nurse physician relationships were significantly associated with lower likelihoods for emotional exhaustion (OR = 0.49, 95%CI = 0.28–0.84, OR = 0.67, 95%CI = 0.47–0.96) and intent to leave their position (OR = 0.5, 95% CI = 0.3–0.86). Favorable nursing foundations for quality was associated with lower likelihood of job dissatisfaction (OR = 0.43, 95% CI = 0.25–0.74). Lower patient workloads were associated with a higher likelihood to report good or excellent care quality (OR = 1.04, 95% CI = 1.01–1.09).

Consistent with previous findings, oncology nurses reported more favorable practice environments and outcomes than med/surg nurses. Favorable nursing foundations for quality of care and nurse-physician relationships contribute to optimal outcomes for oncology nurses. Quality of cancer care can be improved by decreasing the work load of oncology nurses in the acute care setting.

BY

SEARCHING FOR INSIGHT: THE CRITICAL ROLE OF PROBLEM FORMULATION IN ADVANCING CANCER NURSING RESEARCH.

K. Mooney, College of Nursing, University of Utah, Salt Lake City, UT

The purpose of this presentation is to discuss the importance of effective problem formulation in developing a study or program of research and to outline several strategies to improve problem definition in cancer nursing research.

Choosing a problem focus for a particular study or program of research generally involves identification of a cancer-related clinical problem then reviewing the literature to determine gaps. Important incremental progress is made through this approach. However, to make significant progress in science, reformulating current questions and addressing problems from new and more productive angles is necessary. Innovative reformulation of a problem requires insight. Insight can be achieved through several avenues. These include removing current mental blocks, finding a problem analogy that adjusts the conceptual view, reorganizing information in new ways through visual mapping or completing a schema that addresses a current puzzle. A variety of strategies can be used to improve innovation and problem definition. Utilizing these strategies when formulating research projects could accelerate cancer nursing science.

This presentation will focus on strategies that enhance innovation and new approaches to defining and formulating cancer nursing clinical problems, formulating research questions and proposing interventions. The nature of insight in problem reformulation will be described. Then specific strategies that facilitate insight will be identified and demonstrated through application to a variety of cancer nursing research areas including symptom and quality of life research. Strategies will include conceptual mapping, visual representation, analogy, lateral and divergent thinking and drawing from other fields and disciplines. Emphasis also will be placed on the role of synthesizing approaches and determining potential impact to move cancer nursing science forward.

Progress in solving the significant clinical problems faced in cancer care requires innovative science. Innovation is enhanced through scientific insight and problem framing that leads to important advances.

Cancer nursing research could benefit from greater attention to problem formulation. Strategies exist that enhance scientific insight. Nurse researchers should integrate such techniques into study development. Ideally this would begin during PhD education and continue throughout a scientific research career.

BZ

KEY FACTORS LEADING TO SUCCESS IN ACADEMIC RESEARCH CAREERS.

J.K. Brown, School of Nursing, University at Buffalo, State University of New York, Buffalo, NY

A seasoned academic researcher and senior university administrator will discuss key factors for success in advancing academic research careers.

Publish or perish is the mantra that describes success or failure in academic research careers. In recent years, National Institutes of Health funding has been added to the criteria for success. Yet success can be elusive if key factors are not recognized and cultivated.

It takes more than intellect, substantive knowledge, funding, and publications to succeed in an academic research career. Being smart and an expert in one's substantive area is a given, but being successful requires engaging mentors, creating and using brain trusts, networking with colleagues, recognizing and maximizing serenditiy, learning from one's successes and failures, and having a passion for one's work that provides the will to persevere. In discussing each of these factors, the author will provide examples from her career as an oncology nurse researcher and senior university administrator.

Building oncology nursing science is like a relay race. We all share a stake in the success of the next generation of oncology nurse scientists. Thus, we all need to contribute to the success of our colleagues by being teachers, mentors, and members of brain trusts and networks. Ultimately, the success of our oncology nurse scientists leads to improved evidence for cancer patient care.

The Oncology Nursing Society and Advanced Nursing Research Special Interest Group provide unique opportunities for oncology nurse researchers to cultivate these key factors for success.

CA

WEB-BASED SURVEY METHODS IN ONCOLOGY NURSING RESEARCH: EXAMPLES FROM THE FIELD.

M.J. Wells, School of Nursing, UCLA, Los Angeles, CA; L.P. Sarna, School of Nursing, UCLA, Los Angeles, CA; and S.A. Bialous, Tobacco Policy International, San Francisco, CA

The purposes of this paper are to describe the advantages and disadvantages of Web-based survey methods and lessons learned from employing this strategy in our research studies.

Paper-and-pencil questionnaires are relatively easy ways of obtaining data but disadvantages include expense (personnel

and postage) and time-intensive data entry. Web-based surveys are increasingly used as data collection tools due to ease of use, low cost and the potential to reach large samples.

There are few reports of how to best utilize Web-based survey methods in the nursing literature. Our research group gained experience using these methods including pop-up surveys, national and international cross-sectional and longitudinal surveys. As a result, we have gained practical expertise and an appreciation of the advantages and disadvantages of these strategies. Lessons learned, to be discussed, include: the ability to get a larger, more representative sample; greatly reduced costs, effortless data entry easily imported into statistical programs, and condensed storage space. E-mail survey invitations, reminders and follow-ups are relatively easy to implement and many, if not most nurses have access to computers and can participate in online surveys or educational activities. These surveys are easy to create and allow the researcher to obtain data in a timely fashion as well as utilize mixed method approaches, i.e. Web-based surveys combined with interviews.

Limitations include the participants' possible limited computer and/or Internet access, low computer literacy, difficulty motivating potential participants to open, read and respond to e-mail invitations, and e-mails being bounced as spam. Not all paper and pencil-surveys are easy to adapt as online tools and reliability and validity need to be reassessed.

Web-based surveys are useful whenever questionnaire data is desired and the population to be assessed has the access and technological knowledge to complete an online survey. In the oncology nursing literature, there are few reports of Web-based surveys despite their potential.

Researchers can save time and money by using Web-based surveys. The availability of this technology provides new opportunities for oncology nurse researchers to explore research questions via the internet.

Podium Session 14: Cultural Influences on Risk Perception and Disclosure

CB

THE MEANING OF BREAST CANCER RISK AND SURVEILLANCE BEHAVIORS AMONG HIGH RISK AFRICAN AMERICAN WOMEN.

M.Z. Cohen, College of Nursing, University of Nebraska Medical Center, Omaha, NE; and J. Phillips, Nursing Research and Center for Clinical Cancer Genetics and Global Health, University of Chicago Medical Center, Chicago, IL

While the overall incidence of breast cancer is higher in white women after age 45, there is a higher incidence of breast cancer in African American women under age 45. Once diagnosed with breast cancer, young African American women often present with aggressive tumor types that are less responsive to traditional breast cancer treatment.

Little is known about risk perceptions and surveillance behavior among African American women who are age 40 and under and have a high risk of breast cancer. High risk was a personal history and or family history of breast cancer, and/or positive genetic mutation for breast cancer. The purpose of the study was to better understand these women's experiences with breast cancer risk.

This study was based on hermeneutic phenomenological philosophy and approach, also called the Utrecht School of Phenomenology.

Nineteen high risk African American women age 22–40 were interviewed twice using phenomenological techniques. Data collection stopped when no new themes were apparent. Interviews were tape recorded, transcribed verbatim, and analyzed phenomenologically in order to understand the essential elements in their experience of being at high risk for breast cancer. Analysis involved examining data line by line, and labeling all important phrases with tentative theme names. A majority of women described being at high risk for breast cancer as a life changing experience. Relationships were often changed from this experience- some ended and others became closer. Informing family, especially daughters, and raising awareness in the community were important. Women with or without a breast cancer diagnosis identified reducing stress and weight management as critical to reducing personal breast cancer risk. Faith in God was central to living with a potential threat or actual diagnosis of breast cancer. Women expressed that breast cancer does not respect age, thus health care professionals need to be educated about this. Issues of cost of health care and tests were often prohibitive with implications for delays in treatment. Findings from this phenomenological inquiry underscored the need for targeted education and emotional support for young high risk women.

CC

PATIENT SATISFACTION AND CANCER-RELATED DISTRESS AMONG UNSELECTED JEWISH WOMEN UNDERGOING GENETIC TESTING FOR BRCA1 AND BRCA2.

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Many nurses are involved in the delivery of cancer genetics services to high-risk individuals. This may include standard genetic counseling. As genetic testing for BRCA1 and BRCA2 mutations becomes more common in clinical practice, it is important for nurses to understand the psychosocial implications of the delivery of various modes of delivering genetic testing and counseling.

It is not known to what extent participation in a genetic testing program for BRCA1/2 which does not include an extensive pre-test counselling session influences cancer-related distress, cancer risk perception and patient satisfaction. Women with a BRCA1 or BRCA2 mutation have up to an 87% lifetime risk of developing breast cancer. There are options available to greatly reduce this risk of cancer. For certain populations (ex. Jewish), the risk of having a BRCA mutation is elevated. However, there are strict guidelines for genetic testing based on family history of cancer and genetic testing is not currently offered to women without a personal or family history of cancer.

Unselected Jewish women in Ontario, Canada were offered genetic testing for three common Jewish BRCA mutations. Prior to testing and one year post-testing, the women completed questionnaires which assessed cancer-related distress, cancer risk perception, and satisfaction. Student t-tests were used to compare the mean value of continuous variables and Chi-square test was used to compare the frequency of categorical variables between sub-groups. Paired t-tests were used to compare the estimations of cancer risk and cancer related distress, pre and post genetic testing.

2080 women enrolled in the study; of these 1516 (73%) completed a one-year follow-up questionnaire. In women with a BRCA mutation, mean breast cancer risk perception increased from 41.1% to 59.6% after receiving a positive genetic test result ($p = 0.002$). Among non-carriers, breast cancer risk perception decreased slightly, from 35.8% to 33.5% ($p = 0.08$). The mean level of cancer-related distress increased significantly for women with a BRCA mutation, but did not change in women without a mutation. 92.8% expressed satisfaction with the testing process. The results of this study suggest that the majority of Jewish women who took part in population genetic screening for BRCA1 and BRCA2 were satisfied with the delivery of genetic testing and would recommend testing to other Jewish women. However, women with a BRCA mutation experienced increased levels of cancer-related distress.

CD

HUMAN PAPILLOMAVIRUS (HPV) INFECTION AND CERVICAL CANCER COMMUNICATION: THE PROTECTION DILEMMA FACED BY WOMEN IN SOUTHERN APPALACHIA.

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HPV is the most common sexually transmitted infection and the necessary cause of cervical cancer. Major changes in cervical cancer screening and prevention have caused a shift in public awareness of the disease. Understanding this awareness shift is critical to addressing cervical cancer disparities in Appalachia. Since HPV vaccine approval, no data exist exploring HPV risk assessment and vaccine safety perceptions among Appalachian women.

Cervical cancer mortality rates in selected Appalachian counties are 2.5 times higher than the national average. The specific aims of the study were to: (1) explore participants' ability to assess risk of HPV, cervical cancer, and HPV vaccine side-effects; and (2) investigate communication and cultural issues that may influence HPV vaccine uptake among Southern Appalachian women.

Given the qualitative nature of this study, the naturalistic paradigm was used as the philosophic frame of reference.

We employed a qualitative, descriptive design to address the aforementioned specific aims among women in Northeast Tennessee and Southwest Virginia. Thirty-eight women between 18-50 years participated in a single individual interview or focus group session. All interview data were audio-taped and transcribed verbatim. NVivo 8.0 software facilitated qualitative content analysis and thematic generation.

Two major themes were inductively derived from the data including: (1) the HPV protection dilemma and (2) risk assessment in the context of HPV-related silence. The first theme characterizes the difficulty participants faced with assessing risk of HPV, cervical cancer, and HPV vaccine safety. Participants conveyed the introduction of risk as a result of protecting themselves or their daughters regardless of their decision (i.e. risk of unanticipated vaccine side-effects or risk of cervical cancer due to non-vaccination). The second theme highlights family, community, and healthcare provider communication issues that contextualize the risk assessment challenges in the context of national public awareness campaigns and the vaccine resistance movement. The findings from this study suggest areas for future research and assist healthcare professionals in approaching Southern Appalachian women as they make decisions about cervical cancer surveillance practices and vaccination.

CE

DISCLOSING A PROSTATE CANCER DIAGNOSIS: UNDERSERVED LATINO MEN WITH PROSTATE CANCER.

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Little is known about how Latino men who have been treated for prostate cancer approached their treatment and disclosure decision situations nor about how high-risk brothers and sons perceive their risk and approach screening. Without understanding practices, experiences, and attitudes toward prostate cancer treatment, disclosure, and screening, it will be impossible to develop an evidence base from which to facilitate culturally relevant support as treatment, disclosure, and screening situations are faced by men in this vulnerable and growing Latino population.

Therefore, the purpose of this study was to understand prostate cancer treatment, disclosure, and screening decision situations from the perspectives of Latino men who have made those decisions and high risk brothers and sons of Latino men treated for prostate cancer. These understandings will form the evidence base to develop culturally relevant interventions to support Latino men faced with prostate cancer treatment, disclosure, and screening decisions.

Symbolic interactionism (SI) is the framework grounding this study. Disclosure is an interactive process in which meanings are attributed to prostate cancer and its disclosure within cultural contexts. This study illuminates the meanings and interactions describing the process of disclosure by underserved Latino men with prostate cancer and ascribing risk by first degree male relatives.

A two-group descriptive design using "fundamental" qualitative description was employed. Two sets of interviews were conducted. We interviewed Latino men who have been treated for prostate cancer and high risk brothers and sons of Latino men with prostate cancer. In-person interviews were conducted with 30 men in each group. Interviews were audiotaped and transcribed verbatim and Spanish transcripts were translated using method developed in previous studies. Analysis used grounded theory techniques.

This presentation will focus on results from the first specific aim on treatment and disclosure decisions. Results revealed that men relied on their physician as the "expert" for the treatment decision. Men saw their treatment decision as the decision to do what the expert advised. Disclosure of the diagnosis had several levels: Need to Know, No need to Know, Need to Tell. If brothers or sons lived at a distance, they were considered to not have a need to know. Wives and close family needed to know and employers needed to be told. Of particular concern are first degree male relatives in the "No need to Know" category because of their increased risk for prostate cancer. Interventions focused on facilitating the sharing of the diagnosis and risk information by Latino men will be developed based on these results.

Podium Session 15: Cancer-Related Fatigue

CF

DEFINING CANCER-RELATED FATIGUE (CRF) FOR PATIENT-REPORTED MEASUREMENT.

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Fatigue is the most common, distressing symptom related to cancer, affecting 25%–100% of patients receiving treatment. Assessment and management of symptoms is a primary role of oncology nurses. This study addresses the 2009–2013 ONS Research Agenda content area of cancer symptoms and side effects.

While there is agreement that cancer-related fatigue (CRF) is a symptom that is best gauged by patient report, agreement on the definition and best measurement method for CRF is lacking. This lack of agreement impedes the ability of oncology nurse clinicians and researchers to measure and treat CRF. The purpose of this study is to define through patient descriptions the content domain for the measurement of CRF.

The philosophical framework for this study is Story Inquiry. Using Story Inquiry, the researcher allows participants to share the experience of a complicating health challenge in a clear and understandable way.

This is a qualitative, cross-sectional study of 64 purposively-sampled participants with self-identified CRF, receiving various

therapies for a variety of cancers at a comprehensive cancer center in the southern United States. Participants described their experiences of fatigue in single audiotaped, story-based dialogues. Using an exploratory descriptive method, the researcher analyzed verbatim transcripts of the dialogues and developed themes of the fatigue experience, which were reviewed and confirmed by other researchers to ensure accuracy. The themes were used to construct a definition of CRF and a description of the fatigue experience.

Patients receiving therapy for cancer overwhelmingly define CRF as tiredness and lack of energy on a continuum from very mild to completely debilitating. Temporal patterns of CRF vary with treatment. Other symptoms and interference with normal functioning are associated with CRF, but they are not CRF. The ideal content domain for patient-reported assessment of CRF is tiredness or lack of energy measured on a severity continuum. For purposes of clinical and research measurement, a single-item rating of severity, as is done with pain, provides an excellent patient-report of CRF. It is important to measure CRF longitudinally since it varies over time, and particular uses may necessitate the measurement of other symptoms and functional interference associated CRF.

CG

ARE CHANGES IN ADAPTIVE CAPACITY RELATED TO AND PREDICTIVE OF FATIGUE IN ADVANCED CANCER PATIENTS?

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We have proposed that declines in adaptive capacity, defined as the ability to adapt to multiple stressors, may serve as an early indicator of fatigue. An instrument that measures adaptive capacity would facilitate testing of interventions intended to improve adaptive capacity and prevent or alleviate fatigue.

The lack of a measure of adaptive capacity prevents the study of links between adaptive capacity and fatigue. The purpose of this study was to construct a measure of adaptive capacity.

This study was based on stress theory and the Edmonton Fatigue Framework (EFF).

Using descriptive and psychometric approaches, we recruited 228 adults with advanced cancer, stratified using the Edmonton Symptom Assessment System (ESAS) tiredness score ((≥ 0 to ≤ 2 n = 60; ≥ 3 to ≤ 6 n = 108; ≥ 7 and ≤ 10 n = 57). Following ethics approval, 17 experts in symptom management assisted with content validation and participants completed the Functional Assessment of Cancer Treatment-Fatigue (FACT-F), the Profile of Mood States-Vigor short form (POMS-Vsf), and the ACI. Eastern Cooperative Oncology Group (ECOG) scores were assigned to participants. Data were analyzed using descriptive and inferential statistics (i.e., exploratory factor analyses, correlation, multiple analyses of variance, and multiple regression).

Five 6-item ACI factors/subscales (Cognitive Function, Stamina/Muscle Endurance, Sleep Quality, Emotional Reactivity, and Social Interaction) consistent with the EFF were identified. The ACI-Total scale and its subscales were internally consistent (Cronbach's alpha 0.76 to 0.89), were significantly correlated with each other, and with each fatigue measure (Pearsons r ranging from -0.724 to 0.634). The ACI total score was sensitive to changes in the ESAS tiredness score. Stamina/Muscle Endurance, Cognitive Function, and Sleep Quality predicted 60.8% of the variance in FACT-F. Stamina/Muscle Endurance and Social Interaction predicted 36.8% of the variance in POMS-Vsf. Stamina/Muscle Endurance and Sleep Quality predicted 8% of the variance in ECOG. The ACI is a valid and reliable measure of adaptive capacity. In future studies we will evaluate its sensitivity, specificity, and predictive value for detecting early changes in perceived fatigue and and its relationship with selected biomarkers.

CH

FATIGUE PREVALENCE, SEVERITY, AND CORRELATES IN PHASE I CANCER CLINICAL TRIALS: PATIENT-REPORTED OUTCOMES.

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Phase I cancer clinical trials rarely collect Patient-Reported Outcome data (PRO) on symptoms such as fatigue. More commonly, providers rate patient symptoms themselves using the National Cancer Institute's Common Terminology Criteria for Adverse Events (CTCAE). Currently, there is much research interest expressed by the Federal Drug Administration (FDA) and others to incorporate valid PROs in these trials. This is one of the first studies to measure fatigue and other symptom PROs in these early phase trials.

Providers are beginning to identify fatigue as one of the major rate-limiting adverse events in some of these early phase drug development trials. Of significance, many of these newer agents also are exhibiting different symptom profiles than those previously observed. Thus it is important to investigate these symptoms from the patient's perspective. The primary study purpose is to identify the prevalence and severity rates of fatigue from cancer patients participating on Phase 1 clinical trials. A secondary purpose is to identify correlates of fatigue in these patients.

Components of the Integrated Fatigue Model (IFM©) guide this study.

Design: Cross-sectional, exploratory study. Sample: Advanced cancer patients (N = 30) enrolled on Phase I clinical trials. Setting: One large Southwestern outpatient early phase trial setting. Measures: Validated scales (Piper Fatigue Scale-Revised [PFS-R], 0–10 numeric rating scales [NRS], the MOS-SF-36-Physical Functioning subscale [MOS-PF], and the Adapted Symptom Experience Scale [ASES]), including investigator-developed demographic and medical record forms were used. Procedures: Following informed consent and eligibility screening (Blessed Orientation, Memory, Concentration scale [BOMC]), patients completed all forms in the clinic. Data Analysis: Data were analyzed using SPSS® and descriptive and inferential statistics.

Seventy percent (n = 21) had moderate-severe fatigue (≥ 4 on a 0–10 NRS); PFS-R Total and MOS-SF-36-PF mean scores were 2.85 and 54.48 respectively; loss of strength, fatigue, waking up at night to urinate, numbness/tingling in hands/feet, and insomnia were the most frequent symptoms (ASES). MOS-PF scores were

significantly and negatively correlated with PFS-R subscale and total scores and with several ASES items. Additional analyses are planned. Findings can be used to enhance the accuracy of provider assessments and adverse event reporting.

CI

BIOLOGIC CORRELATES OF FATIGUE DURING CRANIAL RADIATION IN GLIAL TUMOR PATIENTS.

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Gliomas are the most common primary brain tumor. Cranial radiation is the most common therapy, and up to 80% of patients reporting fatigue during this treatment.

Biologic correlates of fatigue during cranial radiation and the impact of fatigue on neuro-cognitive symptoms has not been explored. The purpose of this pilot study was to evaluate the feasibility of obtaining biologic samples and questionnaires in a vulnerable patient population and to identify biologic correlates that can then be further explored in a larger study.

The Symptoms Experience Model which outlines that symptoms occur concurrently as a consequence of a variety of patient and disease factors, and resulting in altered function guided this study.

Patients at least 18 years of age with glial tumors who had radiation as a treatment plan were approached. Self report questionnaires, including fatigue (Brief Fatigue Inventory, BFI), neurocognitive symptoms (M.D. Anderson Symptom Inventory-Brain Tumor, MDASI-BT), sleep (Epworth Sleepiness Scale {ESS} and objective sleep actigraphy (ACT), collected weekly and salivary melatonin collected at baseline, end of radiation (week, [WK] 6), and 3 WKS post treatment. Descriptive statistics were used to report patient characteristics and data completion rates. Correlations among biologic correlates and fatigue severity as well as fatigue and neuro-cognitive symptoms are reported.

Eleven of 13 approached patients participated (men = 64%; age 23-75, median 41), without attrition. Two missing data forms (BFI and MDASI-BT) occured at baseline in 1 patient, and missing ACT data during WK 4 due to watch failure and inadequate saliva for analysis for 2 patients at one time point. Total radiation dose to the pineal was associated with severity of fatigue at WK 6 ($r = 0.857$; $p = 0.007$), Change in ESS ($r = 0.823$; $p = 0.023$), evening Melatonin level at WK 6 ($r = 0.998$, $p = 0.04$), and a trend toward change in onset latency by ACT ($r = 0.701$, $p = 0.07$). Fatigue was correlated with cognitive symptoms at the end of radiation ($r = 656$, $p = 0.03$) but not at baseline. The study was feasible and results have lead to a hypothesis that radiation injury to the pineal resulting in altered melatonin results in altered fatigue and sleep during radiation.

Podium Session 16: Clinical Trial Recruitment

CJ

ISSUES IN ADOLESCENT AND YOUNG ADULT RECRUITMENT AND PARTICIPATION: STRATEGIES AND OUTCOMES FROM THE STORIES AND MUSIC FOR ADOLESCENT RESILIENCE DURING TRANSPLANT CLINICAL TRIAL.

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Recruitment and retention of special populations into randomized clinical trials (RTCs) is an ongoing challenge. Adolescents and young adults (AYA) with cancer are a unique population that brings wide ranging recruitment and retention issues calling for distinctive strategies. This paper describes recruitment rates and attrition patterns of AYAs into a Children's Oncology Group RTC of a music therapy intervention and specific strategies synthesized to meet the challenges of this unique population.

Less than 10% of eligible AYA between 15 to 24 years of age have been recruited in oncology clinical trials. There is a lack of theoretically and empirically based strategies to guide the recruitment of AYAs. Information on and strategies to improve recruitment and retention can assist researchers plan and meet sampling goals. For the study, "Stories and Music for Adolescent/Young Adult Resilience during Transplant" (SMART), considerations were given to gender and developmental differences, disease and treatment trajectory, and parental influence. Critical strategies included personnel collaboration and coordination, communication of healthcare provider support,timing of study introduction and consent, appearance and content of recruitment materials, consideration of site differences and ethical issues.

Achievement of sample recruitment goals can be challenging. Successful recruitment strategies will assist in meeting the challenge of low enrollment rates of AYAs into clinical trials. An overview of the processes for planning and implementing the SMART Study will be provided, including systems implemented for monitoring recruitment procedures and rates, and reasons for participation, refusal, and attrition. During this longitudinal study, ongoing evaluation of the recruitment processes enabled development of problem-solving strategies to enhance AYA recruitment.

AYA recruitment processes resulted in an overall recruitment rate of 50%. To date, 113 AYA are enrolled, with more males (n=65) than females (n = 48). A noted contributing recruitment factor is the AYA's expressed desire to help others and privacy during participation in the music therapy intervention.

Findings from this study may be used to improve AYA recruitment to clinical trials in the future. When designing a study, careful consideration must be given to factors that influence recruitment, such as eligibility and exclusion criteria, performance sites and general recruitment strategies.

CK

ENROLLMENT RATES WITH ON-LINE VERSUS IN-PERSON TRIAL RECRUITMENT.

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The purpose of this discussion is to explore enrollment rates for a web-based patient educational intervention relevant to cancer symptoms and quality of life issues (SQI) during ambulatory cancer therapy.

With the proliferation of electronic, web-based platforms deployed for research data collection and interventions, little is known about the use of on-line invitations prior to, or in place of, written consent. There may be an assumption that this is more convenient for both patients and staff, however there is evidence that patients with cancer are not responding at the same rate as with in-person approach and written consent.

Enrollment rates were calculated for all patients screened for eligibility and SQI from March 2009 to June 2010 using an online invitation followed by an in-person written consent process to the trial versus in-person invitation followed by a written consent process initiated in May, 2010. In that time, 1138 patients with

various cancer diagnoses were screened prior to treatment for SQI and then invited to participate in the clinical trial. Monthly enrollment rates ranged from 28%–48% of eligible patients during the on-line invitation period and from 57%–82% during in-person invitations months.

In-person invitations to consider study enrollment were more effective than on-line invitations.

These results have implications for not only research methods and procedures and impact on generalizability of findings, but for the use of web-based clinical interventions. Careful monitoring of on-line invitations and consenting is important. Patients may need more orientation to such procedures.

CL

CHANGES IN CLINICAL RESEARCH PROTOCOLS TO EXPAND DIVERSITY IN LUNG TUMOR TISSUE ANALYSIS.

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The purpose of this study was to Improve access/utilization of lung tumor tissue analysis clinical trials among Black population. Absent utilization, develop protocols that ensure diversity of tumor tissue analysis in translational research.

Substantial evidence documents racial and ethnic disparities in access to and utilization of chemotherapy, radiation, and surgical treatment for lung cancer patients. These disparities exist in both standard care and clinical trials, resulting in poor outcomes for minority lung cancer patients. A growing body of research documents clinical differences among Black lung cancer patients, including higher levels of comorbidity, later stage diagnosis and poorer performance status. These disparities are compounded by lack of inclusion in lung tumor tissue banks, genomic and molecular biomarkers analysis clinical trials.

Authors conducted a systematic review of clinical trials that analyzed presence of mutations in the epidermal growth fact receptor (EGFR) and effectiveness of erlotinib to identify percentage of Black patients that participated. Lung cancer genome studies were also analyzed to evaluate representation of tumors from African heritage. Both research efforts revealed significant under representation of tumors/patients of African heritage.

Research by Yang et al. and Leidner et al. suggested a 2% rate of activating EGFR mutation among Black patients with a corresponding 14%–17% among Whites. These findings add to a growing body of research that call for increased urgency in understanding factors contributing to Blacks developing more aggressive forms of cancer. Thousands of lung tumors from White and Asian patients have been sequenced to analyze somatic mutations, while only a few hundred lung tumors from Black patients have been sequenced.

Use of advanced diagnostic technologies has been an important tool in the discovery of genetic alterations that lead to carcinogenic pathways in lung cancer. Genetic analysis of tumor tissue has played a significant role in the development of potential therapeutic treatments for lung cancer. The pharmacogenomic revolution creates increased urgency to address the lack of enrollment by Blacks in cancer clinical research.

Lowe Center for Thoracic Oncology structured two research protocols to expand access to tumor genotyping and encourage diversity in lung tumor tissue analysis. One protocol was developed in partnership with Washington University School of Medicine in Missouri to sequence tumors from 120 African American lung cancer patients. This tissue is currently being analyzed to elucidate frequency of several somatic mutations. Another protocol was structured to separate tumor tissue analysis from treatment clinical trials. Independent funding was obtained to so that reimbursement issues would not create barriers to access. All newly presenting patients with stage IIIB/IV adenocarcinoma are offered tumor genotyping analysis. It is hoped that these structural changes will expand the diversity of lung tumor tissue analysis. Until lung tumor tissue analysis becomes standard of care, collaboration between the site leadership of comprehensive cancer centers, community oncologists, and minority serving institutions is necessary to ensure diversity in lung tumor tissue analysis.

CM

MINORITY AND MEDICALLY UNDERSERVED COMMUNITIES ENGAGE IN RESEARCH TO INCREASE UNDERSTANDING OF FACILITATORS AND INHIBITORS OF CANCER CLINICAL TRIAL PARTICIPATION.

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Although low participation of all populations in cancer clinical trials (CCT) delays trial completion, limited participation of minority and medically underserved populations further limits generalizability of research findings.

To understand facilitators and inhibitors of participation in CCT of minority and medically underserved participants, data were collected as part of an ongoing community based participatory research (CPBR) initiative among three academic institutions and six community partner organizations.

The Health Belief Model which states the likelihood that an individual will take action is determined by their desire to take action and by weighing perceived benefits against perceived barriers was used to explore three domains of interest: beliefs about cancer, research, and clinical trial participation.

Following CBPR principles, researchers partnered with community leaders to invite participants, select locations familiar to community members, and organize meeting logistics for six town hall meetings. The sample was ninety six participants from African American, Latino and rural coalitions. Refreshments, babysitting, and a $25 gift card were provided. Structured guides were used to discuss the domains of interest, followed by an educational video and medical hero testimony about CCT participation. Discussions were audio taped, transcribed, and analyzed using Atlas ti 6.0.

Most participants had a previous negative cancer experience. Research was associated with both hope and mistrust and few had any clinical trial experience. A number of facilitators and inhibitors of clinical trial participation were identified that inform future intervention studies. Nearly half indicated interest in continuing to work with the researchers and are currently participating in follow up studies. Research nurses and investigators are challenged to understand the inhibitors and facilitators of participation in order to recruit and retain minority populations to CCT.

Podium Session 17: Quality of Life

CN

DIABETES AND CANCER: IMPACT ON HEALTH RELATED QUALITY OF LIFE OUTCOMES: A COMPARISON STUDY.

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Eight to Fifteen percent of all cancer patients have diabetes. Individuals with diabetes have been shown to have higher mortality rates, and are more likely to be hospitalized while undergoing treatment for their cancer. There is limited understanding regarding health related quality of life (HRQOL) outcomes of physical functioning, symptom burden, social function and mental function, in individuals with diabetes and cancer.

The purpose of this study is to explore if HRQOL outcomes of physical function, symptom burden, mental health and social function are impacted differently in individuals with cancer and diabetes when compared to those with cancer alone, while undergoing chemotherapy. The following research questions where explored: (1) Do patients with cancer and diabetes report higher levels of symptom burden when compared to individuals with cancer only; (2) Do patients with cancer and diabetes report lower levels of physical function, social functioning and mental health when compared to individuals with cancer only.

Wilson and Clearys Health-Related Quality of life framework was used to guide this study.

A secondary analysis utilizing data from 2 different randomized controlled trials was used to compare 76 individuals with cancer and diabetes with a matched group of individuals with cancer only. The SF36 was used to measure physical, mental, and social function. Symptom burden was measured by measuring total symptom severity and symptom interference based on 16 reported symptoms.

Individuals with diabetes and cancer were found to have significant differences in levels of physical functioning, symptom burden and mental health when compared to those with cancer only. These results indicate the importance of understanding the role that comorbidities such has diabetes has on HRQOL outcomes in individuals with cancer and the need for the development of nursing interventions which addresses the specific needs of this population.

CO

SELF-ASSESSED HEALTH, SYMPTOM DISTRESS, AND FATIGUE IN PATIENTS WITH METASTATIC MELANOMA FOLLOWING TWO CYCLES OF BIOTHERAPY.

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Although knowledge of the impact of advanced melanoma and its treatment on the patient experience is sparse, studies suggest adverse changes occur across time. Treatment with biochemotherapy may account in part for these impairments.

This study characterized patient-reported health, symptom distress, and fatigue, and explored change over time in these outcomes in adults (n=179) with stage III-IV melanoma receiving 2 cycles of high-dose Interleukin-2 alone or in conjunction with investigational vaccine therapy.

Data for this longitudinal analysis were gathered at baseline (T1) and approximately six weeks later following 2 cycles of biotherapy (T2). Given there was no treatment effect, data were pooled for these analyses.

Short-Form-36v.1 (norm = 50; SD 10) was used to measure physical (PCS) and mental (MCS) health. Symptom distress was measured by the Symptom Distress Scale (SDS; range 13–65; 25–32 = moderate distress). FACIT-Fatigue scale (range 0–52; cancer norm = 43.6; SD 9.4) assessed fatigue. Mean ($\bar{X}$) scores at T1 were compared to population norms; linear mixed modeling and responder analyses were used to explore changes over time.

Participants tended to be male (65%), mean age 48.6 years (SD 11.5), with extensive disease (33% lung only, 36% visceral/distant involvement), and a history of at least 2 (75%) prior treatments. At T1, PCS ($\bar{X}$ = 47.8; SD = 11.79) but not MCS ($\bar{X}$ = 50.5; SD = 10.95) scores were below U.S. norms. Mean SDS score was 22.3 (SD = 8.14). Troubled outlook (fearful, worried, scared), fatigue, insomnia, and pain were the most prevalent and distressing symptoms. Fatigue ($\bar{X}$ = 40.5; SD = 10.9) was greater than reported cancer norms. Health, symptom distress, and fatigue worsened significantly over two cycles of biotherapy ($p < 0.05$). These adverse changes over time were also clinically significant relative to population norms (T2 estimated marginal means/SE: 24.7/0.78 [symptom distress]; 34.2/1.17 [fatigue]; 42.4/1.21 [physical health]). Females experienced greater increases in fatigue over time (time x gender interaction $F = 7.02$; $p < 0.01$). A substantial proportion of respondents experienced declines in PCS (55%), MCS (45%), and FACIT-Fatigue (55%) scores that exceeded the minimally important difference (3 points). These results suggest opportunities to improve clinical outcomes for patients with melanoma receiving biotherapy through targeted interventions to manage fatigue and other distressing symptoms.

CP

COPING PROCESSES IN WOMEN RECEIVING ADJUVANT THERAPIES FOR EARLY BREAST CANCER.

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This study provides new information about the coping processes women with breast cancer (BC) use in the highly stressful periods following diagnosis, treatment, and recovery

A RCT was conducted to test whether stress management interventions would improve psychosocial functioning, quality of life (QOL), and physical health among women receiving adjuvant therapy for BC.

A PNI framework was used to examine a number of psychosocial and biological indicators to determine short-and long-term effects on health status. For this report, we examined coping processes of pre- vs post-menopausal women randomized to stress management intervention groups: Spiritual Growth (SPRT) or Tai Chi (TCHI), compared to a standard care control group.

A mixed effects model was used to assess differences in depressive symptoms, QOL, stress and coping for a group of 96 women with Stage I or II BC receiving adjuvant chemotherapy. This model incorporated fixed effects for intervention group, treatments beyond chemotherapy (trastuzumab, anti-estrogens, RT), menopausal status, time, and all 2-factor interactions with time. To control for the correlated repeated measures, a random effect for subject was included in the model. Constituting an intent-to-treat analysis, we used the CES-D, FACT-B, IES, and WAYS of Coping-revised scales to evaluate depressive symptoms, QOL, stress, and coping at 6 times over 2 years.

Although all groups improved in psychosocial function from baseline over time, we found significant differences ($p < 0.05$) in coping processes utilized between pre- and post-menopausal women, and in those women receiving RT, anti-estrogens, and trastuzumab following chemotherapy. Post-menopausal women indicated greater social well-being throughout the study while pre-menopausal women used more distancing, self-controlling, and positive reappraisal coping processes. Women receiving anti-estrogens used more avoidance behaviors and those receiving RT reported an increase in seeking social support. Finally, women treated with trastuzumab had higher scores for accepting responsibility.

This study provides new information about the experiences of women in the two-year period following initiation of adjuvant chemotherapy. The findings shed new light on the coping processes used by women receiving adjuvant therapies. Findings have important clinical relevance related to the type, sequencing, and targeting of stress management interventions for women with early BC.

Podium Session 18: Professional Practice in the Ambulatory Setting

CR

PROVIDER VERBAL RESPONSES TO PATIENT DISTRESS CUES DURING AMBULATORY ONCOLOGY VISITS. L.K. Sheldon, College of Nursing and Health Sciences, University of Massachusetts-Boston; D.M. Hilaire, College of Nursing and Health Sciences, University of Massachusetts-Boston; and D.L. Berry, Cantor Center for Research in Nursing and Patient Care, Dana-Farber Cancer Institute, Boston, MA

How providers respond to patient distress influences subsequent patient disclosure as well as quality of life, satisfaction with care and retention of information. To effectively support oncology patients and improve care delivery, patient cues and provider responses need to explored and identified for linking with patient outcomes.

Over half of oncology patients experience forms of distress including depression and anxiety yet these problems are often under-recognized by healthcare providers. The purpose of this descriptive pilot study was to code patient cues of socioemotional concerns and distress as well as provider facilitation and cue-responding behaviors using a method of sequential analysis of patient-provider communication, the Medical Interview Aural Rating System (MIARS).

Within a new model linking provider behaviors with outcomes is a function, responding to patient emotions, with specific immediate, intermediate and long-term endpoints that correspond with patient outcomes. Endpoints in this model include patient sense of support, patient emotional adjustment and decreased psychological distress. The MIARS codes patient cues of distress and provider facilitation, acknowledgement, exploration and distancing behaviors and calculates a score for provider responsiveness.

Patient cues and provider behaviors were coded using MIARS with good interrater reliability (ICC = 0.83). Descriptive statistics were used for demographic characteristics and frequencies and percentages were used to describe patient cues and provider facilitations and responses.

Thirty audio-recordings were coded using MIARS. Ten of the patients completed ESRA-C and had summary reports for providers and 20 patients received routine care. Patient cues of distress ranged from 0 to 13 cues/visit ($\bar{X}$ = 4.6 cues/visit). While providers acknowledged 57% of patient cues they only acknowledged and explored 22% of all cues. Providers distanced from 17% of patient cues of distress. The ESRA-C summary report may have enhanced provider responsiveness. To effectively support oncology patients and improve patient outcomes, providers may need further education on responses to acknowledge and explore patient cues of distress.

CS

EXPERT NURSING PRACTICE IN ONCOLOGY AMBULATORY CARE: THE NURSE AS JOURNEYER. S. Morrison, Texas Woman's University, Houston, TX

In the United States healthcare is provided primarily in ambulatory settings. Despite the rapid growth in registered nurse employment in ambulatory care settings, the nurse's role and contribution in ambulatory care is the least studied. A greater understanding of expert practice from the perspective of experienced nurses in ambulatory settings will contribute to understanding the value of nurses, will positively impact patient outcomes, and will provide direction for nurse educators to prepare nurses for ambulatory practice.

The purpose of this qualitative phenomenological study was to describe the attributes of expert nursing practice in a ambulatory oncology setting. Specific research questions were: (1) What are the characteristics of expert nursing practice in oncology ambulatory care? (2) How do experienced nurses view nursing expertise in ambulatory practice settings?

Intrepretive phenomenology developed by the 20th century philosopher, Martin Heidegger served as the conceptual framework. The phenomenology approach allowed the researcher to uncover meanings embedded in the practice of experienced nurses.

A purposive sample of 21 nurses was selected from nurses with at least 5 years ambulatory care experience in a large comprehensive cancer center in the southwest United States. The nurses participated in one of four 90 minute focus groups sharing their narratives of patient/family relationships.

Data were analyzed using an interpretative, phenomenological approach to capture the meaning of expert nursing practice.

Findings revealed the following themes as attributes of expert nursing practice in an ambulatory oncology setting: becoming a content expert, knowing the team and the institution, listening with attunement, having a long-term patient/family relationship, and advocating for the patient.

Nurses experienced in ambulatory care have the potential to develop expertise and demonstrate a positive impact on patient outcomes. Expertise comes through knowing the disease trajectory and the organization in which complex care is delivered. Expert ambulatory care nurses have the ability to establish long term patient relationships which contribute to patient satisfaction and relief of suffering.

CT

PATIENT ACUITY: CONCEPT CLARIFICATION AND PSYCHOMETRIC ASSESSMENT. C.W. Brennan, School of Nursing, Case Western Reserve University, Cleveland, OH; and B.J. Daly, School of Nursing, Case Western Reserve University, Cleveland, OH

Use of valid and reliable methods to measure acuity is essential in evaluating interventions to improve nurse-sensitive outcomes and increase cost effectiveness.

Despite rich data on the link between nurse staffing and patient outcomes, evidence regarding the number and combination of nursing resources that optimize patient outcomes is lacking. Determining optimum nurse staffing requires acuity measurements, but inconsistencies exist in how acuity is defined and measured. The purpose of this study was to evaluate a method of designing an acuity tool and to assess the psychometric properties of an acuity tool in use on an inpatient oncology unit.

The study model was a modified version of Holzemer's Model for Health Care Research, which stratifies structures, processes, and outcomes of care as patient-, provider-, or system-related.

Procedures included assessing inter-rater reliability (IRR), surveying expert oncology nurses for content validity, using a visual analog scale for concurrent validity, and assessing whether acuity scores predicted one of two acute events, patient falls and rapid response team consults, for predictive validity. Cut-points for determining reliability and validity included intraclass correlations greater than or equal to 0.7 (IRR, n = 20), content validity index (CVI) and modified kappa statistic (k*) greater than or equal to 0.7 (n = 15), Pearson r correlations greater than or equal to 0.6 (concurrent validity, n = 150), and p-value less than or equal to 0.05 for statistical significance via logistic regression (predictive validity, n=76).

Results demonstrated high IRR (ICC = 0.953, CI 0.914, 0.977; $p < 0.001$), moderately strong concurrent validity ($r = 0.578$, $p = 0.01$), and high content validity (70% of acuity items had an item-level CVI > 0.78; 84% of items had k* of good or excellent). Acuity scores

were significant predictors of rapid response team consults (OR = 2.25, CI 1.45, 3.48; p < 0.001). In addition to establishing the validity and reliability of this tool for the oncology population, the study demonstrated a useful method for developing and testing acuity measures that could be used for other inpatient populations.

CU

RISK OF EXPOSURE TO CHEMOTHERAPY AND PRACTICE ENVIRONMENTS OF OUTPATIENT ONCOLOGY NURSES.

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Over 20 million chemotherapy doses are administered annually in the US, yet evidence-based guidelines for safe chemotherapy handling are not enforced. Reported rates of chemotherapy exposure among nurses vary between 7% to 27%. Nurses face health threats after repeated chemotherapy exposure, including skin disorders, neurological conditions, and reproductive defects.

To date, empirical studies have not examined the correlation between chemotherapy exposure and nursing practice environments, defined as the organizational features of a facility that enable high-quality nursing care. Our study's purpose was to (1) describe nurses' reports of chemotherapy exposure, and (2) examine organizational correlates of exposure.

We hypothesized that practice environments were associated with chemotherapy exposure, informed by Donabedian's quality care model, which links organizational structure to outcomes.

After IRB approval, we used a publicly-available database in one southeastern state to survey nurses about their practice environments and an inventory of safety measures, including whether they reported skin or eye exposure to chemotherapy in the past year. We used Dillman's procedures to encourage response rates. We restricted analysis to nurses in outpatient chemotherapy settings. Stepwise logistic regression models estimated the likelihood of reported chemotherapy exposure. Independent variables were whether the nurse prepared chemotherapy and perceived quality of the nursing practice environment (favorable, mixed, or unfavorable). Covariates included oncology nursing certification, bachelors or higher degree, private practice setting, and the practice's number of nurses, pharmacists, and pharmacy technicians.

Of 680 outpatient oncology staff nurses statewide, 227 (33.4%) responded. Respondents had similar demographics to statewide statistics. 35 nurses (15.4%) reported skin or eye exposure to chemotherapy in the past year. After controlling for covariates, nurses who prepared chemotherapy were significantly more likely to report chemotherapy exposure (OR = 6.91, 95% CI = 2.36–20.28) as were nurses who reported working in mixed or unfavorable (versus favorable) practice environments (OR = 2.8, 95% CI = 1.01–7.66). This statewide survey of oncology nurses reveals an alarming rate of chemotherapy exposure. Nurses preparing chemotherapy are at especially high risk. Implementing safe handling practices, coupled with improving practice environments, is likely to reduce chemotherapy exposure risk.

Podium Session 19: Cognitive Function and Cancer

CV

COGNITIVE FUNCTION AS A PATIENT-REPORTED OUTCOME.

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As a commonly cited issue among cancer patients and families, the concept of cognitive function was examined as a possible patient-reported outcome for the purposes of research and quality monitoring in a Canadian context.

Patient-reported outcomes are important for evaluating the experience of cancer and the effectiveness of its treatment. The development of core patient-reported outcomes for routine application in research and quality monitoring requires a clear understanding of the particular outcome of interest as well as a conceptually consistent approach to measurement. To this end, this presentation will discuss the results of a scoping review aimed to describe the concept of cognitive function and identify available measurement approaches for potential use as a core patient-reported outcome.

A draft conceptual framework of broad patient- focused outcome categories identified by the National Health Institute was utilized to focus the review and provide an analytic framework for synthesizing the literature in the field.

A comprehensive review was conducted of scholarly literature published 1997–2008 that provided a conceptual description of cognitive function among sentinel cancer populations (breast, colorectal, lung, prostate). Feedback from a Canadian advisory panel, comprised of key decision-makers, stakeholders, and cancer survivors, was also included in the analysis. The results were compared with literature from the haematological cancer context.

Cognitive function was identified as a multidimensional concept, encompassing a range of integrated higher-order mental processes that may be affected by cancer treatment. Three distinct measurement approaches were identified: (1) neuropsychological testing; (2) self-report methods; and (3) physiological assessment (e.g. brain imaging). Despite the strength of the neuropsychological and physiological approaches to provide objective data regarding cognitive function, self-report methods provide the best information regarding individuals' perceptions of their cognitive functioning. However, routine application of self-report measures as a patient-reported outcome of cognitive function is limited by a relative lack of understanding regarding self-reported cognitive function as well as discrepant findings when compared to objective measures. To ameliorate this problem, implications for future work in this field will be discussed.

CW

IDENTIFYING COGNITIVE IMPAIRMENT IN PATIENTS WITH PRIMARY MALIGNANT BRAIN TUMORS.

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Cognitive impairment is one of the most disabling symptoms for individuals with cancer (particularly brain tumors) and has been identified as a source of psychological distress by family caregivers. However, domain specific data regarding cognitive dysfunction following surgery is primarily from research conducted several decades ago, prior to the advent of current standards of care.

Knowledge of the particular domains of cognitive function that are affected following diagnosis of a primary malignant brain tumor (PMBT) and their associated predictors is vital for clinicians to have when screening and treating patients and educating family caregivers. The aims of this analysis were to identify specific domains of cognitive function most affected in the immediate post-operative and treatment phase and to examine predictors of poor performance in those domains using The Neurobehavioral Cognitive Status Examination (COGNISTAT).

The Adapted Pittsburgh Mind Body Center Model guided this analysis.

COGNISTAT assessments were performed by trained examiners on patients (n = 108) recruited within a month of diagnosis for a descriptive, longitudinal study (R01CA117811). Domain-specific scores were analyzed using Pearson's Chi-square and paired

t-tests to evaluate univariant associations between age, gender, depressive symptoms, tumor location, type, grade and treatment status as potential predictors of cognitive impairment using a similarly aged, non-clinical normative group.

Participants were mostly male (59.2%), middle aged (mean 54.4, SD 15), with glioblastomas (55.4%) in the middle (40.8%) or frontal (35.4%) areas of the brain. The majority of participants had surgery (80.8%), chemo (62.3%), or radiation (65.6%) prior to assessment. Participant mean COGNISTAT domain scores for Constructional Ability (4.5, SD 1.7), Memory (7.5, SD 3.3) and Judgment (4.4, SD 1.4) fell significantly below the cutoff for cognitive impairment. Age was significantly associated with impairment in Constructional Ability ($p = 0.004$) and depressive symptoms were significantly associated with impairment in Memory ($p = 0.06$).

This analysis shows that older or more depressed patients with newly diagnosed PMBTs may be at risk for developing cognitive impairment in the specific areas of constructional ability, memory, and judgment. Clinicians should be aware of these risk factors, screen patients regularly for cognitive dysfunction in these areas and work with family caregivers on symptom management.

CX

TRAJECTORY AND PREDICTORS OF PERCEIVED COGNITIVE FUNCTION IN WOMEN WITH BREAST CANCER.

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Studies have found conflicting results regarding cancer and treatment-related cognitive impairments. However, breast cancer survivors report that cognitive problems occur. Potential covariates such as anxiety, depression, and fatigue are commonly experienced along the continuum of a cancer diagnosis and subsequent treatment, and can negatively impact cognition function.

The purposes of this study were to (1) examine the perception of cognitive function in newly-diagnosed breast cancer patients prior to chemotherapy and assess changes over time (one week after four cycles of chemotherapy, as well as one week and six months after chemotherapy completion); and (2) to examine relationships between cognitive function with potential covariates.

The UCSF "Theory of Symptom Management" provided the framework for this study.

This prospective, longitudinal study enrolled a convenience sample ($n = 71$) from two outpatient oncology clinics. Instruments included the Attentional Function Index (AFI), the Speilberger State-Trait Anxiety Inventory (STAI) state subscale, the Center for Epidemiological Studies Depression Scale (CES-D), and the Lee Fatigue Scale (LFS). Each instrument has established reliability and validity. Demographic factors were measured by self report and medical factors were obtained by chart review. Descriptive statistics and frequency distributions were used to summarize sample characteristics and test scores at each time period. Hierarchical linear modeling (HLM) was used to determine the trajectory of perceived cognitive function over time as well as to investigate any significant associations with potential covariates.

HLM revealed significant decreases followed by improvements in perceived cognitive functioning ($p < 0.001$). Although significant associations were found with baseline levels of anxiety ($p < 0.001$), depression ($p < 0.001$), and fatigue ($p < 0.001$), the associations between these covariates and cognitive function did not change over time, and a significant effect of time for perceived cognitive function remained. The only demographic factor that was associated with cognitive function was whether the patient was working ($p = 0.043$). Although anxiety, depression, and fatigue influence patients' perception of cognitive function, it appears that other mechanisms are responsible for patient complaints. These results suggest the need for further research on subjective reports of impaired cognitive functioning.

CY

METHOTREXATE INCREASES ASTROGLIOSIS IN AN ANIMAL MODEL OF CENTRAL NERVOUS SYSTEM CHEMOTHERAPY TREATMENT.

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Acute lymphoblastic leukemia (ALL) is the most common pediatric malignancy, and long-term disease free survival is approximately 85%. Central nervous system (CNS) treatment is necessary for preventing relapse in the brain. Methotrexate (MTX), the drug most commonly used for CNS treatment, is associated with significant cognitive and academic decline. Little is known about mechanisms of injury that may explain this clinically significant problem.

The purpose of this study was to test the hypothesis that MTX induces reactive astrogliosis in an in vivo animal model.

The study used a biological framework focusing on the inflammatory response in CNS injury. Astrogliosis is an abnormal increase in the number of astrocytes due to destruction of nearby neurons. Astrogliosis may be a response to MTX-induced injury which may explain underlying mechanisms associated with cognitive declines among children with ALL.

To study CNS treatment for ALL, Fischer 344 rats were randomly assigned to experimental and control groups in which osmotic pumps and cannulae were used to deliver MTX (2 mg/kg/day, experimental group) or artificial CSF (control group) into the left lateral ventricles of the brains. After 3 days of treatment animals were euthanized, and brains were harvested and fixed with formaldehyde. Brain slices were stained for glial fibrillary acidic protein (GFAP), a well established and valid marker of astrogliosis, and with hematoxylin and eosin. A light microscope equipped with fluorescent capabilities and a digital camera was used to view and capture sample images. Data were analyzed by student's t-test.

Mean number of GFAP positive cells in the white matter tract superior to the corpus callosum was significantly greater in the experimental compared to the control group ($t = 4.104$, $p < 0.05$). There were no significant differences in mean number of GFAP positive cells in the corpus callosum and cerebral cortex.

Astrocytes influence synapses by secreting neurotransmitters and expressing their receptors, and they stimulate synaptogenesis. The findings suggest that MTX may be associated with reactive astrogliosis in the white matter tracts superior to the corpus callosum. This may be important for understanding non-verbal learning problems among children with ALL as white matter is important for non-verbal abilities.

CZ

THE PERCEIVED ATTENTION FUNCTION AFTER BREAST CANCER SURGERY: THE CHANGE PATTERN AND THE EFFECT OF ADJUVANT TREATMENT.

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Research has suggested that the adjuvant cancer treatment may have negative impact on patients' cognitive function assessed by objective neuropsychological tests. However, the ecological validity of the neuropsychological tests has been questioned. More research on self-reported cognitive impairment is needed.

The purposes of the study were to explore the decline and recovery of perceived attention function after breast cancer surgery and to examine the effect of adjuvant cancer treatment on the perceived cognitive function.

The Theory of Unpleasant Symptoms was adopted in this study.

Two hundred women with breast cancer scheduled for surgery were included in this study. Perceived attention function was assessed by the Attentional Function Index (AFI) (total score: 0-10) which has satisfactory reliability and validity. Depression, fatigue, and sleep disturbance were also assessed. Assessment was performed before surgery (baseline), and at 1, 2, 3, 4, 5, 6, 8, 10, 12, 18, 24 months after surgery. Mixed linear model was used to analyze the data.

The perceived attention function was declined in 54.1% of women at one month after surgery. The percentage of declined function tended to decreased over time. However, 30.3% still had declined attention function at 2 years after surgery. Mixed model analysis showed a significant time effect ($F = 17.58$, $P < 0.001$) on perceived attention function. The AFI scores at month 1, 2, 3, 4, 5, 6, 8, 10 and 12 were all significantly lower than that at baseline (mean = 8.17). The lowest AFI score (mean =6.66) was found at one month after surgery. Depression, fatigue, and sleep disturbance were negatively associated with perceived attention function. After controlling for depression, fatigue, and sleep disturbance, each of the post-surgery AFI scores up to 24 months were significantly lower than that at baseline. Chemotherapy and hormonal therapy were not associated with AFI scores after adjusting for the baseline differences.

Women after breast cancer surgery experienced a decline on attention function and this subjective cognitive function was associated with psychological factors. The findings of this study can be used to inform patients about the potential change of their cognitive function after breast cancer treatment.

Podium Session 20: Smoking and Cancer

DA

LUNG CANCER STIGMA, SMOKING STATUS, DEPRESSION AND QUALITY OF LIFE. J.K. Cataldo, Physiological Nursing, UCSF, San Francisco, CA

Lung cancer is the leading cause of cancer death for both men and women. In other diseases, stigma is known to impact health status and be amenable to intervention. Regardless of smoking status, lung cancer patients feel stigmatized because their disease is strongly associated with smoking

The purpose of this research was to: 1) develop a valid and reliable measure of lung cancer stigma; and 2) compare the relationships of lung cancer stigma to depression and QOL in both smokers and non-smokers.

Perceived lung cancer stigma is conceptualized as the person's awareness of their lung cancer as it relates to social disqualification, limitations in opportunities, and negative changes in social identity. Perceived stigma can lead to several negative outcomes including: increased levels of psycho-social symptoms and increased physical symptom severity.

189 participants with a self-report diagnosis of lung cancer completed online questionnaires. Participants ranged in age from 20 to 88 years (mean age = 55 years); 56% were men; 73.8% were partnered and only 14% of the sample lived alone. The majority of the participants were Caucasian (85%). In a factor analysis of the Lung Cancer Stigma Scale (LCSS) four factors emerged. The four subscales include: stigma/shame, social isolation, discrimination, and smoking. The LCSS was reliable and had concurrent and construct validity; coefficient alphas were .98 for all items and .90-.93 for the subscales. Eighty percent of the sample were smokers (ever smokers, both current and ex- smokers). Fifty-five percent of the sample met the CESD criteria for depression (> 16). Using chi-square and two-tailed t-test, there were no significant differences in demographic measures between smokers and non-smokers. Lung cancer stigma had a strong positive association with depression in both smokers and non-smokers ($r = .677$ and $.682$ respectively $p < .01$), and a strong negative association with QOL in both smokers and non-smokers ($r = -.834$ and $-.784$, respectively $p < .01$). Two-tailed t-tests revealed no difference between smokers and non-smokers.

Both smokers and non-smokers experience an increase in depression and a diminished QOL related to lung cancer stigma. All lung cancer patients can benefit from an effective lung cancer stigma intervention.

DB

COMPLIANCE WITH SMOKEFREE POLICIES IN HEALTHCARE FACILITIES: BARRIERS AND FACILITATORS. S. Bialous, Tobacco Policy International, San Francisco, CA; L. Sarna, School of Nursing, UCLA, Los Angeles, CA; and M. Wells, School of Nursing, UCLA, Los Angeles, CA

Exposure to secondhand tobacco smoke is a human carcinogen and implementation of smokefree environments is the most effective method to protect against exposure, with the added benefit of reducing smoking.

In the US, hospitals have been smokefree since late 1980s and are expanding to smokefree campuses. However, the extent and degree in which smokefree policies are defined and enforced has received limited attention.

The RE-AIM model for translational research guided this project. As part of a larger study to assess nurses' cessation interventions for hospitalized patients, we conducted structured interviews with 34 Chief Nursing Officers (CNOs) in 3 states to assess the extent of each hospitals' implementation of smokefree policies and to identify common barriers and strategies.

All the 34 CNOs stated that their hospital had a smokefree policy, with 19 (56%) with a smokefree campus. However, 8 (50%) "smokefree" hospitals had designated smoking areas (DSA) as did 3 of the smokefree campuses. Smoking in non-official DSA occurred in 20 hospitals. Areas most frequently cited as "smoking areas" included patios, sidewalks, parking lots, courtyards. Only six hospitals (17%) stated that there was no-smoking anywhere in the premises, i.e. were truly smokefree.

These data differ from ONS's policy recommendation for 100% smokefree environments. There was wide variance in the enforcement of smokefree hospitals and campuses and while some may enforce the letter of the policy, they didn't enforce its intent, as smoking continued to occur. Hospital managers may need assistance in ensuring compliance with smokefree policy. Sustained education campaigns about the benefits of smokefree policies, targeting staff, patients, and visitors, are needed. Sidewalks and parking areas remain difficult to enforce areas and may need local or state laws in addition to hospital policies to become smokefree. Additionally, the implementation of smokefree policies would benefit with concomitant offer of smoking cessation interventions to staff and patients.

DC

STATE DIFFERENCES IN NURSES' REFERRAL OF SMOKERS TO THE QUITLINE. L. Sarna, School of Nursing, UCLA, Los Angeles, CA; M. Wells, School of Nursing, UCLA, Los Angeles, CA; S. Bialous, Tobacco Policy International, San Francisco, CA; and J. Kotlerman, David Geffen School of Medicine, UCLA, Los Angeles, CA

Tobacco use is associated with cancer-related morbidity and mortality. Nursing-led interventions for smoking cessation are efficacious. Telephone quitlines are effective in helping smokers quit, but is underutilized. Smoking prevalence varies by state and nurses' interventions may vary as well. This study compared the frequency of hospital-based nurses' self-reported referrals of smokers to a telephone Quitline in two states with the high smoking prevalence (West Virginia, WV, 26.6%, Indiana, IN, 21.1%), and a state with low prevalence (California, CA, 14%).

The RE-AIM model for translational research was used to guide this project.

A reliable/valid web-based survey was used to assess the frequency (always, usually, sometimes, rarely/never) of nurses' referral of smokers to the Quitline as well as performance of cessation interventions (5 As, Ask, Advise, Assess, Assist, Arrange). Multiple logistic regression, adjusted for hospital random effect was used to determine factors (state, nurse characteristics and always/usual performance of each of the 5 As) associated with always/usually referring smokers to the Quitline.

1790 eligible nurses from 30 randomly selected hospitals in CA, IN and WV responded to the survey. The typical respondent was female (92%), never smokers (64%), staff nurse (86%) and had 15 years of experience. There were significant state differences in referral of smokers to a Quitline ($p < .05$). Seventy-one percent of respondents reported rarely/never referring to the Quitline (57% in CA, 80% IN, 77% in WV). With CA as the reference group, nurses in IN (OR = 0.27, CI 0.12, 0.62, p = 0.002) were significantly less likely to refer to the Quitline. Nurses who Advised (OR = 3.34, CI 1.59, 7.03, p =0.002), Assisted (OR = 4.01, CI 2.37, 6.79, p <0.0001), and Arranged (OR = 5.12, CI 0.12, 0.62, p =0.002) were significantly more likely to refer smokers to the Quitline. These results support state-differences in nursing intervention which must be considered in translating evidence into practice. Not previously reported, implementation of the evidence-based 5 As approach was associated with higher frequency of referral to the Quitline. Further efforts are needed to ensure that all smokers are referred to the Quitline to help support quit attempts.

Podium Session 21: Measurement and Instrument Development

DD

DEVELOPMENT AND VALIDATION OF THE PEDIATRIC CANCER COPING SCALE.

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Coping is a mediator between stressful events and adaptation. However, existing tools cannot be used to assess and understand coping strategies in children with cancer in Taiwan.

The purpose of this study was to develop and test the psychometric properties of the pediatric cancer coping scale (PCCS) in children with cancer.

Lazarus' transactional theory guided this study.

A total of 229 children with cancer were recruited from three medical centers in Taiwan. The PCCS was tested in terms of internal consistency, test-retest reliability, content validity, construct validity, and convergent and discriminate validity.

The PCCS demonstrated internal consistency ($\alpha = 0.91$) and a suitable two-week test-retest reliability (intra-class correlation coefficient = 0.86). Exploratory factor analysis extracted three subscales: cognitive coping, problem-oriented coping, and defensive coping, which had factor loadings ranging from 0.31 to 0.71. The confirmatory factor analysis established the goodness of fit of the model ($\chi^2/d.f < 3$, root-mean-square-error-of-approximation (RMSEA) < 0.08, the goodness-of-fit (GFI), adjusted goodness-of-fit indices (AGFI), and normed fit index (NFI)> 0.87). Convergent and discriminate validities were demonstrated by significant correlations among the coping, resilience and anxiety subscales. PCCS may be useful for guiding intervention development and helping children use cognitive coping and problem-oriented coping during stressful events.

DE

DEVELOPING A RISK ASSESSMENT TOOL IDENTIFYING CAREGIVERS AT RISK FOR PROLONGED PSYCHOLOGICAL DISTRESS.

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This risk assessment tool is accurate and comprehensive to identify neuro-oncology caregivers in clinical settings in need of intervention.

Family caregiving has been associated with increased risk of psychological distress, ultimately affecting caregiver health. However, not all caregivers experience similar levels of distress, limiting clinicians' ability to identify and intervene with those at risk for poor outcomes. The purpose of this study is to develop a tool to identify neuro-oncology caregivers at risk for experiencing prolonged levels of high psychological distress as a result of providing care.

Factor Analysis and Group-based Trajectory Analysis guided this study.

Telephone interviews were conducted with 103 family caregivers from a descriptive longitudinal study (R01 CA117811) within one-month of care recipients' (CR's) diagnosis and 4, 8, and 12- months. A composite distress score was created by individually summing caregiver scores in depressive symptoms (CESD), anxiety (POMS), and schedule subscale of caregiver burden (Caregiver Reaction Assessment). Feasibility of combining scales was verified using correlations and factor analysis. Group-based trajectory modeling (GBTM) was then used to identify distinct groups of caregivers experiencing high or low distress. Logistic regression estimated risk for group membership (based on baseline CESD, POMS, and CRA-burden scores, age, gender, relationship to the CR, years of education, tumor type, tumor location, neuroticism, social support, mastery, number of co-morbidities, physical functioning, perception of CR's suffering, and perception of economic burden).

Factor analysis of all three scales yielded a single second-order factor. GBTM of individual composite scores estimated 2 distinct linear trajectories ($p<.01$). Forty-four percent (N=45) of the sample were at low-risk for distress at baseline and remained at low risk in the year following diagnosis. The second group (56%, N=58) were at high-risk for distress at baseline and remained at high risk throughout the year following diagnosis. Logistic regression with the aforementioned variables at the threshold of 0.44 classified participants with 91.3% accuracy, 92.7% sensitivity, 89.7% specificity, and explained 95.1% ($p<0.001$) of the area under the curve.

Data suggest that administering an 18-item composite distress measure in combination with socio-demographic and clinical variables can accurately identify caregivers who will experience high levels of prolonged psychological distress.

DF

USING THE NATIONAL COMPREHENSIVE CANCER NETWORK DISTRESS THERMOMETER AS A RESEARCH TOOL IN CANCER NURSING RESEARCH.

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The purpose of this study was to examine the strength of the evidence and develop recommendations for use of the NCCN® DT in cancer nursing research.

The Institute of Medicine (IOM) report on "Cancer Care for the Whole Patient" emphasizes the role that psychosocial factors play in disease progression and recommends that attention to these factors become standard of care. The DT was developed as a quick, efficient screening tool in clinical practice to identify patients who

are experiencing distress related to cancer. Although, the NCCN® has incorporated DT into its Clinical Practice Guidelines for Distress Management, its application to cancer nursing research has not been fully characterized.

Conducting stress-reduction research with cancer patients requires innovative approaches that capture the essence of the stress experience without producing additional burden to either the patient or care-giver. The DT is a single item, visual analogue scale scored from 0 (no stress) to 10 (extreme distress) for efficient distress screening in cancer patients. It was developed originally to rapidly assess distress in prostate cancer patients.

A computerized search of the NCCN, NCI, NIH, IOM websites, Pubmed, CINAHL and Google Scholar using the terms: cancer, stress research, distress thermometer, cancer nursing and psychosocial screening. Reports were examined for study populations, sample size, design, instrument validity and reliability. Most reports describe the DT's performance as a cross-sectional screening tool for anxiety/depression in patients with advanced disease

There is growing interest in its use in caregivers as well as with non-cancer patient populations Reports of the DT as a research instrument are rare. We suggest that the DT is an efficient tool for assessing nursing sensitive patient outcomes in studies of : Factors associated with use of the DT by oncology nurses; APNs' prescribing practices of anti-anxiety and anti depressant medications; Psychosocial stress reduction trials throughout the cancer trajectory; Collaborative practice models for oncology psychosocial services.

DG

THE DEVELOPMENT OF A RELIABLE AND VALID INSTRUMENT TO CHARACTERIZE SYMPTOMS RELATED TO UROGENITAL ATROPHY IN BREAST CANCER SURVIVORS.

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Urogenital atrophy affects the lower urinary and genital tracts and is responsible for a cluster of urinary, genital, and sexual symptoms that are common in breast cancer survivors. The accurate identification, measurement, and documentation of these symptoms are limited by the absence of a reliable and valid instrument. A review of existing quality of life, sexual functioning, and menopausal instruments revealed multiple items that measured isolated symptoms, but did not provide a comprehensive review of symptoms. Additionally, most instruments indicate that patients have a heterosexual, partnered relationship, with the practice of vaginal penile intercourse as their measured expression of intimacy.

The purpose of this study was to develop a reliable and valid instrument to characterize the symptoms of urogenital atrophy in breast cancer survivors. Women experiencing chemotherapy-induced menopause and/or negative side effects from chemoprevention with agents such as anti-estrogen and aromatase inhibitors can experience increased symptoms as compared to age-matched women without breast cancer.

The theory of unpleasant symptoms guided this study.

An extensive literature review and informal interviews with breast cancer survivors provided items for the initial instrument. Face and content validity were established (CVI score = 1.0). A pilot study (N=30) was conducted to establish stability of the instrument using test-retest ($p<0.05$). Subsequently, women with (n=168) and without breast cancer (n=166) were surveyed using the Urogenital Atrophy Questionnaire, Female Sexual Function Instrument, and Functional Assessment of Cancer Therapy, Breast, Endocrine Scale.

Exploratory factor analysis (KMO 0.774; Bartlett's test of sphericity 0.000) indicated moderate-high relatedness of items. Convergent and divergent validity were established. A questionnaire (31 items) resulted that enabled women, regardless of sexual orientation, partner status, and levels of sexual activity to accurately report symptoms.

A second study (n=30) was performed to document the reliability and stability of vaginal pH to serve as an objective marker. The Pearson product moment correlation coefficient of stability was utilized to estimate test-retest characteristics in breast cancer survivors($r = 0.844$) signifying statistical significance ($p < 0.01$)

Additional statistical analyses provided for item reduction of the instrument, resulting in a 15-item questionnaire. This shortened version was examined (in the above pilot study) for reliablity with test-retest. The Pearson product moment correlation coefficient of stability was utilized; all items were statistically significant ($p <0.01$) signifying reliability of the shortened version. Responses to the UAQ and level of vaginal pH were highly correlated.

The Urogenital Atrophy Questionnaire (UAQ) was developed to allow the woman to self-report urologic, genital, and sexual symptoms, and provide the clinician or researcher an instrument to identify, measure, and document indicators of urogenital atrophy.

Thus, a brief instrument is available that can measure the signs and symptoms of urogenital atrophy in breast cancer survivors. This instrument can be used in the clinical setting, as well as to measure the response(s) to interventions in the research setting.

Podium Session 22: Cancer-Related Symptoms

DH

GUM CHEWING FOR POST-COLORECTAL SURGERY PATIENTS.

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Prevention of paralytic ileus by gum chewing offers a low risk, low cost intervention for post-operative patients. Several studies demonstrated that gum chewing may enhance early bowel recovery among homogenous colorectal surgery patients.

Paralytic ileus is a rare but serious post-operative complication of abdominal surgery. This retrospective comparative study aimed to determine whether gum chewing enhanced bowel function and altered post-operative complications for heterogeneous colorectal surgery patients in a community hospital.

Cephalic-vagal stimulation can be enhanced by gum chewing, which may stimulate gastrointestinal motility and potentially prevent ileus.

Colorectal surgery patients at our hospital are instructed preoperatively and followed postoperatively by Colorectal Coordinator (CC). Beginning May 2005, dentulous patients seen by CC were prescribed sugarless gum tid for 35 minutes. Chart audits were done for (a) patients who had colorectal surgery first quarter 2005; (b) those who had colorectal surgery first quarter 2007 and were prescribed sugarless gum 35 minutes tid. Data were collected via chart audits on patient demographics, factors that may impact post-operative bowel function, gum chewing status, indicators of bowel motility, and occurrence of postoperative ileus. Comparison across groups was done using Chi-square analysis (categorical data) and oneway ANOVA (continuous variables).

In the 163 patients followed, there were no significant differences in time to flatus, first bowel movement (BM), and first hunger between gum chewers and non gum chewers. However, time to flatus and BM indicated that gut motility in gum chewers returned faster than in non gum chewers by up to ½ day (on average). No significant differences existed in post-operative complications; however, gum chewers had fewer complications. Only two persons in the gum chewers (3.4%) suffered from post-operative ileus compared to 10 (9.5%) in the non-gum chewers.

This is the first known study to evaluate gum chewing among heterogenous patients who have undergone colorectal surgery. Our findings support gum chewing as a low risk adjunct to enhancing gut motility among colorectal surgery patients. Meta-analyses published since our study began support gum chewing to reduce time to first bowel movement and flatus. Further research is needed in other groups at risk for paralytic ileus.

DI

PHYSICAL AND NEUROMUSCULAR SYMPTOMS PRIOR TO TAXANE CHEMOTHERAPY.

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Dose-dense breast cancer chemotherapy regimens of doxorubicin and cyclophosphamide, followed by taxanes have resulted in improved survival, but have also resulted in increased physical impairments and neurotoxicity.

Poor physical functioning and neuropathy symptoms can impact activities of daily living. Identifying pre-existing impairments in function and neuropathic symptoms can assist in designing appropriate interventions for those at greatest risk of chemotherapy-induced peripheral neuropathy. The aim of this study was to identify the frequency and type of impairments in physical functioning and neuromuscular symptoms prior to beginning taxane-based chemotherapy.

A physiologic framework of chemotherapy-induced mitochondrial dysfunction and microvascular impairment was used for this study.

Non-diabetic women (n = 19) receiving breast cancer chemotherapy were enrolled in this pilot study. Physical functioning and neuromuscular symptoms were measured using the physical and functional well-being and neuromuscular symptoms subscale of the FACT-Taxane (Cronbach's alpha 0.86–0.88.) after completion of 4 cycles of doxorubicin and cyclophosphamide chemotherapy, but prior to receiving taxane therapy.

Data were analyzed using descriptive statistics. Most women (n = 12, 63%) reported a lack of energy and increased time in bed; about one-third (n = 7, 36%) experienced difficulty working and sleeping; and fewer (n = 5, 26%) experienced the side effects of prior treatment, body pain, feeling ill, and difficulty meeting family needs. Two-thirds (n = 13, 68%) experienced weakness and muscle cramps; fewer (n = 4, 21%) reported experiencing gait disturbances; and even fewer (n = 3, 16%) reported pain, numbness, and tingling of extremities.

Dose dense chemotherapy regimens can result in impaired physical functioning manifested as poor sleep and loss of energy which can result in inactivity, and exert an additive effect on weakened muscles, increasing the risk of muscle atrophy and falls. Neuropathic symptoms of weakness, pain, numbness and tingling that are present before the administration of taxanes can impact physical functioning during cancer treatment. Women who may be most at risk for poor physical functioning and increased risk of neurotoxicity prior to the onset of taxane chemotherapy may require more intensive monitoring of neurotoxicity effects and may benefit from interventions to improve physical functioning and ameliorate neuromuscular symptoms during chemotherapy.

DJ

CONSTIPATION: A CONCEPT ANALYSIS AND THE MODEL OF CONSTIPATION ACROSS THE LIFE SPAN.

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To delineate the concept of constipation and identify its attributes in the oncology population a concept analysis was conducted using the Walker and Avant approach. Databases searched included PubMed and Medline (1966 to January 2010), CINHAL (1982 to January 2010), Cochrane, EMBACE (1974 to January 2010), and Web of Sciences. Key words included constipation, definition, epidemiology, etiology, bowel habits, pediatrics, and oncology. Primary and secondary sources were reviewed.

Constipation, a major source of distress for oncology patients of all ages, can occur anytime along the disease trajectory secondary to the cancer and/or treatment sequelae. Evidence suggests constipation is a neglected symptom that can significantly impact quality of life (QOL). Although the exact incidence of constipation is unknown, it is estimated 30% of cancer patients receiving vincristine and 50 to 95% receiving opioids will experience constipation.

Varying and inconsistent definitions of constipation have contributed to the lack of clarity of this concept. Assessing constipation is essential in determining the cause and developing effective management strategies to prevent or alleviate it. Constipation cannot be assessed or measured accurately if it remains poorly defined. The outcome of this concept analysis was the formulation of a conceptual definition and The Model for Constipation Across the Life Span. The model consists of three components: (1) antecedents; (2) attributes which characterize the concept of constipation; and (3) consequences that are associated with constipation. Antecedents affecting the gastrointestinal (GI) system and contributing to the development of constipation in cancer patients were grouped according to intrinsic characteristics (e.g. age, gender), extrinsic influences (e.g. diet, fluid, ambulation), physiologic conditions (e.g., metabolic disturbances, and tumor compression of the spinal cord at the level of bowel function), and pharmacologic agents with constipating effects (e.g. vinca alkaloids, opioids). Attributes of constipation include changes in stool frequency and stool characteristics, and difficulties in passing stool. Consequences include GI systemic, perianal, and colonic effects, impact on QOL and resource utilization.

Clarifying the concept of constipation is essential in defining consistent criteria for evaluating the effectiveness of interventions. The proposed model provides a framework for further research.

DK

DELIRIUM IN PATIENTS UNDERGOING TREATMENT FOR HEAD AND NECK CANCER: A COMMON AND ELUSIVE PROBLEM.

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Delirium is a serious neuropsychiatric complication seen by oncology nurses in up to 57% of hospitalized cancer patients, and in up to 90% of patients near end of life. Delirium is associated with increased morbidity and mortality.

Key delirium characteristics (rapid onset, symptom variability, and fluctuating course) present significant challenges for its identification and management, particularly in outpatient settings. The incidence and impact of delirium in patients receiving outpatient cancer treatment are unknown. This study aimed to estimate the incidence of delirium in patients undergoing treatment for head and neck cancer (HNC).

A biopsychosocial framework guided the study.

In this prospective, longitudinal study, patients (N = 69) were assessed for delirium at scheduled clinic visits using the Confusion Assessment Method (CAM) and the NEECHAM Confusion Scale. After treatment, patients (N = 59) were given a definition of delirium and asked to report whether they experienced delirium during treatment. Family caregivers (N = 23) were asked to report retrospectively the presence of delirium symptoms in patients using the modified Neuropsychiatric Inventory-Questionnaire (NPI-Q).

Patients were predominantly male (81%), Caucasian (91%), and married (77%). Mean age was 55 years. Most (72%) received induction chemotherapy followed by concurrent chemoradiation (CCR); 16 (23%) underwent CCR postoperatively or as primary treatment; 3 (4%) primarily received chemotherapy. Based on the CAM, 6 (9%) patients had delirium at a scheduled clinic visit. Concurrent NEECHAM scores ranged from 20-24, indicating mild delirium. Post-treatment, 30% of patients reported having delirium during treatment. Caregivers reported that patients exhibited two core delirium symptoms: decreased alertness (70%) and inattention (61%). Findings suggest that delirium is common in HNC patients during outpatient treatment. Assessments at scheduled clinic visits likely underestimate the incidence of delirium. Almost one-third of patients retrospectively reported having delirium

during treatment, but this estimate excludes patients unable to complete the post-treatment assessment. Caregivers also reported a high frequency of core delirium symptoms. Oncology nurses play a key role in identifying and managing delirium, and in providing education and support to patients and their caregivers. Additional research is needed to develop a better understanding of delirium in the outpatient cancer treatment setting.

Podium Session 23: Caregivers

DL

CAREGIVERS' REPORT OF CARE RECIPIENTS' SYMPTOM SEVERITY, PREVALENCE, AND CAREGIVER BOTHER FOLLOWING DIAGNOSIS OF A PRIMARY MALIGNANT BRAIN TUMOR. A.M. Fisher, Nursing, University of Pittsburgh, Pittsburgh, PA; C. Kuo, Nursing, University of Pittsburgh, Pittsburgh, PA; H.S. Donovan, Nursing, University of Pittsburgh, Pittsburgh, PA; P.R. Sherwood, Nursing, University of Pittsburgh, Pittsburgh, PA; B.A. Given, Nursing, Michigan State University, East Lansing, MI; C.W. Given, Nursing, Michigan State University, East Lansing, MI; and R. Schulz, Psychology, University of Pittsburgh, Pittsburgh, PA

Despite a multitude of studies on symptom prevalence and management in other tumor types, there is a paucity of research describing the symptoms that caregivers of persons with a primary malignant brain tumor (PMBT) face in the first four months following diagnosis.

Studies of patient populations in oncology have found associations between care recipients'(CRs') symptoms and caregivers' psychological distress. There is a dearth of work in this area in neuro-oncology. The purpose of this study was to describe the most frequent and severe symptoms for persons with a PMBT and to identify those symptoms associated with caregiver bother.

The Adapted Pittsburgh Mind Body Center Model guided this study.

Persons with a PMBT (N=129) and their family caregivers were recruited for a descriptive longitudinal study (R01 CA117811) within one-month of diagnosis. Sociodemographic, clinical, and the MD Anderson Symptom Inventory Brain Tumor (assessing 22 symptoms) were administered via telephone interview at baseline and 4 months. Caregivers reported CRs' symptom severity (0-10) and rated their own bother (0-10) due to the symptom. Frequencies and descriptive analysis yielded the caregivers' perception of the most prevalent, severe and bothersome symptoms and paired t-test were used to estimate differences across time.

The most prevalent symptoms at both baseline and 4 months were: fatigue (92%;83%), distress (80%;78%), sadness (66%;70%), drowsiness (65%;68%), difficulty remembering (64%;67%) and irritability (62%;65%). Fatigue (M=5.41, SD=2.84), drowsiness (M=5.19, SD=2.73), and irritability (M=5.13; SD=2.67) were rated as most severe. Distress and difficulty remembering significantly worsened at 4 months ($p<.01$). The most frequently reported symptoms causing caregiver bother at baseline and 4 months were sadness, distress, fatigue, irritability, difficulty with concentration, understanding, remembering, disturbed sleep at baseline and lack of appetite at 4 months. Highest levels of caregiver bother were associated with CR sadness (M=6.19, SD=2.00) and distress (M=5.47, SD=3.00). Caregiver bother from CR feelings of distress significantly increased at 4-months ($p=.05$). These data suggest routine symptom assessment is vital and intervention development targeting those symptoms causing the most bother is needed.

DM

FACTORS CONTRIBUTING TO PERSISTENT DISTRESS IN BEREAVED NEURO-ONCOLOGY FAMILY CAREGIVERS. K.M. Flessner, Nursing, University of Pittsburgh, Pittsburgh, PA; V. Quolke, Nursing, University of Pittsburgh, Pittsburgh, PA; M. Baer, Nursing, University of Pittsburgh, Pittsburgh, PA; H.S. Donovan, Nursing, University of Pittsburgh, Pittsburgh, PA; P.R. Sherwood, Nursing, University of Pittsburgh, Pittsburgh, PA; and B.A. Given, Nursing, Michigan State University, East Lansing, MI

Research has shown poor physical and emotional health persists in family caregivers after the death of the care recipient. Few studies, however, have identified factors contributing to these poor outcomes.

Understanding factors associated with persistent distress is vital to developing appropriate interventions to assist bereaved caregivers. The purpose of this study was to examine factors associated with caregiver distress immediately and 4 months following the care recipient's death.

The Adapted Pittsburgh Mind Body Center Model guided this study.

Data from 17 caregivers recruited for a descriptive longitudinal study (R01CA117811) were obtained through open-ended telephone interviews immediately following the care recipient's death and 4 months later. Interviews consisted of open ended questions designed to encourage caregivers to reflect upon sources of frustration following the care recipient's death. Prompts were given to encourage caregivers to discuss the following issues: legal, financial, regret, social support, work-life; familial matters; and healthcare provider communication prior to and following the care recipient's death. Content analysis was performed to generate common themes among the group.

Analysis generated four themes: legal preparedness; financial preparedness; social preparedness; and communication with healthcare providers. Caregivers described being unprepared for legal matters before and after the care recipient's death such as: establishing Power of Attorney, estate issues, and advanced directives. Caregivers also expressed a lack of preparation in financial matters including: bills; insurance; investments; bank accounts and knowing these accounts existed. Caregivers transitioning to a pre-bereavement level of work, family, friend, and public socialization often did not anticipate the degree to which the care recipient's death would affect them despite efforts to prepare beforehand. Strong social support was shown to alleviate stress in this transition. Bereaved Caregiver distress was also associated with the quality of communication they had with health care providers while the care recipient was alive. Responses overwhelmingly described the need for effective communication with health care providers defined as constant, informative, and empathetic interactions relating to the diagnosis, prognosis, treatment, and care of the care recipient. Data suggest clinicians' focus on: financial and legal preparation, effective communication; and social support during the immediate pre- and post-bereavement periods may decrease distress in family caregivers.

DN

THE RELATIONSHIP BETWEEN HOPE AND CAREGIVER STRAIN IN FAMILY CAREGIVERS (FCS) OF PATIENTS WITH PAIN FROM BONE METASTASIS. V. Lohne, Faculty of Nursing, Oslo University College, Oslo, Norway; C. Miaskowski, School of Nursing, University of California, San Francisco; and T. Rustøen, Oslo University Hospital, Oslo, Norway

The care of patients has moved into the home, and involves FCs. While numerous studies have documented distress in FCs, only a few studies have evaluated hope in FCs of oncology patients. FCs are worried about the future and hope seems to be an important experience for these FCs.

The purposes of this study were to: describe levels of hope in FCs of patients with advanced cancer; describe levels of caregiver strain in these FCs, and examine the relationship between hope and caregiver strain. Differences in hope and caregiver strain associated with demographic characteristics are described. The

UCSF Symptom Management Theory served as the theoretical framework for the study.

In this cross-sectional study- out of a total of 179 oncology outpatients who were experiencing pain from bone metastasis, 112 had a FC who was willing to participate (62.6%). FC's completed the Herth Hope Index (HHI) and the Caregiver Strain Index (CSI). Pearsons' correlation analysis was done to evaluate the relationships between hope and caregiver strain. One-way analysis of variance was used to assess for differences in HHI and CSI scores and a number of demographic characteristics.

The majority of the FCs were female (60%) and spouses (94%) with a mean age of 63 years (SD 4). Approximately 20% reported a high level of caregiver strain and the prevalence was highest for emotional adjustment (70%) and changes in personal plans (58%). No relationships were found between HHI total scores and any of the CSI subscales scores. However, FCs with lower HHI scores reported higher overall levels of caregiver strain. FCs who lived with the patient had significantly lower levels of hope than FCs who did not live with the patient (p=0.026). Age was negatively correlated with CSI (r=-.24, p=0.011).

Oncology nurses should talk with FCs about hope. To strengthen hope in FC is important for their quality of life and might reduce their level of strain.

DO

WORK PRODUCTIVITY LOSS, ACTIVITY IMPAIRMENT, AND HEALTH OF INFORMAL CAREGIVERS OF PERSONS WITH ADVANCED CANCER.

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Substantial research documents the anxiety, depression, fatigue, and burden experienced by informal caregivers of individuals with cancer. However, there are few studies of the impact of caregiving on work and health promotion activities of informal caregivers.

The purpose of this study was to describe health promotion behaviors, work productivity loss, and daily activity impairment in caregivers of individuals with advanced stage cancer.

Guided by the concept of caregiver burden, a cross-sectional, correlational design was used to survey 49 informal caregivers who were enrolled in a clinical trial testing a palliative care intervention for patients with Stage III or IV lung, gastrointestinal, or gynecologic cancer.

Absenteeism, presenteeism, work productivity loss, and activity impairment were measured using the Work Productivity and Activity Impairment Questionnaire (WPAI). Caregivers also completed a survey of health promotion behaviors, the Profile of Mood States, the Medical Outcomes Study Social Support Scale, and the Caregiver Reaction Assessment. The analysis consisted of descriptive statistics and bivariate correlations to determine factors associated with work productivity loss.

Most caregivers reported healthy behaviors related to diet, exercise, and smoking avoidance. Twenty-two percent had delayed getting a medical test or screening. Employed caregivers (n = 29, 59.2%) reported 5.15% loss in overall work productivity due to caregiving. Work productivity loss was positively correlated with mood disturbance (r = .41) and caregiver burden (health problems, r = .50; lack of family support, r = .59; disrupted schedule, r = .62; financial problems, r = .39). Social support was negatively correlated with work productivity loss (r = -.55). For the entire sample, the percent of impairment in daily activities (other than work) due to caregiving was 17.69 (SD 23.38). Although caregivers reported positive health behaviors, a larger sample size and a more detailed assessment of diet and exercise are needed to confirm this result. The correlative analysis suggests that clinical interventions that improve caregiver mood, lessen burden, and enhance social support may also improve work productivity, and thus, ultimately reduce the economic impact of caregiving.

Podium Session 24: Care Intervention Research

DP

ZORA CAMP4ALL: A VIRTUAL COMMUNITY TO AUGMENT PEDIATRIC CAMPING.

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Pediatric camping has a positive impact on adolescents with serious illnesses; in fact, camp increases hopeful attitudes by decreasing levels of anxiety related to illness. Yet, the hopefulness derived from the experience may dissipate when the camper returns to the chronic stress of his/her illness. Since May 2009, in collaboration with Camp For All (CFA), a camp for children with serious illnesses, a 3D virtual environment resembling CFA was created for campers to maintain friendships from camp and explore concepts such as hope and connectedness.

The virtual environment's curriculum was designed to promote three constructs: hopefulness (Hinds), social connectedness (Lee), and Positive Technological Development (Bers). This pilot study's goals were to discover if Zora Camp4All could: (1) sustain the campers' hopefulness after their week of camp, (2) sustain the campers' sense of connectedness after camp, and (3) promote the campers' positive technological development after their week of camp.

The technology called Zora Camp4All was introduced to 40 adolescents with cancer (N=16), blood disorders (N=6), and their siblings (N=18) during their week at CFA in June 2009. After the week's completion, they accessed the virtual camp through home or hospital computer.

Hind's HSA, Lee's SCS-R, and Ber's PTD-Q were administered before and after using the program. The three scales were measured independently for differences across the data collection phases employing the Wilcoxian rank-sum test.

The results from this study suggest that Zora Camp4All may contribute to sustaining social connectedness and PTD. The mean PTD increase (M=2.13, SD=4.55, N=40) demonstrates significance (t=-2.95, p=<.005) and the mean social connectedness increase (M=1.08, SD=2.27, N=40) is also significant (t=-2.99, p<.005). Increase in hopefulness did not demonstrate statistical significance. Additionally, aspects of the program that contributed to sustainability remain to be determined. Siblings and campers from urban communities scored significantly lower in each of the three areas. These findings call for future exploration into the field of virtual interventions catered to the developmental needs of adolescents with chronic life-stressors.

DQ

THE FEASIBILITY OF AN INTERACTIVE VOICE RESPONSE SYSTEM (IVRS) IN SYMPTOM MANAGEMENT OF PATIENTS WITH CONCURRENT DIAGNOSES OF CANCER AND HEART FAILURE.

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Symptom management in cancer patients with heart failure presents a major challenge to patients and health care providers throughout the entire trajectory of the disease process. Early identification of symptoms and initiation of timely intervention are critical to prevent exacerbation and improve quality of life.

The purpose of the study was to determine the feasibility of using the MD Anderson Symptom Inventory–Heart Failure

(MDASI-HF) instrument preprogrammed via the interactive voice response system (IVRS) to monitor symptoms in cancer patients with heart failure.

The Symptom Management Model guided the monitoring and management of symptoms potentially experienced by the participants. The model's three interrelated dimensions include the symptom experience, symptom management strategies, and outcomes.

Twenty six patients who developed heart failure as a complication of cancer therapy were enrolled in the study. Symptoms were monitored using the MDASI-HF questionnaire preprogrammed via the IVRS on a weekly basis for three months. Patients reported symptoms that reached critical threshold levels automatically generated an alert which prompted the nurse who triaged the patient's response per protocol, and initiate interventions as appropriate with physician approval. Patients may also access the IVRS anytime should they experience worsening of symptoms. Clinical parameters and symptom scores were assessed at baseline, and every month for three months.

The average usage rate of the IVRS for participants that were able to respond was 71%, while 29% who developed complications after enrollment were not able complete the IVRS due to hospitalization or transition to hospice. Of the 160 IVR completed assessment, 115 critical threshold alerts were generated, prompting physician notification, medication changes, and nonroutine clinic visits. Intensive monitoring during the study resulted in the lower rating of symptom scores at the end of three months as compared to baseline. Participants were satisfied with the IVRS which they requested to continue with telephone monitoring even after the end of the study. This pilot study suggests that symptom monitoring via the IVRS is feasible and has clinical utility in patients with cancer and heart failure, and may improve patients' satisfaction and knowledge of self-care.

DR

PREDICTED PROBABILITY OF BEING AN EXERCISER IN CANCER PATIENTS DURING AND AFTER CANCER TREATMENT.

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Exercise intervention has been shown to be effective in those receiving cancer treatments and for cancer survivors. It is important to know the optimal time point at which patients should start exercise, either during or after cancer treatment.

The purpose of this analysis is to evaluate change in the probability of being an exerciser in patients with cancer during and after cancer treatment, and to determine the optimal time point to initiate exercise either during or after cancer treatment.

The Integrated Fatigue Model guided this analysis.

A secondary analysis from a longitudinal, randomized controlled trial using multilevel logistic regression examined change in the probability of exercise by group. Patients were coded as an exerciser based on the minimum criteria (3x/week, 20 minutes/session, and moderate intensity/session) of the American College of Sports Medicine (ACSM) at three time points: at the start of chemotherapy (T1), at the end of cancer treatment (T2), and at the end of the study approximately one year after the start of T1 (T3). A total of 119 female cancer patients with stage I to III solid tumors (breast, ovarian, colorectal) participated in the study. The average age of the sample was 50 years old; 80% were married, 50% were employed, and 45% were post-menopausal.

A positive linear effect was found for an increasing probability of being an exerciser ($p<.0005$), but the change was primarily quadratic ($p=0.016$), with an increase in the probability of exercise being greater from T2 to T3. The predicted probability of being an exerciser was approximately 41% at T1, 43% at T2, and 78% at T3. There was a greater probability of being an exerciser in the time period after cancer treatment rather than during cancer treatment. The quadratic time effect was more significant for those who initiated their exercise after cancer treatment than for those who were not given an exercise prescription during and after cancer treatment.

The minimum criteria of ACSM guidelines were acceptable during and after cancer treatment. Initiation of exercise after cancer treatment was more achievable and patients with cancer who were given an exercise prescription were more likely to initiate and sustain exercise.

DS

SYMPTOM REDUCTION MODEL FOR STEM CELL TRANSPLANT PATIENTS.

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Oral mucositis is the most distressing symptom experience in stem cell transplantation (SCT). Evidence suggests that oral mucositis is associated with fatigue, anxiety, sleeplessness, or dysphagia. Currently, there are no known symptom reduction models or theories from published literature. The proposed Symptom Reduction Model (SRM) will provide a proactive approach to prevention of the symptom experience.

A review of relevant literature from Ovid, CINAHL, EBSCO, MEDLINE, and PsycINFO was combined with experiential knowledge. The method of concept and theory synthesis and derivation was used in the development of this model. The process of providing early prevention as intervention to prevent symptom occurrence and distress starts with an in-depth understanding of the problem as experienced by cancer patients. The symptom experience (i.e., oral mucositis) is primarily caused by high-dose chemotherapy (HDC) as conditioning regimen in SCT, which can be exacerbated by risk factors such as patient demographics, lifestyle issues, and clinical factors. Symptoms (e.g., xerostomia, severe sore mouth/throat) may occur within seven days, persist in six days, and resolve in 14 days after HDC. The key to symptom reduction is providing cancer patients the knowledge, self-care skills, and support needed. Early prevention as intervention can be more effective if cancer patients have knowledge of the symptom experience, adhere and participate in self-care activities (self-efficacy) within a supportive environment (facilitation).

The development of this model is an important step in the prevention of symptoms in cancer population and SCT patients in particular. Understanding the symptom experience--symptom occurrence and distress--is critical in providing effective interventions to improve outcomes

This model may contribute to the advancement of clinical practice in symptom management and add to evidence-based knowledge of effective interventions. Further research is needed to determine the effectiveness of a systematic oral care and cryotherapy protocol on oral mucositis severity in SCT patients.

Podium Session 25: Survivorship Research

DT

LIVED EXPERIENCE OF LONG TERM SURVIVORS WITH HIGHLY MALIGNANT BRAIN TUMORS.

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Advances in the diagnosis and treatment of malignant brain tumors have improved mortality for those affected. Despite effective treatments, few studies have evaluated the psychosocial

changes that occur. Survivorship and quality of life are becoming a top priority for neuro-oncology practitioners and patients.

The purpose of this study was to explore issues for survivors who have lived with highly malignant brain tumors at least three years. Persons who survive brain tumor treatment suffer neurological dysfunction that interferes with resumption of pre-diagnosis activities.

Symbolic interactionism (SI), a sociological theory that interprets human interactions and exchange of symbols in communication and other interaction, provided a framework for this study. It sets the stage for applying Grounded Theory by creating a composite of the lived experience of having a malignant brain tumor.

Survivors and their family caregivers (n = 70), recruited from six sites throughout the United States, consented to participate in this IRB approved project. This study was a mixed method design. The qualitative component consisted of an open-ended interview that explored life before and after the tumor diagnosis, as well as how the tumor changed their lives. Caregivers were interviewed to validate the survivors' stories. Interviews were coded for specific themes. Investigators compared interviews to identify a collective story of living with a highly malignant brain tumor. Demographic data and cognitive screening (Cognistat) were analyzed using descriptive statistics.

Cognitive screening revealed moderate memory deficits in most survivors. Patients described life as overwhelming with progressive life changes that began at diagnosis and continued into present day. Roles were redefined and occasionally reversed with caregivers assuming survivor roles. Many survivors could not manage previous work responsibilities. Emotional and cognitive instability affected relationships with caregivers and others. Caregivers were in protective relationships with survivors. Life-altering changes occurred for survivors and their caregivers. Ongoing assessment is essential since their lives remained unstable. Further research can establish successful coping mechanisms that can be applied throughout the disease trajectory.

DU

FROM LIVING IN LIMBO TO SPEAKING LEGIBLY: DESCRIBING ORAL TONGUE CANCER SURVIVORSHIP.

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Oral tongue cancer incidence is rising and will likely continue to do so given the epidemiology of human papilloma virus infection and the demography of American society. Despite increasingly effective treatment options, understandings of patient experience of oral tongue cancer and life as a survivor is limited.

Oral tongue cancer treatment affects oral function and presentation of self in private and public domains. The paper presents descriptive central themes of oral tongue cancer survivorship as represented in a larger grounded theory inquiring into embodiment and aesthetics for oral tongue cancer survivors.

Symbolic Interactionism (SI) informs this inductively developed inquiry. SI is a sociological theory that explicates human interaction and exchange of symbols in communication and other interactions. SI undergirds Grounded Theory as a qualitative inductive approach designed to inquire into psychological and social processes in experiences. Thus, SI frames assumptions of interaction and embodiment in experience of oral tongue function and oral tongue cancer survivorship as well as guiding application of grounded theory and constant comparative technique.

Sixteen oral tongue cancer survivors with varied backgrounds, aged 30 to 80 years, from a single surgical practice consented to participate in this IRB approved project. Of this group, 8 were women, all but one were European or European American. All had stage 2-4 disease and all but one were treated with surgery with or without radiotherapy. The open-ended interview addressed the research question "How has your sense of yourself and your life activities changed since you were diagnosed with tongue cancer?". The interview elicited the survivor's story. Stories were collected and analyzed using constant comparative technique. Open and axial coding identified themes that describe survivor experience in this interim descriptive analysis aimed at improving clinicians' fund of knowledge of survivor experience. The larger project aims to produce a Grounded Theory of the basic social-psychological process of survivorship.

The experience of survivorship begins with "living in limbo", the diagnostic trajectory and moves through "emotional and physical pain" in the acute recovery phase after standard treatment of surgery with or without radiotherapy. Lasting changes in survivorship are characterized by "not without my water bottle", the pervasive sense of dry mouth that affects survivors whether or not they received radiotherapy, and "speaking legibly", the work of regaining speech and managing the influence of changes in voice that are often imperceptible but alter the survivor's personal aesthetic. The description of oral tongue cancer survivorship "from living in limbo to speaking legibly" informs clinicians who care for these individuals, in shaping their approaches to care, communication, and recommendations for support. These findings further offer the detail to foster instrument development in this important area of cancer survivorship. Finally, these themes provide the description necessary to launch theoretical coding to complete the Grounded Theory of oral tongue cancer survivorship.

DV

ADOLESCENT/YOUNG ADULT CANCER SURVIVORS' EXPERIENCES OF CONNECTEDNESS WITH THEIR HEALTHCARE PROVIDERS.

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Connectedness with healthcare providers (HCPs) may decrease risk-taking behaviors and foster healthcare self-management in adolescents and young adults with cancer (AYA). AYA have poorer outcomes than younger or older cancer patients. AYA survivorship is complicated by psychosocial late effects and engagement in lifestyle behaviors that may increase the risk of secondary cancers and other chronic illnesses. Earlier enhancement of protective factors, such as AYA-HCP connectedness, that foster healthy lifestyle behaviors is an Institute of Medicine priority.

Little is known about experiences of connectedness with HCPs from the perspectives of AYA. This study describes AYA experiences of connectedness with HCPs across the cancer continuum.

Empirical phenomenology, a qualitative method used to describe the essential commonalities of an experience across participants, was used to examine connectedness.

The sample of nine young adult cancer survivors (ages 20-23 years) diagnosed in adolescence participated in in-person individual audio-taped interviews. A broad, data generating question was used to elicit experiences of connectedness. Data analysis, using Colaizzi's method, involved systematic extraction of significant statements, meaning formulation, theme identification and comparison across participants. Trustworthiness and credibility strategies included peer checks, audit trail, and detailed description of findings.

Seven theme categories indicate connectedness with HCPs is multi-faceted, encompassing experiences of connectedness, unconnectedness, and disconnectedness. There are three critical cancer continuum time points when connectedness can be fostered, hindered, and/or altered: at diagnosis, AYA acceptance of the reality of having cancer, and after treatment ends. Contextual influences include parental involvement and environmental comfort. HCP strategies that foster connectedness include: 1) exhibiting characteristics of knowing how to connect; 2) being watchful and attentive to the needs of the AYA; 3) displaying a

willingness to foster the relationship; 4) using humor; and 5) communicating respect. HCP behaviors that foster unconnectedness or disconnectedness relate to lack of interest in and/or disrespect for AYA personhood. AYA-HCP connectedness fosters long-term care partnerships and may promote self-management during survivorship. Lack of connectedness or disconnectedness results in feelings of helplessness and vulnerability, anger and resentment, and reluctance to connect with HCPs for cancer prevention. Knowledge obtained from this study can guide the development of interventions to enhance AYA-HCP connectedness that ultimately improve AYA survivorship.

DW

UNDERSTANDING QUALITY OF LIFE AND HEALTHCARE PRIORITY NEEDS DURING SURVIVORSHIP IN YOUNGER BREAST CANCER SURVIVORS. C.J. Bell, School of Nursing, Indiana University, Indianapolis, IN; A.A. Maners, School of Nursing, Indiana University, Indianapolis, IN; K. Wagler Ziner, School of Nursing, Indiana University, Indianapolis, IN; V.L. Champion, School of Nursing, Indiana University, Indianapolis, IN; and A. Alexander, School of Medicine, Indiana University, Indianapolis, IN

Although breast cancer predominantly occurs in women over the age of 50, there are a significant number of women diagnosed under the age of 45. Younger breast cancer survivors are different than older survivors in life stage creating conflicts with personal and professional roles which ultimately affect overall quality of life.

The purpose of this study is to describe the impact of breast cancer on quality of life for young breast cancer survivors and to identify healthcare priority needs during survivorship.

A theoretical model for predicting QOL developed by Ferrell and colleagues directed the analysis. Experiences were categorized according to each QOL domain, including physical, psychological, social and spiritual aspects of QOL. An additional category identified healthcare priority needs. Inductive reasoning was used to abstract prevalent themes in younger breast cancer survivors.

Survivors were recruited from a geographically diverse population of women who were enrolled in ECOG clinical trials and were participants in a larger QOL study. Semi-structured interviews were conducted on 14 women to elicit experiences during survivorship that affected physical, emotional, social or spiritual QOL domains; and to identify healthcare priority needs. Content analysis as described by Elo & Kyngas was the method used for analysis.

Survivors were 3 to 8 years from diagnosis. Their current age ranged from 28 to 52. The mean current age was 45. Preliminary analysis reveals younger breast cancer survivors in this study are predominantly affected in the psychological and social QOL domains. Themes include loss of identity; self image; juggling parenting and professional roles; living with remnants and reminders: social responsibility; connecting with others while protecting self; and living with purpose. While women appreciate healthcare provider support during treatment, there was a need for more initial guidance through the complexity of the healthcare system. Women also felt the need for more psychological support throughout their cancer trajectory and into survivorship.

POSTER SESSIONS

Symptoms and Side Effects

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IMPACT OF FATIGUE EDUCATION IN PATIENTS WITH NSCLC DURING RADIATION. M.E. Gaguski, Medical Oncology, Atlanticare Cancer Care Institute, Egg Harbor Township, NJ

Cancer-Related Fatigue (CRF) remains a problematic symptom for many patients with cancer. Although many patients attempt strategies on their own, quite often they are ineffective at reducing CRF.Minimal research has investigated the impact of CRF on newly diagnosed patients with non-small cell lung cancer undergoing cancer treatment.

This pilot study explored the feasibility and impact of implementing an individualized Social Cognitive Model (SCM) structured fatigue management education (SCMFME) plus Standard Care (SC) compared to SC alone in subjects newly diagnosed with NSCLC beginning chemotherapy and radiation (RT) on CRF throughout six weeks of RT.

Bandura's Social Cognitive Theory was used as the framework for the design and delivery of the CRF intervention.

This pilot study was prospective, and longitudinal with randomization of eleven subjects from Radiation Oncology in a community hospital being randomized to a fatigue management education group plus standard care (SCMFME + SC) (n-6) or to SC alone group (SC alone) (n-5). Outcome variables were fatigue levels, selected strategies used to manage fatigue and relationships between fatigue levels and influencing factors (i.e. age, gender). Fatigue was assessed weekly by Cella's FACT-F and a visual analog scale (VAS). The weekly individualized intervention was based on the subject responses to the FACT-F. Each week subjects selected a fatigue reduction strategy to utilize from a fatigue management strategy list. Information on selected characteristics was obtained from subject demographic data.

Using repeated measures analyses via mixed effects modeling, differences in fatigue levels based on the FACT-F or the VAS between the two groups over time were not significant ($p>.05$), nor were there significant differences in fatigue scores between the two groups when considering selected characteristics (i.e. age, gender, education, hemoglobin) ($p>.05$). Most fatigue management strategies selected were from the general fatigue or sleep categories. Subjects reported all nurse-coached sessions as "helpful". This pilot study demonstrated that this type of individualized "coached" education is feasible in this setting (10-15 min/session; only 9.09% attrition over 6 weeks, and reported as helpful.)Future research requires testing with a larger sample of subjects diagnosed with NSCLC, including those with brain metastases.

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FEBRILE NEUTROPENIA BUNDLE—USING EVIDENCE TO CHANGE PRACTICE. J.L. Ralph Webber, Professional Practice, Banner Desert Medical Center, Mesa, AZ

Febrile neutropenia is a condition marked by fever and a decrease in the number of neutrophils in the blood. In cancer patients febrile neutropenia represents a common complication from chemotherapy that is potentially lethal. It remains a major risk factor for the development of infectious processes that may lead to serious complications, such as septic shock, which often can result in death. Effective evidenced based strategies to anticipate, prevent and manage infectious complications in such patients have lead to improved outcomes nationally especially when empiric antibiotics are administered to the febrile neutropenic patient promptly.

The purpose of the study was to guide clinical practice by providing optimal management of cancer patients with febrile neutropenia, utilizing the febrile neutropenia bundle.

Current clinical practice was fragmented, not in compliance with established national febrile neutropenia guidelines. Patient outcomes were impacted.

The goal of the study was to meet the National Standard for patients to receive an antibiotic within 30 minutes or less from intake time in the ED, reducing morbidity, mortality and associated costs

Retrospective chart review supported the need for the FN Bundle with standardized treatment regimens to decrease delays in initiating therapy

Taskforce assembled, process developed, timelines established FN Bundle included; patient assessment and management tools,

ED and Inpatient order sets, patient teaching brochure and the FN Patient ID Card, and FN clinical pathway

Initial three month review showed a significant reduction in delays; median time triage to antibiotic administration was 2 hours and 30 minutes… a positive indication in the reduction of time of 1 hour 40 minutes. Data continues to show steady decline in the "time to administration" however targeted goal of <30 minutes from time of intake to antibiotic administration had not been reached consistently with all patients.

Heightened awareness from nursing staff during the development phase indicated a change in practice as evidenced by a reduction in time to antibiotic of 1 hour and 25 minutes. Incorporating communication with community oncologists was beneficial to implementation. Change is difficult to envelop in a busy ER when physician acceptance is not consistent, however since implementation of the febrile neutropenia bundle, a task force has been instituted; with a strong commitment to meet the goal for 2010.

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TUMOR-INDUCED CARDIOMYOPATHY MAY CONTRIBUTE TO CANCER RELATED FATIGUE.

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Cancer-related fatigue (CRF) occurs in upwards of 70% of cancer patients regardless of tumor type or anti-tumor therapy. CRF significantly impairs functional status and reduces quality of life in persons with persistent disease.

To date, there is no recognized cause of CRF and no effective therapy. Work on our laboratory suggests that tumor-induced wasting of skeletal muscle is a major factor contributing to fatigue in cancer patients. The purpose of the present study was to determine if muscle protein degradation also occurs in the myocardium and if myocardial function is impaired in tumor-bearing mice.

Tumor-induced muscle wasting is thought to be mediated by pro-inflammatory cytokines such as interleukin-6 or tumor necrosis factor-alpha, which are produced by the tumor or the host in response to tumor growth. These cytokines increase expression of biomarkers of autophagy (Bnip3) and proteasomemediated degradation (MAFbx) in muscle cells. The resultant loss of muscle mass is associated with reduced voluntary wheel running, a measure of fatigue in rodents.

Tumor-bearing and control mice were sacrificed and the gastrocnemius and heart muscles were removed and homogenized in Trizol for extraction of total RNA. The cDNA transcripts were subjected to real time PCR using primer sets for MAFbx and Bnip3. Data were normalized to expression of GAPDH. Additional animals underwent echocardiography before sacrifice for single fiber analysis of contractile function of heart muscle.

The gastrocnemius muscle, but not the heart muscle, was smaller in the tumor-bearing mice compared to control mice. However, expression of MAFbx and Bnip3 mRNA were elevated in both the gastrocnemius and heart muscle of tumor-bearing mice. Echocardiography demonstrated that fractional shortening, a measure of systolic function, was signficantly depressed in hearts of tumor-bearing mice. These data were confirmed by single fiber analyses which showed decreased sarcomere departure velocity and increased time to peak contraction in muscle fibers from tumor-bearing mice. Thus, depressed contractile function, related to muscle protein degradation in the heart, may contribute to the decrease in voluntary running activity in this mouse model of tumorinduced fatigue.

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COMPARISON OF MASSAGE EFFECTS WITH DIVERSE SESSION LENGTH IN PATIENTS WITH METASTATIC CANCER PAIN: A CROSSOVER CLINICAL TRIAL.

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Patients with metastatic cancers are more likely to have pain (50% to74%) as compared to patients with non-metastatic cancers (15%), afflicting patients' substantial morbidity and quality of life. Massage has been extensively validated as an effective intervention for improving physical or psychological effects in patients with cancer. In the existing studies, however, the duration of massage per session ranged from 5 min to 45 min and results from these studies indicated that even short session of 15-min massage seemed to also have positive effects. Whether longer doses are more potent than short session remains inconclusive. The lack of evidence of appropriate session length of massage may limit massage to clinical implication.

To date, no study examines the effects of massage with different session length and the appropriate session length remains unclear. The purpose of this study was to compare the massage effects with three session duration (20 min, 30 min, 45 min) in patients with metastatic cancer pain.

The modified Gate Control Theory of Pain as proposed by Mezlack & Wall served as a theoretical framework for exploring the underlying mechanism of massage therapy.

This 5-day crossover trial, single blinding, with pretest and posttest design was conducted at inpatient oncology units in a teaching medical center in the northern Taiwan. A total of 60 subjects, who were experiencing with moderate metastatic cancer pain, consented to participate this study. Each participant randomly received two sessions of massage with one of the four combinations (45-min, 30-min; 30-min, 45-min; 45-min, 20-min; 20-min, 45-min), and there was at least one day apart while crossing over to another assignment. The baseline of five outcome measures, including a single item of present pain intensity and Relaxation-VAS, a six-item of Mood-VAS and pain interference, a 5-item of Sleep-VAS and satisfaction, were obtained prior and post each session of massage with the designed measurement interval. Massage effects were examined with paired and independent t-tests.

According to diverse session duration, massage was shown to have different aspects of effects on improving pain intensity, pain interference, mood, muscle relaxation, and sleep quality. Despite of different length combinations, massage with longer session duration, 45-min massage, appeared to have consistent and evident effects compared to 30-min or 20-min massage. The 45-min massage had statistically significant effects on all aspects of outcome measures, whereas the 20-min massage only had significant effects on mood and relaxation. In contrast, the effects of 30-min massage seemed to be consistent to 45-min massage, especially in pain intensity, mood, and relaxation. Overall satisfaction about receiving massage reached at 85% and there was no statistical group difference in terms of different duration combination, $F(3,57)=1.21$, $p=.31$. In conclusion, the 45-min massage effects had statistically superior benefits over 30-min or 20-min massage, especially in the pain intensity, pain interference, and sleep quality. Even massage session as short as

20-min, still had positive effects on mood and relaxation in this cancer population. Within the constrained nursing time, results from this study can serve as a reference for nurses to employ appropriate duration of massage based on needs of patients, enhancing quality of care in patients with metastatic caner pain.

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PAIN AS A MEDIATOR BETWEEN REST/ACTIVITY RHYTHM AND SLEEP DISTURBANCE AMONG ADVANCED CANCER PATIENTS WITH PAIN. C. Lin, School of Nursing, Taipei Medical University, Taipei, Taiwan

Results from this study provide an important knowledge base for developing nursing interventions to improve the management of cancer pain and sleep disturbances in advanced cancer patients.

The purpose of this study was to examine the relationships among pain, sleep disturbance, and circadian rhythm and to test whether pain functions as a mediator on the relationship between sleep and circadian disruption.

A convenience sample was recruited for this study.

This study was conducted in the oncology outpatient clinic of a teaching hospital in the Taipei area. In total, 68 patients were included. The Brief Pain Inventory-Chinese version (BPI-C), the Pittsburgh Sleep Quality Index-Chinese version (PSQI-C), sleep logs, wrist actigraphy, and a demographic questionnaire were used for data collection. Descriptive statistics, Pearson correlations and the sobel test were used to analyze the data.

Pain was found to be a complete mediator between sleep quality and circadian rhythms. The rest/activity rhythm plays an important role in the coexistence of pain and sleep disturbance, and pain functions as a mediator in cancer patients. Interventions that improve rest/activity rhythm should be investigated, aimed at simultaneously optimizing the management of pain and sleep disturbance in cancer patients.

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SLEEP IN LUNG CANCER: AFTER DIAGNOSIS AND DURING EARLY TREATMENT. G. Dean, School of Nursing, University at Buffalo, Buffalo, NY; S. Dickerson, School of Nursing, University at Buffalo, Buffalo, NY; P. Ziegler, Hematology/Oncology, Buffalo Veterans Administration Medical Center, Buffalo, NY; L.M. Steinbrenner, School of Medicine, University at Buffalo, Buffalo, NY; and H. Chen, Thoracic Oncology, Roswell Park Cancer Institute, Buffalo, NY

Sleep disturbances in patients with lung cancer are common. One challenge is determining whether sleep disturbances are pre-existing or develop during and/or after treatment.

This study provided exploratory longitudinal data on sleep before, during and after treatment in patients with inoperable non small cell lung cancer.

The Two-Process Model of Sleep Regulation adapted for the patient with cancer guided this study.

Participants recruited from the Buffalo VA Medical Center and Roswell Park Cancer Institute completed the Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS), Functional Assessment of Cancer Therapy-Lung (FACT-L) scale, 7-day sleep diary and wore the motionlogger actigraph (Ambulatory Monitoring, Inc.) for 7-days. Descriptive and inferential statistics were used.

Among 20 participants, mean age was 66.1 years (sd = 10, Range = 47-84), with 60% female, and 85% Caucasian. All patients were diagnosed with non small cell lung cancer: 55% adenocarinoma, 40% squamous cell and 5% large cell; the majority were stages III/IV. Pretreatment self-reported sleep parameters did not differ significantly following the first cycle of chemotherapy +/- radiotherapy: total sleep time 6.3 (sd=1.3) versus 6.5 (sd=1.1) hours, sleep onset latency 22 +/- 16 minutes versus 23 +/- 15 minutes. The most common reasons for self-reported sleep disturbances included wakefulness after sleep onset (85%), nocturia (75%), and pain (50%). Additionally, 40% reported symptoms of sleep disordered breathing (SDB) at diagnosis (e.g. loud snoring, long pauses between breaths while asleep). Only half the participants who reported SDB had an ESS >8. Patients with non small cell lung cancer may constitute a subgroup of cancer patients most at risk for sleep disturbances at diagnosis, including sleep disordered breathing. Research to confirm these findings in a larger sample is warranted.

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PHYSICAL ACTIVITY AND SYMPTOMS IN ADOLESCENTS AND YOUNG ADULTS RECEIVING CHEMOTHERAPY. J.M. Erickson, Acute and Specialty Care, University of Virginia, Charlottesville, VA

Despite advances made in palliative care, adolescents and young adults (AYA) with cancer experience multiple distressing symptoms. Many AYA with cancer decrease their level of activity during the chemotherapy treatment period when symptom severity is high. While time for rest and recovery is warranted, decreased physical activity can be associated with negative physical, psychological, and developmental consequences.

Little is known about the physical activity and co-occurring symptoms of fatigue, sleep disturbances, and depression in AYA receiving outpatient chemotherapy and how these problems affect short- and long-term outcomes. The primary aim of this exploratory study is to test the feasibility and acceptability of instruments and procedures to measure functional status, physical activity, and symptoms in AYA after one cycle of outpatient chemotherapy.

The Biobehavioral Model for the Study of Exercise Interventions in Cancer-related Fatigue by Al-Majid and Gray (2009) provides a framework to examine the effects of physical activity on multiple interrelated biobehavioral variables that affect the quality of life of individuals with cancer. The model proposes that physical activity can positively affect the underlying biological, psychobehavioral, and functional mechanisms of cancer-related fatigue to improve quality of life.

Baseline functional status will be measured using the six-minute walk test in a sample of 40 AYA at the beginning of a chemotherapy cycle. Physical activity will be measured using accelerometry during the week after chemotherapy when symptom severity is usually high. Symptoms will be self-reported weekly for four weeks. The feasibility of these measurement strategies will be summarized by exploring descriptive statistics and qualitative data from the participants.

Study findings will provide information about the methodological challenges of measuring functional status, physical activity, and symptoms in AYA receiving outpatient chemotherapy. These data will be used to inform future studies that develop and test an age-specific physical activity intervention to improve symptom management and quality of life outcomes for this young group of patients who may be long-term survivors.

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OCCURRENCE AND EFFECT OF MULTIPLE SYMPTOMS IN ADVANCED CANCER PATIENTS WITH PAIN. S. Gilbertson-White, School of Nursing, University of California, San Francisco; B.E. Aouizerat, School of Nursing, University of California, San Francisco; M. Dodd, School of Nursing, University of California, San Francisco; K. Lee, School of Nursing, University of California, San Francisco; S. Paul, School of Nursing, University of California, San Francisco; B. Cooper, School of Nursing, University of California, San Francisco; C. Miaskowski, School of Nursing, University of California, San Francisco; and L. Dunn, School of Medicine, University of California, San Francisco

Only 22 studies have evaluated the occurrence of multiple symptoms in patients with advanced cancer who report pain. Knowledge of the most prevalent symptoms is needed to plan effective symptom management interventions.

The purposes of this study, in a sample of advanced cancer patients with somatic or visceral pain (n=84) were to determine the mean number of symptoms reported by these patients; to determine the effect of multiple symptoms on pain outcomes.

The UCSF Theory of Symptom Management suggests that demographic and clinical characteristics need to be evaluated in relationship to the occurrence of single and multiple symptoms.

Patients completed demographic questionnaire, Brief Pain Inventory, and Memorial Symptom Assessment Scale at the time of enrollment into a cancer pain management intervention study. Descriptive statistics were generated on the occurrence rates for each of the symptoms on the MSAS and a mean number of symptoms/patient was calculated. Differences in pain scores were evaluated between patients with low and high numbers of symptoms using independent sample t-tests.

Patients in this study were primarily male (54%) with a mean age of 62.8 (+11.6) years and a mean Karnofsky score of 68.7 (+12.3). Patients reported an average of 13 (+7) symptoms. The symptoms that occurred in 50% of the patients were pain (92%), fatigue (88%), feeling drowsy (84%), feeling sad (67%), lack of appetite (66%), constipation (64%), difficulty sleeping (64%), worrying (63%), numbness and tingling (53%), feeling irritable (53%), and dry mouth (51%). When patients were dichotomized into low (<10) and high (>10) symptom groups, no differences were found in any pain intensity measures between the two groups. Findings provide important information on the most prevalent symptoms in patients with advanced cancer. Additional research is warranted to determine the factors that predict an increased symptom burden in these patients.

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FATIGUE IN ONCOLOGY NURSES: SCALE DEVELOPMENT.

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Oncology nurses experience work-related stress emanating from close interpersonal contact with cancer patients which leads to fatigue. Decreasing job satisfaction, increasing medical errors, and overall declining in general health are some adverse consequents of fatigue.

The lack of a reliable and valid instrument has avoided accurate assessment of fatigue in order to recognize and treat this phenomenon in oncology nurses.

The present study aimed to develop a reliable and valid scale to measure fatigue in oncology nurses.

This research was conducted based on Piper's conceptual model for fatigue.

In this methodological research, after reviewing literatures about fatigue in oncology nurses and gathering developed scales for measuring any aspects of fatigue in all populations, a 45-items fatigue scale was developed. Content Validity Index were assessed by 10 nurse faculties and 9 oncology nurses who were expert in this area. After this stage, the item pool reduced to 34 items. In order to assessing psychometric properties of the scale, 215 nurses working in oncology wards of 7 training hospitals in Tehran/Iran were selected using purposeful sampling. Construct validity was estimated using exploratory factor analysis. Concurrent validity was estimated performing Pearson's correlation analysis between the scale and responses to the criterion scale (fatigue visual analogue scale). Internal consistency and stability assessed via Cronbach alpha coefficient and test-retest reliability.

A fatigue scale for oncology nurses with 21 items was developed. The factor analysis revealed 3 factors which could explain 52.085% of the total variance. The factors called "cognitive-mental", "emotional-affective" and "physical-behavioral" dimensions. Correlation of the scale scores with scores of criterion scale was 0.793 (P<0.001). Internal consistency of the scale including alpha coefficient and test-retest reliability were 0.82 and 0.877 respectively. The introduced fatigue scale was a valid and reliable scale for measuring dimensions of fatigue in oncology nurses. Ability to accurately recognize and measure this frequent nursing phenomenon, can help managers in planning and implementing efficient strategies to solve this serious work-related issue appropriately.

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MUSIC RELAXATION VIDEO AND PAIN CONTROL: A RANDOMIZED CONTROLLED TRIAL FOR WOMEN RECEIVING INTRACAVITARY BRACHYTHERAPY FOR GYNECOLOGICAL CANCER.

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Women with gynecologic cancer face treatment involving pulsed-dose rate (PDR) brachytherapy, a radiotherapy technique for delivering radiation to the site of a tumor. All patients undergo bed rest immobility for a period of 48 and 72 hours, with an indwelling foley catheter, vaginal packing, and medication to induce constipation. Pain and anxiety are major concerns.

Traditional pharmacological interventions for relief of postoperative pain are being challenged by increasing demands for more holistic approaches. The purpose is to examine a nonpharmacological intervention, a music relaxation video (MRV), and its effects on severity of pain, opioid utilization, and level of state anxiety for patients receiving intracavitary brachytherapy for gynecologic cancers.

Neuman's System Model provided the theoretical framework. The nursing goal is to reduce the stressors generated by brachytherapy and immobility and to facilitate reconstitution through the use of a MRV.

Sixty women were randomly assigned to either an experimental group (n=31) that watched a 30-minute MRV a total of four times during the first 44 hours of the first brachytherapy treatment period or to a control group (n=29) that received standard nursing care without being offered the MRV during this treatment period. Pain was assessed using a Visual Rating Scale (VRS). Patient controlled analgesia (PCA) medication utilization was recorded and converted to standardized units. State Trait Anxiety Inventory (STAI) was used to assess anxiety. Serial changes between and within cohorts in pain and anxiety were tested using analysis of variance (repeated measures), and opioid consumption was using a t test.

Perceived pain was significantly reduced between cohorts by VRS (p=0.027) but this did not translate into lower total consumption of opioids. Anxiety was significantly reduced when MRV was used with brachytherapy (p=0.001). When used in conjunction

with standardize pharmaceutical interventions, MRV reduces perceived anxiety and pain levels in women undergoing brachytherapy for gynecologic cancer. Healthcare providers should consider offering this option during brachytherapy.

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PHASE II OBSERVATIONAL STUDY OF AN ABBREVIATED PREMEDICATION REGIMEN PRIOR TO PACLITAXEL-BASED CHEMOTHERAPY.

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Paclitaxel is highly active in the treatment of a variety of solid tumors. Despite premedication with a corticosteroid and both histamine-1 and histamine-2 receptor antagonists, hypersensitivity reactions (all grades) during intravenous administration of paclitaxel occur in 41% of patients, and "severe" hypersensitivity reactions occur in 2% of patients. Up to 95% of hypersensitivity reactions occur during the first or second dose of paclitaxel within the first 15 minutes of infusion initiation. With prolonged use of paclitaxel, especially when given weekly, patients are exposed to repeated doses of premedications.

The goal of this study is to determine the prevalence of rescue medication usage for the treatment of paclitaxel hypersensitivity reaction after premedications are discontinued for doses three to six.

The rationale for this study is based on the side effect profile of premedications used for paclitaxel. Side effects associated with short-term and prolonged use of corticosteroids, most commonly dexamethasone, include: hyperglycemia, insomnia, gastritis, fluid retention, weight gain, immune suppression, acne, skin changes, osteoporosis, mental status changes, adrenal suppression, and when administered as an intravenous bolus, perianal pruritis. Diphenhydramine, the most commonly employed histamine-1 receptor antagonist for the prevention of paclitaxel induced hypersensitivity, is commonly associated with drowsiness and can paradoxically cause dystonia and restlessness when 50mg is administered intravenously.

This is an observational single arm open label phase II study estimating the prevalence of rescue medication usage following an abbreviated paclitaxel premedication regimen. The accrual goal is 70 patients. Hypersensitivity is graded using the Common Toxicity Criteria for Adverse Events (CTCAE)Version 3.1.

Formal statistical analysis of this study is pending. Implications for Oncology Nurses are that advocacy for patients makes a difference and that practice-based practice leads to research leading to evidence-based practice.

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EARLY LUNG CANCER EXPERIENCES: SLEEP IS NOT A PRIORITY WHEN TAKING CARE OF BUSINESS.

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Sleep-wake disturbances are prevalent in lung cancer patients and are implicated in cancer related fatigue; however, patients often underestimate the severity of their sleep difficulties that contribute to poorer quality of life. It is unknown how patients experience managing their sleep during the early diagnosis and treatment trajectory. This report is the initial qualitative findings related to sleep wake disturbances in patients with lung cancer mixed-method study, which provides beginning information on early interventions to improve sleep and quality of life.

The purpose of this study is to understand the experiences of sleep wake disturbances in lung cancer patients with non small cell lung cancer after diagnosis and during early treatment through analysis of narrative stories. The specific aims are: 1.) to understand how sleep patterns have changed since diagnosis and how the changes affect their daily lives, and 2.) to describe lung cancer patients' beliefs and practical knowledge used in managing their sleep difficulties.

Interpretive phenomenological approach of Heideggerian Hermeneutics forms the basis for development of the interview questions and analysis of narratives.

19 individuals treated for lung cancer, 7 at Buffalo VAMC and 12 at Roswell Park Cancer Institute, were interviewed after diagnosis and at the beginning of treatment. Eleven males and 8 females participated in interviews and were asked open ended questions about their diagnosis, how it influences their sleep, and what they would suggest for other patients. The seven stage hermeneutical process was used to analyze the narrative texts.

Findings indicate that a diagnosis of lung cancer, while devastating, was not a surprise often due to past smoking histories. However, their diagnosis was unexpected since their initial office visits were related to pneumonia, chest colds, back pain, or routine check-ups. Participants were hopeful that treatments would control the disease and that they could keep their normal lives. Participants described sleep habits contrary to good sleep hygiene that resulted in fragmented sleep yet had few complaints. Findings offer insight for oncology nurses on how to offer practical advice to improve sleep hygiene to reduce fatigue.

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EXPLORING THE QUALITATIVE DIMENSIONS OF DYSPNEA IN LUNG CANCER.

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The American Thoracic Society (ATS) dyspnea definition acknowledges a sensory and an affective dimension. Also respiratory discomfort represents interplay between physiological and behavioral factors. A barrier to dyspnea management is lack of understanding of the two dimensions.

While breathing descriptors have been reported in other populations, the sensory and affective breathing experiences of persons with lung cancer have not been explored. This study's purpose was to qualitatively explore the dimensions of Breathing Effort and Breathing Distress from the perspective of individuals with lung cancer.

Symptom distress theory guided this study. To understand symptom distress, differentiation of the symptom as an event and the emotional response to the event is advised.

This cross-sectional study used a descriptive design. Thirty outpatients with lung cancer reporting dyspnea were enrolled. All completed interviews to solicit perceptions of Breathing Effort and Breathing Distress. Audio-recorded comments were categorized into nine themes. Breathing Effort and Distress descriptors were organized in the nine category matrix. Qualitative data saturation was observed. Descriptors were categorized by a second reviewer. Kappa coefficient of agreement between coders was 0.73. Statements summarizing the similarity, difference and overlap between breathing dimensions were generated.

Individuals discriminated between Breathing Effort and Distress generating nine categories. Breathing Effort descriptors uniquely represented 2 of the 9; four categories contained unique Breathing Distress descriptors. Breathing Effort is associated with airflow disturbance and precipitated by exertion. Breathing Distress is associated with unpleasant emotions, loss of control, unexpected onset, and requires intervention. Three categories contained descriptors ascribed to both dimensions: breathing awareness, recovery time and activity interference. Concordant

with the ATS definition, Breathing Effort characteristics validated the aversive physiologic sensation of dyspnea while Breathing Distress characteristics validated the reaction to that symptom event. The shared dimension categories may represent the interplay between physiological and behavioral factors. This study benefits clinical practice by raising awareness that dyspnea, like pain has an affective dimension and suggests that relief measures can be directed towards both dimensions.

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ASSOCIATION BETWEEN INTERLEUKIN 6 (IL6) GENE POLYMORPHISM AND EVENING FATIGUE IN PATIENTS AND FAMILY CAREGIVERS (FCs) DURING RADIATION THERAPY (RT).

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Fatigue is a common problem in oncology patients and their FCs. However little is known about factors that contribute to its underlying biological mechanism(s).

Previous work from our group demonstrated an association between a genetic polymorphism in the IL6 gene and the severity of fatigue and sleep disturbance. The purpose of this study was to investigate a possible contributory factor for the rs4719714 polymorphism of the IL6 gene in distinct subgroups of patients and FCs who differed in their experience of fatigue.

Symptom Management Theory provided the theoretical framework with genotype conceptualized as part of the "Person" domain.

Prior to RT and monthly for six months, 168 patients and 85 FCs completed the Lee Fatigue Scale prior to going to bed each night to evaluate evening fatigue. Growth mixture modelling was used to identify latent classes of participants with distinct evening fatigue trajectories. Chi-square test was used to evaluate for differences in IL6 genotype frequency among the latent classes.

Four latent classes of participants with distinct fatigue trajectories were identified: Very low (14.9%), mild (24.9%), moderate (11.7%), and severe (48.5%) fatigue. Participants in the severe fatigue group were younger and more likely to be female than the very low fatigue group. Participants in the mild, moderate, and high fatigue groups had significantly higher evening fatigue scores prior to the initiation of RT than those in the very mild group. No differences were found in the percentage of patients and FCs in the distinct latent classes. The distribution of AA homozygotes differed among the latent classes ($p=0.038$). Participants in the severe fatigue group were more likely to be AA homozygotes than participants in the very mild fatigue group ($p=.025$). This study provides preliminary evidence of distinct groups of patients and FCs who differ in their experience with evening fatigue. A genetic association was found between a pivotal pro-inflammatory cytokine and fatigue that may provide clues to the underlying mechanism for this distressing symptom in both patients and their FCs.

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SYMPTOM CLUSTERS IN A LARGE AMBULATORY POPULATION BASED SAMPLE OF PATIENTS WITH DIVERSE CANCER DIAGNOSES.

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Symptoms that are clustered cause a multiplicative effect negatively impacting on daily functioning, quality of life, psychological morbidity, and survival. In a review of symptom clusters in cancer, no common clusters were found in lung cancer and breast cancer populations due to methodological differences in analytic techniques and small sample sizes. To date, the largest symptom cluster was conducted in 1,200 patients and existing studies have not been able to validate the clusters identified.

The purpose of this paper is to describe the results of a cluster analysis in a large, unprecedented robust ambulatory cancer population and the sub-groupings of patients with different symptom profiles and their impact on health utilization.

This work was guided by symptom experience models and cluster analysis statistical analysis methods.

In a cohort of 45,318 cancer patients we will be conducting a factor analysis to identify clusters of symptoms across diverse ambulatory cancer populations. The sample will be randomly split to identify symptom clusters with validation of the clusters identified in the second half of the sample. In addition, we will conduct a two-step hierarchical symptom clustering approach to identify sub-populations with different symptom profiles and how these differ on demographic and disease variables and outcomes of health care utilization.

The final results of the symptom cluster analysis will be available for presentation at the congress with preliminary analysis completed to date.

This is one of the largest ambulatory samples that has examined symptom clusters in an ambulatory population based sample of cancer patients.

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BREAST PAIN PRIOR TO SURGERY IS ASSOCIATED WITH MORE SEVERE SYMPTOMS AND POORER QUALITY OF LIFE IN WOMEN WITH BREAST CANCER.

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Unrelieved pain is associated with higher levels of depression and anxiety and decreases in quality of life (QOL) in oncology patients.

Recent work suggests that neuropathic pain following breast cancer surgery is common and associated with poorer outcomes. However, no studies were found that evaluated the prevalence of and effects of breast pain prior to breast cancer surgery. In this study, the prevalence of breast pain was determined and differences in symptom severity and QOL were evaluated in women who did and did not have pain prior to surgery.

The Symptom Management Theory provided the theoretical framework for this study.

Prior to surgery, 398 women completed Brief Pain Inventory (BPI), Center for Epidemiological Studies-Depression (CES-D) scale, Spielberger State Anxiety Inventory, General Sleep Disturbance Scale, Lee Fatigue Scale, and Multidimensional QOL Scale-Cancer. Differences between the pain and no pain groups were evaluated using independent sample t-tests.

Women were primarily White (64.4%), married (53.6%), and 54.9 (+ 11.6) years of age. Of note, 28.2% of the women had pain in their breast prior to surgery. No differences were found in the number of

breast biopsies in the women with and without breast pain. While no differences were found in anxiety and fatigue scores, women with breast pain reported significantly higher depression 16.4 versus 12.7, p=.001) and sleep disturbance (53.2 versus 46.5, p=.006) scores and poorer QOL scores (6.1 versus 6.6, p=.002) than women without breast pain. This study is the first to identify that a significant number of women with experience pain in their breast prior to breast cancer surgery. This unrelieved pain is associated with a higher symptom burden and decreased QOL. Additional research is warranted to determine the causes for the pain, and the impact of pain on postoperative outcomes, and the impact of the pain on the development of chronic neuropathic pain after breast cancer surgery.

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CONSIDERING SEX AND GENDER IN THE STUDY OF COGNITIVE FUNCTION AFTER CANCER TREATMENT.

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The purpose of this study was to explore the role of sex and gender in research regarding cognitive function after cancer treatment.

Considering sex and gender differences within the context of health care research is of tremendous importance. Sex and gender may influence the predisposition or risk for clinical conditions, response to treatment, and behaviours related to stress and coping. Despite the high prevalence of research in regards to psychosocial and supportive care needs across the cancer trajectory, there is a paucity of evidence regarding whether sex and gender differences exist. Where such studies have been conducted, findings have been largely inconclusive.

The issue of cognitive functioning following cancer treatment is considered as a case in which a gendered approach is warranted. Though cognitive impairment is understood as a potential problem for any patient who has received systemic treatment for cancer, most of the research in this area is based on samples of women treated for breast cancer. This is significant, since fundamental differences related to sex and gender may have implications on the development, experience, and treatment of cognitive impairment after cancer treatment.

Through a detailed examination of the issue of cognitive function after cancer treatment, this presentation considers how an understanding of the influence of sex and gender may inform theoretical, research, and clinical approaches to psychosocial and supportive care.

An understanding of sex and gender differences may lead to more tailored and effective approaches to meet the psychosocial and supportive care needs of cancer patients. Implications for future research and strategies to this end will be discussed.

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AN EXPERIMENTAL STUDY TO DETERMINE THE EFFECT OF WASHING IRRADIATED SKIN AND ASSOCIATION OF SELECTED PREDICTIVE FACTORS WITH RADIATION INDUCED SKIN REACTION IN CANCER PATIENTS RECEIVING RADIOTHERAPY AT A TERTIARY CARE CENTER IN INDIA.

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As a standard practice cancer patients in the developing countries are instructed not to wash the irradiated area. Is it justified? Objective and subjective skin reactions continue to be a problem for cancer patients receiving radiation therapy. The treatment area marked with a permanent marker eventually gets washed off when patients bathe; hence washing irradiated area is restricted.

The purpose of the study was: 1. To determine effect of washing on radiation induced skin reactions in cancer patients undergoing radiotherapy. 2. To consider change in practice based on evidence. 3. To explore association and compare selected predictive factors with radiation induced objective and subjective skin reaction/s respectively.

Ludwig Von Bertalanffy's Systems theory guided this study. It was a single-blinded true experimental study.

The sample was comprised of cancer patients scheduled to receive radiation therapy (>20 fractions); 28 in each arm.

Sampling technique: Simple random sampling using block randomization method.

An Oncologist blinded to the study groups made objective and subjective assessment of treatment area using RTOG scale (IRR score r = 0.85 – 1.00) and Patient Symptom scale (IRR coefficient 0.70) respectively, before starting radiation therapy. Weekly assessments were done until therapy was completed. Information about predictive factors was collected.

Parametric t-tests were used to identify the difference in radiation induced skin reactions between the groups. Chi-square tests were employed to identify the association of selected identified predictive factors and radiation induced skin reaction. ANOVA and t-tests were done to compare the categorical and dichotomous predictive factors and the skin reactions respectively.

Findings and Implications: 1. No difference in objective skin reaction between both groups. Decrease in symptoms - itching (p= 0.03) and burning sensation (p= 0.012) experienced by experimental group reached statistical significance. 2. No association between the extrinsic predictive factors and objective skin reaction. 3. Significant association between family history of cancer and objective skin reaction (p= 0.036).

Findings encourage washing irradiated skin. Nurses should provide adequate skin care instructions. Research needed to indelibly mark radiation field despite skin reactions.

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EFFECTIVENESS OF PHARMACOLOGICAL PAIN MANAGEMENT IN PATIENTS TREATED FOR BREAST CANCER.

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Pain is prevalent among patients treated for cancer at an estimated rate of 35% to 55%. In cancer, pain often is concurrent with fatigue and disrupted sleep and affects various aspects of the individual's daily living. Although narcotic medication is widely prescribed to control cancer pain, its effectiveness requires further evaluation.

The purpose of the study was to compare levels of pain in breast cancer patients receiving chemotherapy with and without prescribed narcotic medications. Global sleep quality and fatigue were also examined.

Based on the Concept of Symptom Clusters, pain, sleep disruption, and fatigue are related symptoms and often occur concurrently in oncology.

As part of an ongoing cross-sectional descriptive study in an urban cancer center, 50 female breast cancer chemotherapy outpatients, aged 31 to 64 (M=51.2, SD 7.9), majority Black (58%), were included in this analysis. Pain, global sleep quality, and fatigue were self-reported using psychometrically sound instruments, Brief Pain Inventory, Pittsburgh Sleep Quality Index (PSQI), and Wu Cancer Fatigue Scale, respectively. Independent samples t-tests examined differences between patients with and without narcotic pain medications.

Although narcotic pain medications were prescribed to 52% of the patients (n=26), the patients still experienced moderate pain with an average pain score of 5.35 on 0-10 (worse) rating scale. Compared to the patients without narcotics, those who used narcotics reported significantly higher levels of worst, least, average and current pain (p<0.05) and greater pain interference with general activity, work and housework, relations with others, and sleep

($p<0.05$). All patients (100%) on narcotics experienced trouble sleeping (global PSQI scores >5). Patients on narcotics reported lower sleep efficiencies (M=64% vs. 71%), more difficulties with all seven sleep components in the PSQI, and higher levels of fatigue compared to patients not on narcotics. The findings reveal that pain remained a significant issue among the patients who were prescribed narcotics. Pain management needs to be emphasized when patients undergo chemotherapy. Other treatment modalities in conjunction with the pharmacological treatment are needed to alleviate cancer pain, in light of narcotic's negative effects on sleep.

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COGNITIVE CHANGES IN WOMEN WITH BREAST CANCER TREATED WITH CHEMOTHERAPY.

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Although breast cancer survivors report cognitive problems, evidence for chemotherapy-induced cognitive impairment remains inconclusive. Furthermore, some studies have found cognitive impairment prior to the initiation of chemotherapy.

Therefore the purposes of this study were to (1) evaluate cognitive functioning in newly-diagnosed breast cancer patients prior to chemotherapy and assess changes over time (one week after four cycles of chemotherapy, as well as one week and six months after chemotherapy completion); and (2) examine potential associations between cognitive function with various covariates including anxiety, depression, fatigue, hemoglobin level, menopausal status, and patients' perception of cognitive function.

The theoretical framework of "Potential Contributing Factors for Chemotherapy-Induced Impairments" guided this study.

This prospective, longitudinal study enrolled a convenience sample (n = 71) from two outpatient oncology clinics. Cognitive functioning was assessed with the Repeatable Battery for the Assessment of Neuropsychological Status, Stroop Test, and Grooved Pegboard. Covariate measures included the Attentional Function Index, State-Trait Anxiety Inventory state subscale, Center for Epidemiological Studies Depression Scale, and Lee Fatigue Scale. Each instrument has established reliability and validity. Descriptive statistics and frequency distributions were used to summarize sample characteristics as well as objective and subjective test scores at baseline. Hierarchical linear modeling was used to determine the trajectory of cognitive function over time as well as to investigate any significant associations with potential covariates.

Cognitive impairment was found in 23% of participants prior to the initiation of chemotherapy. Compared to baseline scores a significant effect of time was found in the cognitive domains of visuospatial skill, attention, delayed memory, and motor function. In contrast immediate memory, language, and executive function scores did not change over time. Significant associations were found between visuospatial skills with fatigue ($p = 0.001$) and anxiety ($p = 0.02$) as well as delayed memory with anxiety ($p = 0.003$).

Data from this study support the hypothesis that although cognitive impairment may precede treatment, chemotherapy has a negative impact on select domains of cognition. In addition, some changes may be associated with covariates such as anxiety and fatigue. Further studies are needed to provide insight into its clinical significance.

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PRELIMINARY FINDINGS REGARDING THE FEASIBILITY AND ACCEPTABILITY OF ADVANCED COGNITIVE TRAINING FOR BREAST CANCER SURVIVORS.

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Breast cancer survivors (BCS) comprise the largest group of cancer survivors, with over 2.4 million female survivors estimated to be living in the United States alone. Up to 83% of these women report some degree of cognitive impairment and this impairment negatively affects their quality of life. Although cognitive deficits in BCS are disruptive and potentially debilitating, few studies have evaluated potential treatment options.

The purpose of this study is to examine the feasibility, acceptability, and preliminary efficacy of a memory and speed of processing training interventions compared to no-contact control group. The cognitive training interventions were based on the principles of memory including, memorization, organization, visualization, and association.

A total of 108 eligible BCS will be randomized to memory training, speed of processing training, or no-contact control. Participants assigned to cognitive training will complete 10 1-hour sessions in groups of 3-5 people delivered over 5-7 weeks. Feasibility and acceptability will be assessed through study accrual and self-report and cognitive functioning will be assessed through objective neuropsychological tests. A blinded and trained tester will perform data collection and neuropsychological testing at three time points: baseline prior to the intervention, immediately post-intervention, and 2 months post-intervention.

Within the first year of the study, a total of 130 BCS were identified and completed an initial eligibility screen. Of those completing the initial screen: 52 (40%) were ineligible (no previous chemotherapy, other cancer, metastatic cancer, or psychiatric diagnosis); 24 (18%) met initial screen criteria but did not complete the secondary in-person screen (too busy, lived too far from center/travel, or not interested) and 54 (42% of those screened) were enrolled in the study. Two participants completed baseline assessment but then withdrew from the study (too busy). A total of 40 BCS have completed baseline and post-intervention assessments. BCS assigned to the memory and speed of processing training interventions were mostly to very satisfied with their training. Initial findings suggest that conducting advanced cognitive training programs for BCS is both feasible and acceptable and warrants further study.

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LIPID PROFILES AMONG PEDIATRIC HEMATOPOIETIC STEM CELL TRANSPLANT SURVIVORS.

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Cardiovascular disease (CVD) is the leading cause of adult death in the United States. Although CVD related mortality in children is low, the pathology can begin in childhood. Dyslipidemia is a major risk factor associated with the development of CVD. Abnormal lipid levels can occur in HSCT survivors as a direct result of the chemotherapy and/or total body irradiation given prior to transplant. In addition, endocrine deficiencies are common long-term side effects of HSCT and are associated with lipid abnormalities.

Despite multiple dyslipidemia risk factors, there is limited information available on the onset and factors associated with abnormal lipid panels in children post HSCT. The primary aim of this study is to describe lipid panel profiles in pediatric HSCT survivors during the first three years post transplant. A secondary aim of the study is to identify factors associated with dyslipidemia among children during the first three years post HSCT.

A retrospective chart review will be used for this descriptive research study. A retrospective design is ideal to understand phenomena as it occurred naturally.

This study will assess lipid profiles among 31 HSCT patients ages 2 -18 years who received an allogeneic transplant and completed a lipid panel profile for 3 years post HSCT. Univariate descriptive statistics will be used to describe lipid panel profiles. Repeated measures analysis of variance will be used to evaluate lipid panel changes at 1, 2, and 3 years post HSCT. Logistic regression analysis and Cochran-Mantel-Haenszel test will be used to determine if factors including age, gender, ethnicity, BMI, disease, thyroid dysfunction, HSCT treatment, growth hormone deficiency, or gonadal failure are significantly associated with dyslipidemia among pediatric HSCT survivors.

An understanding of lipid profiles among pediatric HSCT survivors may allow for lipid panel assessments to be performed at vital time points. Recognition of abnormal lipid panels will allow for prompt initiation of therapy that could minimize pathology development and ultimately reduce the risk of CVD.

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PRACTICE PATTERNS OF ASSESSMENT AND MANAGEMENT OF DERMATOLOGIC TOXICITIES ASSOCIATED WITH BIOLOGIC THERAPIES.

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Dermatologic toxicities (DTs) associated with biologic therapies remain challenging. While biologic agents offer remarkable potential to affect survival in multiple cancer types, side effects can impede patients' quality of life.

DTs cause therapy to be delayed or discontinued, possibly affecting full benefit of these agents. This study's purpose was to assess practice patterns of oncology nurses (ONs) and identify dermatologic issues when caring for patients receiving biologic agents. A 21-item survey was developed from a literature review and with expert ON input.

A convenience sample was obtained from the IMER database. Online and written surveys were distributed prior/during the ONS 10th Annual IOL conference. The survey domains included demographics, knowledge, attitudes, and practice behaviors related to treatment of DTs associated with biologic therapies.

From the 146 responses, ONs confirmed that oncologists/nurse practitioners were responsible for grading DTs (73.24%). Although 34.59% of the nurses reported formalized guidelines in place to manage DTs, more than half of the respondents reported none (56.39%). Interestingly, 39.05% of the ONs reported using semisynthetic tetracycline agents (SNTs) for treatment of moderate grade epidermal growth factor receptor inhibitor (EGFRI)-associated rash, however noted use of SNTs is a reactive approach versus proactive (63.49% and 13.49% respectively). This is contrary to recently published data. For patients with rash receiving EGFRI therapy and concurrent radiation therapy, ONs (42.86%) were uncertain regarding rash management; 37.30% reported skin care products should be given after radiation therapy, while 15.87% did not recommend any emollients or sunscreen during treatment. Although ocular toxicities occur in approximately 14% of patients, almost half of the respondents (47.52%) reported being uncertain regarding treatment of EGFRI-associated blepharitis. ONs (50.43%) identified the greatest unmet need for nursing education regarding DTs as "management of side effects".

DTs commonly occur with many biologic therapies. Although proactive management of rash with SNTs has been reported as more effective for management of EGFRI-rash in recent studies, ONs reported that reactive approaches are more common. This study demonstrates that ONs need information on optimal approaches to DTs; ONs also identify a need for additional nursing education on management of side effects with DTs.

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SEXUALITY AND INTIMATE PARTNER RELATIONSHIPS AMONG GYNECOLOGICAL CANCER SURVIVORS COMPARED TO WOMEN WITH GYNECOLOGICAL SURGERY BUT NO CANCER AND WOMEN WITH NO GYNECOLOGICAL SURGERY OR CANCER.

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Gynecological cancer and cancer treatment can have detrimental effects on sexuality. Research indicates that 30-100% of survivors report sexual function problems with 30-50% never resuming a sexual relationship post treatment.

While there are some data on sexual function, there is very little published on more global aspects of sexuality and intimate partner relationships in gynecological cancer survivors. The purpose of this study is to describe differences in sexuality and intimate partner relationships among women with gynecological cancer, women with gynecological surgery but no cancer, and women with no gynecological surgery or cancer. ONS research priorities addressed include psychosocial and family issues related to quality of life and survivorship.

This work is based on a multidimensional model of sexuality, inclusive of physiological, psychological, and social dimensions, any of which can be negatively affected by cancer and cancer treatment.

A secondary analysis will be conducted using data from the Midlife Development in the United States-II (MIDUS-II) survey: a national study of behavioral, psychological and social influences on health in 4963 adults, aged 35-86 years. Demographic and health information were collected by telephone interviews followed by mailed surveys, which included measures of sexuality and intimate partner relationships. Of the 4963 MIDUS-II participants, 80 were gynecological cancer survivors. Survivors will be matched with a sample of women who had gynecological surgery but no cancer (n=80) and women with no gynecological surgery or cancer (n=80) on key demographic variables (e.g., age, marital/partner status, and race/ethnicity). Group characteristics will be summarized with descriptive statistics. Sexuality and intimate partner relationship items will be compared across groups using ANCOVA.

Findings from this study will identify if gynecological cancer survivors experience different sexuality and intimate partner issues than their peers with gynecological surgery but no cancer, and those with no gynecological surgery or cancer. Results may provide nurses with evidence about unique sexuality and intimate partner relationship issues of gynecological cancer survivors that may aid in caring for this population. Findings will contribute to an educational intervention study about sexual concerns for gynecological cancer survivors.

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FEASIBILITY OF ACUPUNCTURE FOR SLEEP DISTURBANCES AND HOT FLASHES IN BREAST CANCER SURVIVORS.

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Menopausal symptoms of sleep disturbances and hot flashes can affect 65% or more of women after treatment for breast cancer.

These two symptoms are often concurrent with few effective interventions. The purpose of this study was to assess the feasibility and efficacy of acupuncture to alleviate sleep disturbances and hot flashes in BCS.

Psychobiological Model of Sleep was the conceptual model for this study.

A single group, non-randomized quasi-experimental study design was used. Breast cancer survivors reporting sleep disturbances and hot flashes were recruited. Data were collected weekly for 8 weeks. Acupuncture was administered as three treatments during a 2 week period. Objective sleep data were obtained continuously over 8 weeks. Objective hot flash data were obtained weekly during 24-hour ambulatory monitoring. No herbs were prescribed or patient medications adjusted during the study interval. Different points, duration of therapy, and stimulation were provided depending on the Traditional Chinese Medicine diagnosis. Thus, objective and subjective responses were compared within a maximum of 15 different point/stimulation schemes.

The sample consisted of 8 post-menopausal BCS who were Caucasian with a mean age of 53 years old (SD=10.0), employed (87.5%), married or partnered (87.5%), with a college education (62.5%), and had at least one non-cancer medical problem (37.5%). Women were not taking hormone modulators (87.5%), completed surgery and chemotherapy (100%), and were a mean of 5.8 years (SD=2.9) from cancer treatment. Baseline mean global sleep scores and hot flashes were 9.3 (SD=4.1) and 10.6 (SD=4.1) respectively. The mean number of acupuncture points per session was 10.3 (SD=2.4), remained consistent over time, and was found to be an acceptable treatment by 50% of the women. The most effective points that reduced sleep disturbances or hot flashes, duration of effect, and outcome expectancy will be also be described.

Tailored acupuncture treatment could be an important treatment option for symptom management of breast cancer survivors. Since treatment options for these symptoms are limited, the acceptability of this intervention provides support for a pilot randomized-controlled trial

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SYMPTOM CLUSTERS RELATED TO PAIN AND FATIGUE IN SURVIVORS OF LUNG CANCER.

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Oncology nurses play an important role in the management of patients following treatment and with 73% of patients with early stage lung cancer surviving more than 5 years, focus on this unique group of cancer survivors is growing. The literature on symptom clusters for survivors of lung cancer is emerging, and continuing this research is imperative.

Treatment for lung cancer leads to multiple prolonged symptoms and symptom management is essential to recovery. Pain and fatigue are two of the most common symptoms reported following treatment for lung cancer and it is important to recognize the relationship between these symptoms and others.

The Theory of Unpleasant Symptoms guided this study. The theory includes factors that influence the symptom experience and consequences of the symptom experience. In this analysis, a range of symptoms were assessed for their influence on the symptoms of pain and fatigue in patients treated surgically for lung cancer.

This descriptive, retrospective study assessed symptoms in lung cancer survivors at a comprehensive cancer center. Symptoms were assessed via self-report at two consecutive visits, one year apart at least one year post treatment completion. A convenience sample of 211 patients was included.

Mean age was 70 years (range 43-91), and 60% were female. Most had early- stage disease (87% stage I or II). The most frequently occurring symptoms at first visit were shortness of breath (28%), fatigue (30%), neuro-paresthesias, and cough (both 22%); at the second visit, shortness of breath (38%), weakness (19%), cough and headache (both 17%) occurred most frequently. At first visit, fatigue scores ranged from 0-9 (mean = 2.0, sd = 2.5); pain scores ranged from 0-10 (mean = 3.75, sd =2.5). At second visit, mean fatigue score was 1.6 (sd = 2.4), and mean pain score was 2.7 (sd = 2.6). Pain and fatigue scores showed significant correlation at both visits ($p < 0.0005$). Cluster analysis of symptoms and identification of antecedents of these clusters will be presented in detail. Survivors of lung cancer have significant and persistent symptoms. These results are important to plan intervention-based research on symptom management for survivors of lung cancer.

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WHAT IS THE RELATIONSHIP OF NURSING CARE QUALITY TO PAIN OUTCOMES?

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Pain is a high risk, high volume problem in acute care, oncology settings. Oncology nurses play a central, essential role in managing pain.

Lack of tools to measure the quality of care related to pain management hamper improvement efforts. This study evaluated the construct validity of the Pain Care Quality Nursing Survey (PainCQ-N) among hospitalized oncology patients, specifically examining the relationship of pain care quality to pain outcomes.

Tool development was guided by General Factor Theory. The PainCQ-N constructs were derived from qualitative research and subsequent factor analyses and include: being treated right, comprehensive nursing pain care, and efficacy of pain management.

In this methodological study, adult inpatients with pain (n=447) from oncology units in hospitals in three states completed the PainCQ-N and Brief Pain Inventory-Short Form (BPI-SF) within 2 hours of a nursing care shift. Three subscales from the 14-item PainCQ-N were used based on exploratory and confirmatory factor analyses: being treated right (7 items; alpha = .92), comprehensive nursing pain care (4 items; alpha = .80) and efficacy of pain management (3 items; alpha = .92). Published evidence supports the reliability and validity of the BPI-SF in oncology patients. Pain outcomes included time in pain, time in severe pain, pain intensity, pain interference, and pain relief. Structural equation modeling in Mplus was used to determine correlations and explained variance in pain outcomes.

Participants were 56.9% female; ages ranged from 19 to 97 (Mean = 53.7). Cancer diagnoses varied; most were admitted for supportive care or surgery. PainCQ-N explained up to 30.5% of variance. Being treated right and efficacy of pain management were significantly correlated with all pain outcomes ($p<.001$). Efficacy of pain management correlated most strongly with pain outcomes ($r=.39$ to $.55$), indicating efforts should be directed to improving pharmacologic pain management. The "being treated right" factor had a significant but weaker relationship suggesting this factor is influential but is likely insufficient to achieve pain relief. Evidence supports the reliability and validity of the PainCQ-N which can be used in performance measurement and quality improvement.

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MITOCHONDRIAL DYSFUNCTION AND FATIGUE IN MEN RECEIVING EXTERNAL BEAM RADIATION THERAPY OVER-TIME: AN EXPLORATORY STUDY.

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Potential findings of gene expression associated with mitochondrial function may identify possible pathways and early biomarkers of radiation-induced fatigue.

Over 40% of cancer patients receive modulated dose intensity radiation therapy during the management of their disease, which successfully increases disease-free survival rates and life expectancy but leads to increased treatment-related adverse effects including fatigue. While multidimensional causes and the mechanisms of cancer-related fatigue remain unclear, mitochondrial dysfunction and oxidative stress are considered direct causes of radiation-induced damage.

The purpose of this study is to explore the relationship between mitochondrial dysfunction and fatigue in prostate cancer patients receiving external beam radiation therapy (EBRT).

From the mitochondrial standpoint, fatigue could be due to attenuated physiological and cellular energy caused by a reduction in the capacity of mitochondria to utilize oxygen and synthesize ATP.

Perceived fatigue (the revised Piper Fatigue Scale) and blood samples are collected at 7 time points. The Human Mitochondria RT2 Profiler™ PCR Array are utilized to identify differential regulation of genes involved in mitochondrial dysfunction and fatigue at the different time points compared to gene expression in the baseline samples.

Mean perceived fatigue score was 1.52 (SD=1.91) at pre-radiation (baseline), increased to 2.79 (SD=2.02) at the midpoint of radiation therapy, and decreased to 2.60 (SD=2.33) by the end of radiation therapy, indicating increased fatigue at the midpoint and end of treatment. 6 genes with > 3 fold down-regulation among 2 of 4 patients compared to their baseline include Bcl-2 [BCL2], MGC111067 [MTX2], HMIP/MIP [MIPEP], IMP1/IMP1-LIKE [IMMP1L], APC2/MCSC2 [SLC25A23], DDP/DDP1 [TIMM8A]. One gene (BCL-XL/S [BCL2L1]) with > 3 fold up-regulation in 2 of 4 patients compared to their baseline. Further studies exploring and validating biomarkers of mitochondrial dysfunction causing cancer-related fatigue will be necessary to identify novel interventional targets for patients treated with cancer.

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COMPARISON OF THREE SHOULDER-SPECIFIC MEASURES IN PRIMARY HEAD AND NECK PATIENTS RECEIVING NECK DISSECTION.

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In Taiwan, head and neck cancer is one of the major health care problems. Surgery is the primary treatment for this type of cancer. Patients receiving surgery also usually receive neck dissection for preventing further metastasis. However, neck dissection can potentially cause shoulder dysfunction. But, there hasn't been any examination of validity and reliability on instruments to assess these post-op head and neck cancer patients' shoulder dysfunction.

This study was to adapt the Taiwan version of three shoulder-specific measures and also compare these measures used in patients with head and neck cancer who receiving neck dissection.

With valid and reliable measures, we can evaluate patients' shoulder function even pre-op or post-op status.

The three measures were adapted through the process of translation, and experts review. The three measures were: American Shoulder and Elbow Surgeons Standardized Shoulder Assessment Form(ASES),Constant Murley Score (CMS),and Shoulder Pain and Disability Index(SPADI).An instrument validation study with cross-sectional data was conducted in a medical center,110 eligible subjects were recruited. Cronbach alpha was used to evaluate internal consistency, concurrent validity was tested with the University of Washington quality of life(UW-QoL)Taiwan version questionnaire.

All three measures had good content and concurrent validity. (ASES)Cronbach alpha=0.86,(CMS)Cronbach alpha=0.69,(SPADI) Cronbach alpha=0.83.(ASES),(CMS),and(SPADI)were all time-efficient which took but 3–10 minutes to conduct, but the short and concise(CMS) measure was the most useful to detect shoulder dysfunction, because(CMS) included subjective and objective scoring of shoulder condition, and also more comprehensive data on shoulder rotator and muscle strength. This research not only examined an appropriate tool for measuring shoulder dysfunction, but it also confirmed some factors that were able to influence post surgical status on shoulder function.

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ANDROGEN DEPRIVATION THERAPY AND METABOLIC SYNDROME IN MEN WITH PROSTATE CANCER.

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Although the adverse effects of androgen deprivation therapy(ADT) upon body composition and measures of the metabolic syndrome have been documented in cross sectional studies, confirmation by longitudinal studies is lacking. The prospective, parallel group design of this study will provide stronger evidence of the adverse changes as a result of treatment with ADT.

The purpose of this prospective study is to examine the trajectory of changes in body composition and metabolic profile in men receiving ADT as treatment for prostate cancer.

A physiologic framework is used for this study.

A prospective design with repeated measures is being used to identify how ADT changes body composition and components of the metabolic syndrome. Variables include fasting insulin and glucose, insulin resistance (HOMA), fasting triglycerides and HDL, hypertension, and measures of obesity. Men initiating a program of radiation therapy with or without ADT for prostate cancer are being recruited. Measurements are occurring every 3 months for one year.

Final data will be analyzed with general linear mixed-effects models. A model including both groups and interaction between group and time will assess significance of differences between groups. Separate models will quantitate one-year changes in each group and will be used to determine the time at which adverse changes in individual metabolic syndrome components are first significant.

Preliminary findings indicate that among men receiving ADT, there are significant increases in HOMA and triglycerides from baseline to T1 ($n=11$, $p<0.05$) and in waist from baseline to each of T1 ($n=11$, $p<0.05$) and T2 ($n=7$, $p<0.025$). Among the non-ADT group, waist was not altered at either T1 ($n=11$) or T2 ($n=7$). There is a trend for group differences in changes in waist from baseline to each of T1 ($p=0.07$) and T2 ($p=0.07$).

By confirming the deleterious effects of ADT and identifying the time of onset of adverse metabolic changes it will be possible to determine the appropriate time to initiate screening measures and implement strategies designed to reduce this risk.

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BODY WEIGHT CHANGE TRAJECTORIES IN BREAST CANCER PATIENTS UNDERGOING ADJUVANT CHEMOTHERAPY.

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Weight gain is one of the most common side effects and bothersome physical symptoms in breast cancer women receiving adjuvant chemotherapy. Weight gains can affect women's psychological well-being and may also increase the risk of breast cancer relapse. Reports indicated that these weight gains were not just short-term effects. The trajectory of weigh gain after chemotherapy is unknown.

The study purposes were (1) to investigate the trajectory of weight change in Taiwanese women with breast cancer after starting chemotherapy and (2) to examine the impact of chemotherapy regimens on weight change while controlling for age, menopausal status, body mass index, lymph node involvement, and the change of exercise habit.

Body weight change information such as timing, magnitude, and duration are important features in study the phenomenon of weight gain after chemotherapy.

The body weight were repeatedly measured at pre-operation, 1-6, 8, 10, 12, 18, and 24 months after surgery in 147 women with stages I-III breast cancer. Data of potential confounders were collected from telephone interviews and medical charts. Hierarchical linear modeling was used to analyze these longitudinal data.

The pattern of weight change is a cubic form. The mean weight was 56.9 kg at 1.5 months before chemotherapy. Then it gradually increased to the highest weight of 59.4 kg at 8.5 months after the first chemotherapy and had a decrease afterward to 58.5 kg at 21.5 months. During the last 2.5 months, it showed a slight re-ascending. Even until 2 years, the mean weight was never returned to the level at beginning. After controlling confounders, steeper weight change was observed among women receiving cyclophosphamide, methotrexate, and fluorouracil (CMF) as compared to patients receiving non-CMF regimens. The study findings can be used to inform women with breast cancer about how to expect the change of their body weight after chemotherapy.

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BREATHE-INTERVENTION FOR HOT FLASHES, INTERFERENCE, AND ASSOCIATED OUTCOMES.

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For millions of breast cancer survivors (BCS) and menopausal women without cancer (MW), hot flashes are frequent, severe, and bothersome events that can interfere with daily life and negatively influence mood and sleep. Unfortunately, the scientific basis for managing hot flashes is limited. Given shifts in the risk-benefit ratio for hormone therapy, national attention has been directed towards generating data on the efficacy and appropriateness of non-hormonal hot flash treatments.

Although breathing techniques have been recommended by the North American Menopause Society as a first-line treatment for hot flashes, these recommendations are based on two previous studies that included small numbers of menopausal women without breast cancer, a complex time- and resource-intensive instructional protocol, and a narrow range of outcomes. These limitations restrict evidence for efficacy and reduce the likelihood for dissemination. The purpose of our randomized, controlled trial is to evaluate CD-based and DVD-based breathing training and practice programs against usual care in BCS and MW.

The theoretical framework based on Rand et al. differentiates subjective and objective hot flashes, depicts the central importance of symptom interference, and links hot flashes to mood and sleep. The framework includes potential covariates of efficacy based on previous research including baseline hot flashes, body mass index, race, ethnicity, education, prior breath training, smoking status, menopausal status, use of selective estrogen receptor modulators or aromatase inhibitors, use of other hot flash treatments, and comorbidities.

Interested and eligible BCS and MW are stratified and randomized to CD, DVD, or usual care in a 2:2:1 ratio. Consented participants complete assessments at baseline and 8- and 16-week post-intervention. Tools include hot flash and respiratory monitoring and questionnaires. Analysis will focus on (1) efficacy for hot flashes, interference, mood, and sleep, (2) potentially differential efficacy for BCS vs. MW, and (3) acceptability and usability.

Positive or negative findings will be used to guide clinicians' recommendations and consumers' treatment selections either in favor of, or against, the use of breathing techniques. If efficacious, our CD and DVD-based programs could be easily disseminated for use in lieu of, or in addition to, existing hot flash treatments.

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CLINICAL COMPARATIVE EVALUATION OF SPLIT SEPTUM AND ZERO FLUID DISPLACEMENT CONNECTORS ON OCCLUSION.

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Venous access and connectors are a necessary part of cancer patient treatment. Occlusion, a significant complication of vascular access catheters and connectors, can delay treatment and testing and negatively impact quality of life.

With multiple connectors in the market place, which one(s) offer(s) the best protection against occlusion? This study compared one negative pressure connector (Q-Syte™) and one zero fluid displacement connector (InVision Plus®) in both inpatient and outpatient cancer clinical settings.

Occlusion is based on physiological mechanisms of biofilm and fibrin formation which are based, in part, on the physics of flow, dead space and bodily reaction to a foreign substance/object.

Retrospective and prospective 14 weeks occlusion rates on the Q-Syte™ and InVision Plus® respectively. Q-Syte™ and InVision Plus® samples each included over 300 connectors and over 1000 connector days. ICUs, pediatric outpatient and inpatient departments of a major cancer hospital in the South were included in this study. Occlusion incidence for both inpatient and outpatient areas were collected by the Infusion Therapy Team. There were no changes in methods/design except for changing the connector used in patient care.

The average occlusion incidence decreased 50% (150/3) overall with a 20% reduction (15.30 - 12.25) in ICU, 46% reduction (8.3 - 4.5) in pediatric inpatient and 84% reduction (4.70 - 0.75) in pediatric outpatient. The RyMed InVision Plus® is the superior connector for intraluminal protection from occlusion in cancer patients in this study.

Infection control specialists, oncology nurses and physicians need to implement research on comparative evaluation of connectors and to require manufacturers to conduct comparative evaluative research that is unbiased, independent and IRB approved. Use of best products to decrease or eliminate occlusions can negate treatment delays, add time to nursing and physician care, decrease costs, decrease mortality and increase quality of life for the patient and family.

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SYMPTOMS AND PHYSICAL FUNCTION FOLLOWING TREATMENT AMONG PEOPLE WITH CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY.

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Chemotherapy-induced peripheral neuropathy (PN) is an understudied problem. Few studies address the trajectory of change in symptoms, perceived physical function (PPF) , and objective physical function (OPF) in adults treated with neurotoxic drugs. Most research on chemotherapy-induced PN does not include specific measures of PPF or OPF, few studies address the period following treatment, and few include multiple points of measurement.

The purpose of this longitudinal, correlational pilot study is to describe the trajectory of change in symptoms, PPF, and OPF and explore the relationships among these variables in adults with PN symptoms following treatment or during long-term treatment.

The Revised Symptom Management Framework proposed by Dodd and colleagues, which incorporates links between symptoms and physical function and addresses multiple concurrent symptoms, guides the study.

Adults (N=40) without pretreatment neuropathy who have PN symptoms and completed treatment within the past 24 months or who are receiving Thalidomide are recruited from outpatient treatment centers. After written consent, data are collected at study entry and three and six months later. Self-report data includes the Charlson Comorbidity Index, ABC Scale (balance confidence), SF-36 PF Scale, CHAMPS (physical activity), and a Symptom Checklist. Data on OPF include the six minute walk, BEST (balance), Timed Chair Stand, gait speed and distance (GaitRite™ System), strength (hand and pinch dynamometry), and body composition. Descriptive statistics will be computed for each study variable at each point in time and relationships will be examined by utilizing bivariate and multivariate correlational and clustering techniques. Change over time will be examined graphically and through growth curve analysis.

Findings will address gaps in our knowledge of PN by examining the trajectory of and relationships among symptoms and both PPF and OPF over time and exploring similarities and differences in results from self-report and objective measures of PF. This will allow us to provide specific information to patients about the nature of functional problems associated with PN and make specific recommendations about approaches used in clinical assessment of people experiencing symptoms of PN as a result of cancer treatment.

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A LONGITUDINAL ANALYSIS OF DIFFERENCES IN THE PAIN EXPERIENCE BETWEEN OLDER ADULT HOME AND COMMUNITY-BASED WAIVER PROGRAM PARTICIPANTS WITH AND WITHOUT CANCER.

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Older adults are at increased risk of developing cancer when compared to younger populations and are more likely to experience pain when compared to older adults without cancer. Because of their Medicaid eligibility, HCBWP participants are assumed to be impoverished and may therefore experience an increased risk of cancer and pain "above and beyond" other older adults. Very little is known about differences in the pain severity experience of older adult HCBWP participants with and without cancer. Additionally, research examining pain severity among older adults has been primarily cross-sectional. Longitudinal research is needed to examine changes in the experience of pain severity overtime.

Pain and poor pain assessment is a significant problem among older adults. Older adults are more likely than younger adults to experience conditions that produce pain, including cancer. Pain in older adults is often poorly assessed due to patient and provider-related characteristics that act as barriers to pain assessment. For this study, pain severity is measured by measures of pain frequency and pain intensity. The purpose of this research is to examine longitudinal differences in the pain severity among older HCBWP participants with and without a diagnosis of cancer while accounting for age, sex, race, comorbidity, depression and cognitive impairment. The Michigan HCBWP served 14,568 individuals between 2002 and 2007, with about 15% experiencing a diagnosis of cancer in their lifetime.

The Theory of Symptom Management guided the development of the theoretical framework for this research.

The sample consists of 12,750 HCBWP participants. Both descriptive methods and Generalized Estimating Equation modeling will be used to describe the sample and examine differences overtime.

The sample is 76% female and 79% Caucasian. On admission to the HCBWP, 27% of the participants had daily, unusually intense pain. Knowledge gained regarding differences in the pain severity experience of older adult HCBWP participants with and without cancer can be used to inform care practices and guide providers in the assessment of pain experienced by a vulnerable population.

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WORRY AFFECTS COGNITIVE PERFORMANCE PRIOR TO ADJUVANT TREATMENT FOR BREAST CANCER.

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Altered cognitive function is a distressing side effect of adjuvant chemotherapy for breast cancer, yet the contributing factors are unclear.

Research suggests that basic cognitive functions, attention and working memory, may already be compromised before any adjuvant chemotherapy possibly due to mental demands created by worry associated with the diagnosis. Thus, this preliminary study examined whether worry might be associated with cognitive performance and brain activation patterns assessed during functional magnetic resonance imaging (fMRI) in women awaiting adjuvant therapy for breast cancer.

Based on cognitive neuroscience theory, attention and working memory support effective functioning in daily life and may be compromised by persistent worry leading to mental fatigue.

Forty one women (30-75 yrs. old) with a diagnosis of Stage I-IIIa breast cancer were assessed prior to adjuvant chemotherapy (n=16) or radiation therapy (n=25) with an established attention and working memory task (Verbal Working Memory Task, VMT) during fMRI and self-reports of general and cancer-specific worry. Accuracy on the VMT and self-reported worry ratings were examined using comparative and correlational statistics; fMRI image analyses were performed using SPM5.

Patterns of worry and cognitive performance differed between the pre-chemotherapy and pre-radiation therapy groups. Specifically, the pre-chemotherapy group reported significantly ($p < .05$) greater general and cancer-specific worry than the pre-radiation therapy group. The pre-chemotherapy group also showed a pattern of low VMT accuracy in all task conditions. In contrast, the pre-radiation therapy group showed the expected pattern of initial high accuracy that decreased somewhat as task demands increased. Overall, higher worry scores correlated with lower VMT accuracy ($r=-29$, $p= .07$). On image analysis higher worry was associated with difficulty inhibiting areas of the brain active during uncontrolled

thoughts and rumination that are typically suppressed during task performance. Women awaiting adjuvant chemotherapy showed higher levels of worry that were associated with poorer cognitive performance than women awaiting radiation therapy. Brain imaging also indicated that higher worry interfered with the capacity to overcome powerful distracting thoughts thus lowering cognitive performance. Therapeutic interventions to alleviate worry and related fatigue may help to maintain optimal cognitive function prior to adjuvant chemotherapy for breast cancer.

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SLEEP DISTURBANCES IN CANCER CAREGIVERS: THE STATE OF THE SCIENCE.

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The aim of paper is a report on a systematic review conducted to synthesize evidence about sleep disturbances in family caregivers of patients with cancer.

Caregiving is a complex multifaceted experience where many internal and situational factors may impact a caregiver's ability to obtain quality sleep. Sleep disturbances in cancer caregivers may lead to cognitive, emotional, and physical impairment.

Databases searched included CINAHL, MEDLINE, PubMed, and PsychINFO. The search was limited to English language, from 1985 to 2009, using the following keywords: cancer, caregivers, family caregivers, sleep, sleep disorders, insomnia, sleep initiation and maintenance disorders, sleep disturbance, sleep deprivation, and circadian rhythm.

A thorough review of the literature demonstrated a total of 13 studies exploring sleep in cancer caregivers. Concerning study designs, there were eleven cross-sectional, one longitudinal, and one intervention study. Surprisingly, only three studies were guided by a theoretical framework. Sample sizes ranged from 9 to 117 participants. Six studies (46%) had sample sizes ≥ 60 participants. The majority (53%) of the studies sampled caregivers of patients with advanced cancer. Most studies included caregivers that were relatively young (≤ 60 years old), female, and Caucasian. The majority of studies (85%) used the Pittsburgh Sleep Quality Index (PSQI), the global score ranged from 5 to 15(> 5 poor sleep quality). Results indicated that cancer caregivers have more sleep disturbances, higher levels of depression, and poorer quality of life than non caregivers. Sleep disturbances contribute to cancer caregivers' irritability, anger, guilt, and depression.

Sleep disturbances are highly prevalent among cancer caregivers. Future research should consider the health status of cancer caregivers and cultural differences. More longitudinal designs that include both self-report and objective measures are needed to understand cancer caregivers' sleep patterns over time. Finally, it is very important to develop and test interventions to improve cancer caregivers' sleep quality and quality of life.

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SYMPTOM MANAGEMENT FOR CANCER-RELATED FATIGUE FOR PERSONS POST-SURGICAL INTERVENTION FOR NON-SMALL CELL LUNG CANCER.

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This study is significant as it targets a critical transition for persons with non-small cell lung cancer (NSCLC), the post-thoracotomy phase, addressing self-management of a priority symptom, cancer-related fatigue (CRF), in an understudied, vulnerable population.

For persons with early stage NSCLC post-thoracotomy, CRF remains a severe, persistent problem that worsens over time leading to decreased physical activity, decreased physical performance, and exercise intolerance. Moreover, research depicts CRF as a driver for the increased severity of other symptoms. Evidence supports this population's greatest identified needs as managing fatigue and other symptoms, improving physical functioning, and providing a convenient exercise option. Patients' notions about their ability to manage their symptoms (perceived self-efficacy (PSE)) impact their symptom management. Research has shown PSE for CRF self-management plays an important part in symptom management planning. The purpose of this study is to determine the feasibility, acceptability, and efficacy of a home-based CRF self-management program for persons with early stage NSCLC post-thoracotomy.

This study utilizes the Transitional Care Model to identify optimal interventions during the illness and treatment trajectory of persons with NSCLC. A synthesis theory derived from the Theory of Unpleasant Symptoms and Bandura's Self-Efficacy Theory will be used to guide the intervention addressing important cognitive aspects of CRF self-management to achieve optimal functional status and quality of life (QOL).

This pilot study will use a prospective, repeated measures design with 5-10 participants after diagnosis of early stage NSCLC concluding 16 weeks after hospital discharge. Investigators will conduct the intervention with a multidisciplinary team that will promote mild exercises utilizing an efficacy enhancing virtual reality approach. We hypothesize that the program will be feasible, acceptable, and will enhance self-efficacy for CRF self-management reducing CRF and other symptoms, while improving functional status and QOL. Given the small sample size related to the pilot nature of the study, descriptive statistics and exact tests will be used whenever possible to test hypotheses.

This research will have a positive impact on the QOL of persons with NSCLC by providing support for the development of a tested PSE enhancing intervention that optimizes CRF self-management for persons recovering from thoracotomy.

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A COMMON BIOLOGICAL PATHWAY UNDERLYING THE PSYCHO-NEUROLOGICAL SYMPTOM CLUSTER IN CANCER PATIENTS.

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The study of symptom clusters in oncology is an emerging area which investigates the phenomena of the co-occurring tendency of multiple symptoms and its clinical utility. The reason behind symptom clustering is an intriguing question in this research area. One reason may be that symptoms that co-occur share a common biological pathway. Elucidating the etiology of the clustering may lead to the development of novel management strategies for multiple symptoms.

The purpose of this review is to summarize the evidence for a psycho-neurological symptom cluster in cancer patients; to provide information regarding the underlying biological mechanisms for each of psycho-neurological symptoms within the cluster; and to propose for common biological pathways that could underlie a cluster.

The Theory of Unpleasant Symptoms, which explains the existence of symptom clusters and influencing variables, served as the conceptual basis.

The data for this literature review was selected by searching data bases (Pub med, Medline, CINAHL). Key words for literature search were symptom clusters and/or cancer, depression/depressed mood, cognitive/cognition, fatigue, insomnia, pain, and/or mechanisms. Articles which were related to articles found from data bases were also reviewed.

The present review concludes that there is empirical evidence of the clustering tendency of psycho-neurological symptoms,

in particular depressed mood, cognitive disturbance, fatigue, insomnia, and pain. The mechanisms of those symptoms appear to share neuro-molecular pathways, in particular, pro-inflammatory cytokines, the Hypothalamic- Pituitary- Adrenal (HPA) axis system, and the serotonin system (5-HT). The present review proposes that the role of pro-inflammatory cytokines is to initiate the symptom generation cascade and to interact with the HPA axis system and the monoamine system (e.g. 5-HT). However, other biological factors, such as lowered estrogen or hemoglobin levels, can also initiate psycho-neurological cluster production. Further studies are necessary to confirm the roles of cytokines as well as other biological factors in generating the psycho-neurological cluster and to determine whether such biomarkers are useful for identifying subgroups of cancer patients who are at-risk for experiencing psycho-neurological symptom clusters.

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COMPARISON OF STANDARD TEMPERATURE MEASUREMENT IN ONCOLOGY PATIENTS.

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Vital signs are an important assessment tool in healthcare and body temperature in particular can be measured by various methods. Temporal artery thermometer (TAT) is reported to agree with core body temperature in critically ill adults. It is unknown if TAT is accurate in febrile patients. If accurate, TAT would offer a less invasive alternative method of temperature measurement in oncology patients.

Temperature measurement using TAT is a relatively new method. While there is literature regarding the accuracy of TAT in afebrile critically ill adults, there is little in the febrile oncology patient population. Accurate and early detection of fever is necessary in this population and if TAT measurements are shown to be agreeable to oral and axillary temperature, medical providers can have confidence with the TAT. The aim of this study is to test the agreement of the TAT compared to the oral and axillary digital thermometer readings in the febrile, oncology patient population as well as to study the sensitivity and specificity of each measurement technique.

Repeated measures design with subjects serving as their own control.

60 adult leukemia, lymphoma or stem cell transplant patients will be enrolled in the study. Temperature measurements will be taken using concurrent TAT, oral and axillary routes with digital thermometers upon enrollment. If the patient spikes a fever of 38.3 Celcius orally, measurements will be taken using TAT, oral and axillary methods at that time and 4 hours after the first febrile measurement. Data analysis of the temperature measurements will be conducted using the Bland-Altman method.

Preliminary analysis of data from 11 subjects indicates a clinically and statistically significant difference in temperatures obtained from the TAT compared to oral temperatures. Data collection is ongoing to confirm these results.

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EXPERIENCED SYMPTOMS OF UROGENITAL ATROPHY IN BREAST CANCER SURVIVORS AS COMPARED TO WOMEN WITHOUT BREAST CANCER.

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Breast cancer mortality rates continue to improve with an accompanying increase in length of disease-free survival. This trend is due to improvements in early detection and advances in disease treatment, allowing the vast majority of women to survive their breast cancer experience with a near normal life expectancy, or extended years of life before recurrence. Despite this improved quantity of life, side effects from breast cancer treatment can decrease quality of life, including those related to urogenital atrophy.

Unpleasant menopausal symptoms include those symptoms related to urogenital atrophy which affect the urologic, genital, and sexual domains.

Urogenital atrophy is a continuum and can become more severe as estrogen levels continue to drop, underlining the importance of appropriate assessment and early intervention.

The purpose of this study was to identify the prevalence of self-report symptoms of urogenital atrophy in women with breast cancer as compared to women without breast cancer.

Theory of unpleasant symptoms (TOUS) guided this study.

This study was an exploratory, descriptive design with convenience sampling. The setting was a Midwest, comprehensive cancer center, comprehensive breast health center. Participants included women with breast cancer (198) and women without breast cancer (168). All participants were invited to complete the following instruments: Demographic data, Female Sexual Function Index (FSFI), Functional Assessment , Breast with Endocrine scale (FACT-B, ES), Urogenital Atrophy Questionnaire.

Data was analyzed using descriptive statistics, frequencies, and analysis of variance (ANOVA) to determine differences between and within groups.

Significant statistical differences exist between the two groups indicating that breast cancer treatments may have a physiologic influence on the occurrence and severity of these symptoms. Breast cancer treatment type with consideration of chemotherapy, hormonal, biologic, and agonist therapies was observed across groups. The data demonstrated that not all women have a male partner, not all women have a partner, women masturbate without a partner, women have same sex partners, not all women have sexual activity, and women have sexual activity without penile vaginal intercourse. Therefore, questionnaires that ask women about the symptoms related to urogenital atrophy, especially sexual items, must include items and answer options for those women that are not in a heterosexual relationship with penile vaginal intercourse as their only type of sexual activity. A statistically significant difference ($p < 0.000$) was found in regard to ranking of sex life (scale of 1-10, with one being very, very low, and 10 being very, very high) in breast cancer survivors before and after diagnosis. While some survivors reported a higher level of satisfaction, most did not, with a mean difference of 4.15. Approaching this topic in another manner, BCS indicated an 82.6% satisfaction rate of sexual activity without penetration, a 61.9% satisfaction rate of sexual activity without genital touching, and an 79.8% positive response by BCS in regard to happiness with sex life. Significant statistical differences exist between the two groups indicating that breast cancer treatments may have a physiologic influence on the occurrence and severity of these symptoms. A psychometrically sound instrument should be used to investigate these symptoms with respect to partner status, level of sexual activity, and practice of penile intercourse.

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COGNITIVE BEHAVIORAL THERAPY FOR INSOMNIA (CBTI) AFTER BREAST CANCER TREATMENT: INDIVIDUAL IMPROVEMENT IN SLEEP OUTCOMES.

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Women with breast cancer report more frequent sleep difficulties and evidence suggests that insomnia may develop a chronic course in many survivors of cancer. Previous studies have demonstrated a variety of positive sleep outcomes of CBTI, but few studies have identified individual change/growth in sleep outcomes over the course of the intervention.

The aim of the present study was to examine weekly sleep latency (SL), sleep efficiency (SE), wake after sleep onset (WASO), total sleep time (TST), number of awakenings, and subjective sleep ratings over the duration of the multi-component CBTI intervention.

Spielman's 3-Process Model of Insomnia posits there are three factors involved at different points during the course of insomnia: predisposing, precipitating and perpetuating factors.

42 women with insomnia after primary breast cancer treatment were recruited from the community and cancer centers in Colorado to participate in a parallel group, randomized single blind trial of CBTI compared to an attention control behavioral therapy. Women with persistent insomnia participated in a 6-week individual intervention of sleep restriction, stimulus control, sleep hygiene and cognitive therapy vs. desensitization therapy. Participants completed a daily sleep diary during the 6-week intervention, for 2 weeks post intervention, and two weeks at 3-months and 6 months.

HLM analysis of both groups revealed SL decreased on average 1.4 minutes, WASO decreased by 2 minutes, TST increased by 5.5 minutes, SE increased by 1%, # awakenings decreased by .11 per observation (based on sleep diary data: 9 data points from intervention to 6 month follow up). In terms of change from baseline to 2 weeks Post-Tx, the mean SL in the CBTI group decreased by 22 minutes, while the BPT group decreased by 5.67 minutes.SE increased by 10% in the CBTI group and 6% in the BPT group. TST increased by 20 minutes in the CBTI group, and 44 minutes in the BPT group, which may reflect ongoing adherence to the prescribed sleep restriction in the CBTI group. The CBTI group showed significant sleep improvement compared to the attention control group in decreased SL ($t = -4.61$, $p < .001$), increased TST ($t = 2.96$, $p < .001$), and % SE increased (controlling for age and stage of cancer) ($p = .019$). There were no group difference in WASO, number of awakenings, subjective ratings of sleep (5 point Likert self-report of overall of sleep quality, and feeling refreshed).

The findings from the current study suggest that over the course of six weeks of CBTI and beyond, women with persistent insomnia after breast cancer treatment improved in several sleep outcomes (SL, TST, SE) compared with a behavioral placebo group. Despite promising findings consistent with previous studies, optimizing treatment to reflect improvements in awakenings, WASO, and subjective sleep ratings may require a multifaceted strategy that identifies and addresses factors contributing to nocturnal awakenings. Further studies are needed to understand the mechanisms of awakenings including psychological (e.g., fear of recurrence), behavioral (e.g., daytime napping), and physiological (e.g., estrogen [vascular instability], cortisol, inflammation) factors in cancer survivors.

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PILOT STUDY ON AURICULAR ACUPRESSURE TO REDUCE CHEMOTHERAPY INDUCED NAUSEA AND VOMITING (CINV) IN CHILDREN.

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Acupressure is similar in effect to acupuncture, but without using needles, thus it is non-invasive. Application of the very small seeds used for AA is non-invasive, inexpensive, painless, and causes no side-effects. Because of these attributes, AA may be a good choice for the management of CINV in pediatric oncology patients.

Chemotherapy induced nausea and vomiting (CINV) continues to be among the most frequently reported side effects/symptoms reported by children with cancer. While antiemetic drugs such as Serotonin 5-HT3 Receptor Antagonists, 5-HT3 RAs and NK-1–Receptor Antagonists, NK-1RAs provide some relief, they are frequently accompanied by their own set of unpleasant side effects and are very expensive. Children with cancer generally report both high prevalence and distress associated with CINV, indicating poor control. The limitations of current strategies to manage CINV in children with cancer point to the need to examine the efficacy of non-pharmacological techniques, such as auricular acupressure (AA). Better management of CINV is therefore a high-priority clinical goal for pediatric oncology. Auricular acupressure involves gently attaching a few very small plant seeds (vacarria segetails) with a small amount of adhesive tape to the outer ear including the ear lobe.

The purpose for this study was to examine the feasibility of a self- or parent-administered AA intervention protocol for CINV management in children who are currently receiving chemotherapy.

Following baseline assessment for CINV, 8 subjects were received AA treatment protocol. AA treatment was performed on the day before the subjects were about to receive a new round of the chemotherapy and followed for 7 days. All statistical analyses were preceded by detailed descriptive analysis of the data, using standard descriptive summaries (e.g., means, standard deviation, percentiles, ranges) and graphical techniques (e.g., histograms, scatter plots).

Patients ($n = 8$) who enrolled in the study were all able to complete the study for baseline assessment and AA treatment. The patients who participated in this study, ranged in age from 10 to 16 years (3 were male and 5 were female). No patient had ever used acupressure or acupuncture prior to study enrolment. The tape holding the seed feel off at different time points (i.e., from day 1 to day 7). Two subjects complained that the tape made them feel itchy and caused discomfort, but they still left them on the ear. No other side effects were noted. The amount of antiemetic medications administered were the same for both groups. Episodes of vomiting and the scores of nausea between AA and baseline were not significantly different ($p>.05$) with and without AA, but there was a trend that patients in the AA reported relatively lower level of vomiting and nausea.

Preliminary findings of this pilot study indicate that AA is a feasible intervention as far as recruiting, the procedure and the protocol. While there no significant differences between the groups, nausea and vomiting showed a positive trend. We believe this study should be conducted with a larger sample of children to see if the outcomes may be significant and the AA intervention to manage CINV can be better tested.

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SELECTION, IMPLEMENTATION, AND PERCEIVED EFFECTIVENESS OF SYMPTOM MANAGEMENT STRATEGIES BY WOMEN WITH RECURRENT OVARIAN CANCER.

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Effective symptom management is essential to reduce negative physical, functional, and psychological outcomes in women with recurrent ovarian cancer. Understanding the types of strategies that women choose to try and the extent to which they are able to implement them can help oncology nurses target educational interventions.

Women with recurrent ovarian cancer experience multiple symptoms which reduce quality of life. Developing interventions to meet the needs of these women is challenging. Most symptom management interventions teach patients a wide range of clinical and self-care strategies. Few studies have documented how patients

use this information. The purpose of this study is to evaluate the selection, implementation, and perceived effectiveness of symptom management strategies by women with recurrent ovarian cancer participating in a web-based symptom management intervention (WRITE Symptoms).

WRITE Symptoms, a Written Representational Intervention to Ease Symptoms, is based on the Representational Approach to patient education, an intervention theory derived from health psychology and education.

Data is from patients participating in the self-directed WRITE Symptoms module arm of a 3-arm RCT for women with recurrent ovarian cancer. Patients complete a computer-mediated module that includes a representational assessment of symptoms, review of common symptom management concerns, presentation of evidence-based symptom management strategies, identification of goals, and selection of strategies. Strategies are classified into 3 categories: 1) symptoms bad enough to call health care provider (HCP); 2) strategies requiring action by HCP (e.g. prescriptions); 3) self-care strategies. Two weeks after selecting strategies, participants report implementation of strategies (yes/no), barriers to implementation, and perceived effectiveness. Analyses include descriptive statistics to examine overall number of strategies selected, percentage of strategies implemented, and overall perceived effectiveness (on 0-10 scale).

To date, 45 participants have been enrolled and 25 have completed the 8-week intervention. The majority are Caucasian with a mean age of 60.3 years, and 13.4 years of education. The most frequently selected symptoms include fatigue, constipation, and peripheral neuropathy. On average, patients selected 9 (SD 4.33) strategies to try and implemented 80.6 percent of their selected strategies. The mean perceived effectiveness of implemented strategies was 5.67 (SD 1.72). Findings will be updated with 80 participants and further classified based on types of strategies used for the most common symptoms. This information is critical to advance understanding of preferred strategies, barriers to implementation of strategies, and the most effective strategies as perceived by women with recurrent ovarian cancer.

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FACTORS AFFECTING CHANGE IN COGNITIVE FUNCTION RELATED TO CHEMOTHERAPY IN WOMEN BEING TREATED FOR BREAST CANCER.

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New cases of breast cancer (BC) in the US are reported at a rate of 193,000 per year. Many women will received chemotherapy (CTX) as treatment for BC and suffer serious side effects as a result.

The nature and severity of decrements in cognitive function (CF) among women receiving CTX for BC varies across studies. Methodological problems, including lack of a common definition of CF in this population, lack of pretreatment data, and potential confounds with type of cancer treatment are common. Despite these limitations, "Working Memory" (WM) is emerging as an important construct that may be influenced by treatment. WM includes a short-term information repository, the ability to manipulate information, and a "work space" that allows complex processes such as comprehension, learning and reasoning to take place. Results of prior studies also suggest a vulnerable subset of the population is at increased risk of cognitive decrements related to CTX. Our aims are to characterize the severity and pattern of changes in WM over time by comparing women with BC receiving CTX to a control group (BC not receiving CTX) in a repeated measures design and to identify risk factors for decrements in CF.

The Revised Symptom Management Framework from Dodd and colleagues provides a theoretical framework.

The sample (n=100) will include women 18-70, excluding those with comorbid conditions expected to affect CF, who are receiving treatment for BC stages 0-3A . Data in the CTX group will be collected prior to CTX, 2 weeks after the 2nd and 6th treatments, and 12 months after baseline while data for control subjects will be collected at similar time intervals. Measures include standardized, well established neuropsychological tests to evaluating WM, computerized questionnaires designed to elicit demographic data and self-report of mood and fatigue, and chart review. Repeated measure ANOVA using group as between subjects and time as the within subject factor will be used to analyze data. Reliable Change Index will be used to assess individual change and correlational techniques used to determine risk factors.

Findings will be presented at a later date.

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COMORBIDITY AND SYMPTOM MEASUREMENT IN OLDER ADULTS WITH CANCER.

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About two thirds of all cancers are diagnosed in older adults (aged 65+) and the diagnosis often co-occurs with normal and pathological changes of aging which include chronic diseases and related symptoms. Older adults' perceptions of illness and symptoms may have a profound impact on cancer diagnosis, symptom management, and treatment outcomes.

The purpose of this methodological study is to conduct initial psychometric testing of a newly developed self-report tool for measuring comorbidity burden and symptom perception, the Comorbidity and Symptom Measurement in Oncology Scale (COSMOS). The comorbidity burden subscale includes a checklist of 37 chronic illnesses/ conditions and their current effect on daily life. The symptom perception subscale includes a 32 item checklist, symptom bother rating, and perceived cause of symptoms.

The COSMOS is based on a blended conceptual model developed from the Theory of Unpleasant Symptoms (Lenz, 1987) and the Common Sense Model. This model addresses interrelationships between comorbidity burden, symptom perception, functional performance, and unique patient-related factors.

A convenience sample of 27 out of 60 adults aged 65 years or older with cancer, two or more comorbidities and one or more symptoms has been recruited. The sample is stratified into 4 groups including gender and cancer treatment status using quota sampling technique. Data collection via self-report is ongoing and includes the COSMOS, Functional Performance Index, and demographic data. Quantitative data analysis includes descriptive statistics and exploration of relationships between key study variables and unique patient characteristics, and measures of differences between groups. Test-retest reliability will be conducted with the "off therapy" participants two to three weeks after the initial survey administration. Select qualitative data is being collected and analyzed for themes focused on various components of the scale.

Pilot data will be used to revise the scale for future use in clinical practice and research with the target population. It is projected that COSMOS could be easily used in the clinical setting as an integral component of the comprehensive geriatric assessment of older adults with cancer and in the research setting as a basis for predicting health-related outcomes for targeted interventions.

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TRAJECTORIES OF CYTOKINES AND CHEMOTHERAPY-RELATED FATIGUE IN BREAST CANCER.

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Chemotherapy related fatigue (CRF) is one of the most common symptoms related to treatment for breast cancer. The severity and trajectory of this persistent, debilitating side effect of chemotherapy frequently decreases a woman's quality of life. Despite many studies of CRF the mechanism and treatment remain elusive. Symptoms such as fatigue are part of the ONS Research Agenda.

Although the complete molecular mechanisms of the pathophysiology of CRF remain unknown, evidence suggests that proinflammatory cytokines may induce classic symptoms of sickness behavior that include fatigue. The purpose of this study was to explore the relationships between interleukin 1 beta, interleukin 6, tumor necrosis factor alpha and fatigue levels throughout chemotherapy for stage I and II breast cancer.

Physiological theory guided the selection of the cytokines: interleukin 1beta, interleukin 6, and tumor necrosis factor alpha. They are normally present at low levels in serum. The greater the immune challenge the greater the cytokine response.

The completed pilot study used a longitudinal, correlational design. Blood specimens and completed Piper Fatigue Scales were collected at baseline, days 7, 14, 21, and 28 for each chemotherapy cycle and 2 months post-treatment. Most of the women had six cycles of chemotherapy. Plasma cytokines were determined by enzyme-linked immunosorbent assays (ELISA). We will be presenting the results of the mixed model analyses demonstrating the relationships between the cytokines and fatigue over time. Descriptive statistics will be used to describe the sample.

The final sample consisted of 11 primarily Caucasian women who ranged in age from 37 to 72 years old (mean = 57). The presentation will include the results from mixed model analyses. We will also discuss the results in the context of our next research study. The participants of this study consented to archive the DNA of their baseline blood specimens for use in a future study. The purpose of that study will be to explore genetic variants of the 3 cytokines and the levels of fatigue throughout chemotherapy.

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A PILOT STUDY TO DETERMINE THE EFFECTIVENESS OF A TOPICAL GEL WITH 2% LIDOCAINE-HC1, COLLAGEN, HYALURONIC ACID AND ALOE EXTRACT FOR THE TREATMENT OF ADVERSE RASH SYMPTOMS ASSOCIATED WITH EPIDERMAL GROWTH FACTOR RECEPTOR INHIBITOR DRUGS.

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Inhibition of the epidermal growth factor receptor (EGFR) by targeted agents is one of the most widely studied approaches to cancer treatment today. Unlike standard chemotherapy, which affects most replicating cells, EGFR inhibitors target pathways that are crucial for cancer cell growth and survival. Blocking EGFR can lead to a commonly occurring side effect of an acneform rash in about 88% of treated patients.

This adverse event associated with EGFR inhibitor drugs can result in treatment dose reductions, interruption, or cessation. Clinicans need evidenced-based therapies in managing this common adverse side effect.

A single center prospective pilot study enrolled 20 patients treated with EGFR inhibitor drugs to evaluate Regenecare HA® topical gel(MPM Medical Inc., Irving, TX) in reducing itching, pain and skin dryness associated with EGFR inhibitor rash. Regenecare® original formula showed significant reduction of pain and itching with gel use in the treatment of acneform rash, however patients indicated that the gel had a drying effect on the skin. The manufacturer adjusted the formula by adding a moisturizer (Hyaluronic acid). The gel contains marine collagen, aloe vera and 2% lidocaine. This ingredient combination has shown evidence for wound healing and reduction in pain and itching. Marine collagen is a natural humectant. Participants were instructed to apply gel four times daily to rash areas at initial onset of rash. Nurses assessed rash severity weekly using the NCI CTCAE version 3. Patients completed questionnaires weekly and at the end of treatment. A statistician evaluated original data and reported results.

Eighteen evaluable subjects' questionnaires and nurses' evaluations were collected and calculated as a percentage of each response. Patients reported the gel as 88.8% effective for reducing rash appearance, 86.6 % effective for reducing itching, 87.5% effective for reducing pain and 94.1% effective in reducing skin dryness. The gel was reported to reduce these symptoms within 15-30 minutes after application.

Evidence-based symptom management of EGFR inhibitor rash is important for oncology nurses in providing optimal patient care. The clinical results indicated the gel is a safe and effective adjunct therapy for managing Grade 1-2 rash symptoms.

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A RANDOMIZED CONTROLLED TRIAL OF NON-PHARMACOLOGICAL INTERVENTIONS FOR MANAGING DYSPNEA: WORK IN PROGRESS.

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Dyspnea is a common and distressing problem for people with cancer. Despite the potential benefits of non-pharmacological strategies incorporating breathing retraining and psychosocial support for managing dyspnea, such interventions have proved difficult to implement in routine clinical practice.

The primary aim of this study is to evaluate the efficacy of a brief tailored intervention incorporating breathing exercises and targeted psychological support to reduce dyspnea and improve function in people with cancer

The intervention is based on Corner et al's conceptual framework, which defines dyspnea as a multidimensional experience, that is managed most effectively when attention is given to physical sensation, as well as the associated emotional and functional responses.

The study involves a randomized controlled trial. The intervention is tailored following an assessment of patient needs and delivered over four sessions (one face to face and three by telephone) using a range of evidence-based psychoeducational strategies for developing the patient's self management abilities. To evaluate the impact of the intervention, data are being collected from 130 randomized patients (110 recruited to date) using an interviewer-administered survey at three time points: (T1) at the time of recruitment (maximum of 7 days prior to the intervention); (T2) 4 weeks following first intervention session; (T3) 8 weeks following first intervention session. Key outcomes include patients' use of recommended strategies for managing dyspnea; ratings of the severity, interference and distress associated with dyspnea; functional status; and anxiety. Each of these endpoints is to be considered separately in analyses. Multiple linear regression models will be fitted to continuous outcome variables or binary logistic regression models for dichotomous models. A generalised estimating equations (GEE) approach will be used to derive estimates of change, assuming an independent correlations matrix.

This intervention is novel because it translates best practice psycho-educational strategies into a practical tool that requires minimal clinic time. It uses support materials in different forms, so that patients can use these when they need to and when they are relevant to them, rather than in a more structured or formal way. If effective, it has the potential to be used across a range of settings to reduce the effect of this distressing symptom.

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PERCEPTION OF RECEIVING ADJUVANT HORMONAL MEDICATION IN WOMEN WITH BREAST CANCER.

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It is well-documented that 5-year adjuvant hormonal therapy (AHT), such as Tamoxifen or Arimedex, can significantly reduce the risk of recurrence for women with edocrine-receptor-positive breast cancer(BC). However, women with AHT also reported menopausal related symptom that impacted their quality of life.

There is little knowledge about how the women with AHT perceived the day-to-day experience and how they coped with the symptom in daily life. The purpose was to describe the experience of receiving AHT in daily life in Taiwanese women with BC.

A qualitative inquiry with constant comparative method was used.

Data was collected via open-ended questions. A snow-ball sample of 11 women with BC receiving AHT at least 6 months were invited in Taipei, and 17 in-depth voice-recorded interviews were completed and transcribed. Constant comparative method was used across interviews and subsequent data analysis.

The women had mean age of 55 and were menopausal, while 8 were related to AHT. They were taking Tamoxifen or aromatases. Women identified the AHT as a life-saving treatment after the surgery and chemotherapy, while suffering various distress such as hot flash, night sweat, fatigue and pain. Women reported that AHT experience was a process of learning to live with the medication and they coped with it by adjusting life-styles, re-constructing life meaning, knowing own body, gaining support, or even personalized the medication schedule or dosage without discussing with their oncologists. After taking AHT and experiencing the symptom days after days, some women developed conflict, resentment and regret as the AHT influences some important values in their lives, such as infertility, life meaning. The findings may facilitate the clinician to understand BC women's perception of AHT and to develop appropriate interventions to help them to cope with the AHT in day-to-day life.

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COLORECTAL CANCER TREATMENT: ONCOLOGY NURSES WEIGHING IN.

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Understanding what oncology nurses perceive as learning needs is important especially when new biologicals has changed practice. Ultimately, learning where the gaps are in practice, helps nurse educators who plan for continuing education. While biologic agents offer remarkable potential to affect survival in multiple cancer types, side effects can impede patients' quality of life and nurses need to be aware of potential problems.

Addressing the severity of side effects associated with new biologic therapies for the treatment of colorectal cancer (CRC) can be overwhelming. Oncology nurses (ONs) use validated assessment tools that support evidence-based guidelines. This study assessed the practice patterns of ONs and identified symptom management issues when caring for CRC patients receiving new biologic agents.

A 21-item survey was developed from a literature review and expert ONs consultation on this topic.

A convenience sample was obtained from the IMER database. Online and written surveys were distributed prior/during the ONS 10th Annual IOL conference. The survey domains included demographics, knowledge, attitudes, and practice behaviors related to treatment of colorectal cancer, focusing on patient symptoms.

Of the 127 ONs responding to the survey, 63% were staff nurses/nurse clinicians, 56% practiced in community outpatient settings, 78% worked full time, 89% worked in medical oncology, 48% identified BSN as highest nursing degree, while 23% identified masters in nursing. Nurses worked a mean of 16 years, with a mean of 11 years in ON. 51% identified understanding genetic testing as the most important unmet educational need and 19% stated identification of relevant clinical guidelines. While the majority of nurses felt comfortable teaching patients about approved adjuvant and metastatic therapies, as well as expected drug side effects, they were uncomfortable teaching patients about genetic testing of KRAS (mean 2.39 on scale of 1-5), loss of heterozygosity on the long arm of chromosome 18 (LOH18q, mean 1.81), and microsatellite instability (MSI, mean 1.81). Regarding side effect management, 26% were unsure of or had no guidelines for the management of EGFR inhibitor-related hypomagnesemia, and similarly, 33% for CINV. When asked how often a VEGF inhibitor was discontinued for hypertension, 57% stated 1-25% of the time, and 25% were uncertain. In most practices, hypertension can be well controlled, obviating the need to discontinue the drug, similarly to the 14% who said 0%.

Nurses caring for patients with CRC need effective education on genetic testing as well as availability of practice guidelines for EGFRI-induced hypomagnesemia and CINV.

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ORAL CANCER PATIENTS AFTER SURGERY ON NUTRITIONAL STATUS.

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Surgery is the primary treatment for oral cancer and usually involves changes of the structure in oral cavity, face, head and neck. The change of feeding is needed, but which might impact on nutritional status of the patients. There was limited knowledge of nutritional status among oral cancer patient under the standard care of feeding support after the surgery. An in-depth of understandings of the body weight change or nutritional status in this specific population could assist in understanding the effectiveness of feeding support.

The purpose of this study was to explore the change of body weight and its relation within the 2-month period after the primary surgery for oral cancer.

A clinical model of nutritional function in oral cancer patients under treatment was used to guide the selection of study variables.

This study was a part of a larger longitudinal study to assess the symptom change in oral cancer. A total of 47 subjects completed the 5-time measure of body weight from the consecutive sample of the larger study, which was 47 patients with oral cancer recruited from a medical center in Taipei, Taiwan. Body weight, feeding methods, pain, infection and clinical-socio-demographic data were measured pre-surgery, 2, 4, 6 and 8 weeks after the surgery. The change of body weight was analyzed via the strategies of General Estimating Equation.

The subjects had a mean age of 54.7. A majority of them were married, and received radical neck dissection along with reconstruction. The results showed that the body weight significantly changed from the baseline, especially at 2-week post-surgery with as much as 91.5% of the subjects lost weight at the mean change of 3.59kg (SD=2.00). 4.3% of patients had lost more than 10% from their pre-surgery body weight. After six weeks, 10.6% of the sample still had to rely on tube feeding for nutrition supplement. And found the patient weight changes and major caregivers have different statistical(t=-2.31,p=.025).Further control the effect of the time series, under the influence of weight change and disease diagnosis of state of staging and diet were related. Further effort to improve the nutritional status after surgery is still warranted.

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RELATIONSHIPS BETWEEN CHEMOTHERAPY INDUCED PERIPHERAL NEUROPATHY, DEPRESSIVE SYMPTOMS, AND SLEEP QUALITY IN COLORECTAL CANCER PATIENTS PREVIOUSLY TREATED WITH OXALIPLATIN.

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Oxaliplatin is highly toxic to the peripheral nervous system and may cause chronic neurotoxicity that can persist for years following completion of chemotherapy. Oxaliplatin-induced neurotoxicities may not develop until after completion of chemotherapy or may worsen after completion of chemotherapy. Little is known about how neurotoxicities affect persons previously treated with oxaliplatin as they attempt to resume their normal lives following chemotherapy.

Neurotoxicities may significantly interfere with key aspects of quality of life including usual activities, sleep, and emotional well-being, however, these relationships have not been adequately explored. The purpose of this study is to explore relationships between neuropathic symptoms, usual activities, mood, and sleep quality in persons with colorectal cancer treated with oxaliplatin from 2002-2008.

The theoretical framework for this study comes from the Theory of Unpleasant Symptoms in which emotional and physical well being are influenced by the symptom experience.

83 patients who received oxaliplatin for treatment of stage III or IV colorectal cancer between 2002 and 2008 returned packets of questionnaires containing the Chemotherapy Induced Peripheral Neuropathy Tool, which measures neuropathic symptoms and interference with activities: the Center for Epidemiological Studies -Depression Scale, which measures depressive symptoms; and the Sleep Severity Index, which measures sleep quality. Pearson's correlations were used to determine relationships between neuropathic symptoms, depressive symptoms, and sleep quality. Neuropathic symptoms and neuropathic interference with activities were highly correlated (r=.70, p <.001). Neuropathic symptoms were significantly correlated with depressive symptoms (r=.34, p=.003) and poor sleep quality (r=.37, p=.001). Neuropathic interference with activities was significantly correlated with depressive symptoms (r=.59, p< .001) and poor sleep quality (r=.52, p< .001).

This study is one of the first to evaluate neuropathic symptoms and their effects on aspects of quality of life in colorectal cancer survivors. Effective treatments for neuropathic symptoms are lacking. This information is important to all health care professionals as they prepare to meet the needs of the growing number of colorectal cancer survivors in the community.

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CHEMOTHERAPY INDUCED PERIPHERAL NEUROPATHY AND SUBJECTIVE SLEEP QUALITY IN NON-SMALL CELL LUNG CANCER.

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Increased knowledge of the symptom experience in non-small cell lung cancer (NSCLC) patients is important for nursing assessment and management of cancer related morbidity and may provide a baseline for further exploration of common underlying mechanisms.

CIPN and sleep disturbances are common problems in NSCLC, and independently contribute to morbidity of the disease. Neuropathy and sleep disturbances are associated in other medical conditions; however, this association has not been investigated in NSCLC populations. The purpose of this descriptive, correlative study is to 1) describe the pattern of CIPN and subjective sleep quality and 2) evaluate the association between CIPN and subjective sleep quality in NSCLC patients.

CIPN manifests as motor (weakness, atrophy, areflexia), sensory (paresthesia, dysesthesia, impaired vibratory sense), and autonomic (GI symptoms, postural hypotension, temperature sensitivity) symptoms. These manifestations may negatively influence homeostatic and circadian sleep regulatory mechanisms.

30 participants with NSCLC will complete the Pittsburg Sleep Quality Index (PSQI), and the Total Neuropathy Score, clinical version (TNSc). Medical and treatment history are collected from medical records. Descriptive statistics, Spearman correlations, and Mann-Whitney U tests are used to characterize the sample and analyze study findings.

We report findings for the first 24 participants (15 female, mean age 58.75 ± 8.57). Mean TNSc score was 7.25 ± 3.64, with greater scores indicating worse neuropathy. Mean PSQI global score was 8.5 ± 4.29, indicating moderate to severe sleep disturbance. There were no significant associations between PSQI global score and demographic, clinical, or treatment variables. Using a median split, participants were classified as having high (TNSc score >7) or low neuropathy scores. Participants in the high neuropathy group (n = 12) had significantly higher PSQI global scores (mean 10.5 ± 4.38) compared with those in the low neuropathy group (mean 6.5 ± 3.26, Z = -2.208, p = 0.027). Preliminary results indicate participants with worse neuropathy report significantly poorer sleep quality. Further analysis of the co-occurrence of these co-morbidities is warranted. Routine assessment of NSCLC patients should include thorough evaluation of both CIPN and sleep disturbance.

Individual and Family Psychosocial and Behavioral Topics

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TESTING MISHEL'S THEORY OF UNCERTAINTY IN ILLNESS USING PATIENTS HOSPITALIZED WITH CANCER.

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Patients with cancer are living longer, and are requiring more hospitalizations to manage the effects of their disease and treatments. Additional research is needed to identify how nurses affect uncertainty related to hospitalization with cancer.

The purpose of this study was to test Mishel's Theory of Uncertainty in Illness among patients hospitalized with cancer. Specifically, do (1) predictor variables prescribed by the model and (2) the feeling of being cared for by one's nurse influence the individual's perception of uncertainty?

According to Mishel's theory, one's level of formal education, experience with the illness and its symptoms, familiarity with health care, social support, and trust and confidence in one's providers (antecedents) all influence the perception of uncertainty by the patient.

A predictive correlational, cross-sectional design was used. The relationship between the independent variables (antecedents), and the dependent variable (uncertainty) was examined. In addition, the relationship of a new predictor variable, feeling cared for by one's nurses, was added to test for enhanced ability to predict uncertainty.

Two hypotheses were tested for relationships among variables of the theoretical model using multiple regression analysis. Hypothesis 1 stated there would be no significant contribution between the predictor variables (antecedents) of patient level of education, credible authority, social support, length of diagnosis, and familiarity with environment and the feeling of uncertainty in hospitalized cancer patients. Only familiarity with environment and credible authority significantly contributed to the model. Hypothesis 2 added feeling cared for by one's nurses as an antecedent; the null hypothesis was not rejected, although a significant correlational relationship was found to exist between feeling care for and lower scores of uncertainty.

Results of this study provide knowledge of the variables that influence uncertainty within the context of illness. These findings lend support to the use of Mishel's midrange theory to promote

the nursing process and to guide nursing practice. Future research should focus on identification of latent variables not identified in this study that contribute to uncertainty in illness, and the role of the nurse as a credible authority for patients with cancer.

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I'M MORE INTERESTED IN "CONTROL" RATHER THAN "CAUSE" OF THE LUNG CANCER: PATIENT AND FAMILY CAREGIVER PERCEPTIONS.

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There is increasing interest in perceived control in self care by cancer patients and family caregivers, as well as the impact of control in explaining behavior and outcomes in sickness and in health. In the context of cancer, and depending on the time frame that control is being examined, perceived control can have different significance to the patient and the family caregiver, and to their adaptation or coping with the cancer diagnosis.

To date there is limited comparison of patient and family caregiver 'retrospective' perceptions on locus of cause and 'prospective' perceptions on locus of control in managing the lung cancer. The main purpose of this study is to report on the factor structure of locus of cause in the retrospective and locus of control in the prospective management of lung cancer as perceived by patients and family caregivers. On the basis of Rotter's theory of internal and external locus of control, we tested two hypotheses regarding the predicted factor loadings of internal and external items involving patient and caregiver responses.

Study participants included a convenience sample of 304 patients diagnosed with lung cancer and 304 family caregivers. Patients and caregivers responded to eight, 5-point response items that captured retrospective perceptions of locus of cause, and eight, 5-point notions of prospective locus of control over the disease. Principal components analysis with varimax rotation was employed to determine a linear combination of variables.

Divergent factor loadings occurred in the retrospective, locus of cause condition for patients and caregivers. In the offset or prospective condition, the factor loadings of items were the same for patients and family caregivers, resulting in 'Chance' and 'Team' control sub-scales. In the context of ongoing management of the disease, clinicians need to support, adapt, or develop a philosophy of cancer care that is inclusive of triadic partnerships which reflect the perceptions of patients and caregivers who both perceive that controlling or managing lung cancer is a team effort; that is, inclusive of the patient, family caregiver, and someone else we assumed to be the oncologist

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HOPE IN ONCOLOGY PATIENTS ON REGULARLY SCHEDULED OPIOID ANALGESICS COMPARED WITH THE GENERAL POPULATION.

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Hope is considered an important factor in patients' personal adjustments during times of loss, uncertainty, and suffering. Hope was identified as an essential element in the lives of people with cancer. However, no studies have compared levels of hope in oncology patients with those of a general population.

The purpose of the study was to compare levels of hope in a sample of hospitalized oncology patients with pain with those from the general Norwegian population. The individual item and total Herth Hope Index (HHI) scores were compared in these two groups. The University of California, San Francisco's Symptom Management Theory served as the theoretical framework for the study.

A total of 225 adult patients who were receiving regularly scheduled opioid therapy, had a verified cancer diagnosis, and were able to sign the informed consent were recruited for this study. Patients and members of the general population completed the HHI. Data were analyzed using descriptive statistics, and one-sample t-tests. The oncology inpatients with pain had a significantly higher total HHI score than the general Norwegian population and for 4 of the 12 individual HHI items. The oncology inpatients reported higher scores on the items "I can see a light in a tunnel", "I have a faith that gives me comfort", "I can recall happy/joyful times", and "I have deep inner strength". However, the oncology inpatients reported significantly lower scores on the item "I feel scared about my future."

The higher levels of hope in the oncology inpatients with pain compared with the general Norwegian population may reflect a "response shift" in the patients' evaluation of hope. While the difference is relatively small, it may represent a clinically meaningful difference.

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INTERVENTION TO SUPPORT HOPE IN MIDLIFE CANCER SURVIVORS.

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The nearly 1.5 million people diagnosed with cancer every year face numerous challenges, many of which arise after initial treatment is completed and survivorship begins. The Institute of Medicine has specifically called for research on interventions to improve the quality of life (QOL) of cancer survivors.

This research will address the problem that cancer patients are lacking information and support needed to make the transition to survivorship. Research shows that hope is needed throughout the cancer experience, especially during transitions; that the transition from treatment to survivorship is a period when the individual is open to change; that addressing hope can lead to an increase in QOL; and that a developmental approach is appropriate. This study will pilot test a psycho-educational group intervention, the Mid-Life Directions™ (MLD) Workshop, for its effect on hope and QOL in midlife cancer survivors transitioning from initial treatment to survivorship. The research framework utilizes the Roy Adaptation Model, the City of Hope Quality of Life Model, the Hope Process Framework and Erikson's stages of psychosocial development. The MLD Workshop promotes adaptation to life as a cancer survivor through the integration of the cancer experience and the identification of new meaning and goals.

A multi-method experimental design is used to randomly assign 122 participants to either the intervention group, receiving the MLD workshop, or the control group, receiving a Nutrition program, over six weeks. Hope and QOL will be measured pre- and post-intervention using the Herth Hope Index and the City of Hope Quality of Life Instrument, Patient/Cancer Survivor Version, and analyzed using repeated measures ANOVA. Both instruments have demonstrated reliability and validity in this population. Themes from written reflections of the intervention group will be triangulated with quantitative results.

The treatment group when compared to the control group will have increased hope and improved quality of life post-intervention. Support of this hypothesis would justify replication with a larger sample and provide an increased understanding of nursing interventions to support hope and quality of life in cancer survivors.

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SHIFTING FAMILY BOUNDARIES AFTER DIAGNOSIS OF CHILDHOOD CANCER IN STEPFAMILIES.

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A child's cancer diagnosis creates distress in the family. Up to 1/3 of US children will be members of a stepfamily before adulthood and yet stepfamilies' cancer experiences have not been previously described. We therefore do not know if a diagnosis of childhood cancer in stepfamilies represents a greater risk for negative psychosocial family outcomes.

Parents from a grounded theory study of treatment decision making in structurally diverse families identified stressors that intensified their emotional distress after the child's diagnosis including managing the illness alone, conflict with the former partner/spouse, and the pain of interacting with the other person/spouse. I conducted this secondary analysis to describe the impact of diagnosis of childhood cancer on parental relationships in stepfamilies.

In keeping with tenets of qualitative methods, I designed the study to provide an interpretive description of parent experiences and therefore did not apply a theoretical framework to inform the study.

I used secondary analytic methods described by Hinds et al. and Thorne to analyze data from nine parents in three stepfamilies from the original sample to focus on the new question regarding impact on parent relationships. All parent participants from the original study gave permission for subsequent analyses. This secondary analysis was an exempted IRB protocol.

Childhood cancer in stepfamilies affected more than one family. After the diagnosis an abrupt shift occurred in the biological parent family subsystem boundary surrounding the child with cancer, creating boundary ambiguity for stepparents. Most stepparents tolerated ambiguous boundaries and resultant distress until the child's condition stabilized, time passed and family boundaries returned to familiar margins. The changed relationship dynamics created instability in families who were trying to cope with what most parents described as their most stressful life experience. Through increased understanding of the likely shifts in family boundaries that occur after diagnosis of cancer in stepfamilies, clinicians can anticipate these shifts and provide supportive interventions to reduce overall family distress and conflict. These distinctive stepfamily responses underscore the need to include structurally diverse families in future trials targeting parental coping in childhood cancer.

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OPTIMAL WAY IN WHICH TO EXAMINE DISTRESS IN HOSPITALIZED CANCER PATIENTS.

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Cancer patients experience high levels of distress which extends along a continuum ranging from normal feelings of vulnerability and sadness to depression and anxiety. Oncology clinical practice guidelines recommend the use of a rapid screening tool to measure distress in patients at diagnosis and when a change in status occurs. However, these tools must accurately and efficiently measure distress in cancer patients at multiple points where a status change occurs. Hospitalization for a cancer patient is indicative of a change and is an essential time to assess distress. Accurate measurement of distress is necessary in order to design interventions that lead to improved outcomes.

Distress assessment tools are being used in evaluating ambulatory cancer patients. Empirical evidence of their usefulness is needed to ensure these tools accurately measure distress in hospitalized cancer patients. The primary purposes of this pilot study were to: (1) examine levels of overall distress, emotional distress, and problem-related distress of hospitalized cancer patients; (2) determine the feasibility and usefulness of using 3 distress rating tools (The Distress Thermometer, The Emotions Thermometer Tool, the Moores UCSD Cancer Center Distress Tool) with hospitalized cancer patients; and, (3) assess the performance of the three instruments when compared with well established, valid, reliable tools (Hospital Anxiety and Depression Scale; Memorial Symptom Assessment Scale).

This study was based on the concept of distress as defined by the National Comprehensive Cancer Network (NCCN) that defines distress as a "multifactorial unpleasant emotional experience of a psychological (cognitive, behavioral, emotional), social and or/spiritual nature that may interfere with the ability to cope effectively with cancer, its physical symptoms and its treatment."

Fifteen hospitalized cancer patients were interviewed for responses to the Emotions Thermometer Tool, the Moores UCSD Cancer Center Distress Tool, the Hospital Anxiety and Depression Scale, and the Memorial Symptom Assessment Scale. The feasibility and acceptability of using the Emotions Thermometer Tool and the Moores UCSD Cancer Center Distress Tool in hospitalized patients was evaluated. The construct validity of the instruments was investigated. In addition, ROC Analysis measured the performance of each instrument and established the advocated instrument to use to evaluate distress in hospitalized cancer patients. The Moores UCSD Cancer Center Distress tool may be a useful tool in screening for anxiety, depression, symptom experience, and distress in hospitalized cancer patients.

These findings will be used to inform future studies related to distress in hospitalized cancer patients.

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PERCEPTION OF CHOICE REGARDING THE USE OF HEMATOPOIETIC STEM CELL TRANSPLANTATION (SCT) AS A TREATMENT FOR FANCONI ANEMIA (FA).

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FA is an autosomal recessive disorder of chromosomal instability associated with congenital anomalies, cancer susceptibility, and bone marrow failure. SCT is the only cure for bone marrow failure; transplant protocols are modified to deal with severe pretransplant toxicities and post-transplant complications. SCT also increases the risk of subsequent solid tumors.

It is assumed that FA families are equipped to make decisions regarding SCT, but no data currently exist. We surveyed FA patients and their families to better understand factors that influence their decisions about SCT. Specifically, we aimed to understand how perceptions of the need and associated risks of SCT influence the choice to undergo SCT.

The naturalistic paradigm was used to explore how individuals construct their treatment reality within their respective social contexts.

Members of the FA family organizations in the US and Canada were sent a self-report survey. Items about decision-making were adapted from The Beliefs about Medicines Questionnaire which assesses respondents' beliefs about the necessity, risks, and concerns regarding a medical intervention, in this case SCT. The three predictor variables (necessity, risk and concern) were measured by core items on a 4-point Likert scale; logistic regression examined the direct effect of each of the predictor variables on the outcome variable, selection or refusal of SCT. We also analyzed three open-ended, descriptive questions to inform the quantitative findings; NVivo 7.0 software facilitated qualitative content analysis.

Respondents for 223 individuals with FA (44% of those surveyed) were included. In bivariate analyses, perceived necessity and risk showed significant relationships with SCT ($p < 0.01$). In logistic regression analyses including all three predictors, only perceived necessity was significantly associated with the decision to undergo SCT. One theme emerged from the descriptive data:

lack of perceived choice regarding the use of SCT in FA. This theme was characterized by how physician influence and patient quality of life entered into the ultimate decision. These results suggest areas of emphasis for future research and counseling of FA patients and their family members.

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THE IMPORTANCE OF HOPE AS A MEDIATOR OF PSYCHOLOGICAL DISTRESS AND QUALITY OF LIFE (QOL) IN A COMMUNITY SAMPLE OF CANCER PATIENTS.

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QOL is an important outcome variable in oncology research. Psychological distress and hope are significant resources for cancer patients, but the relationships between hope, psychological distress, and QOL have not been evaluated in detail in cancer patients. Few studies include hope as an independent or dependent variable in research on QOL.

The purpose of this study, in a community-based sample of cancer patients was to evaluate the relationships between demographic and clinical characteristics, health status, hope, psychological distress, and QOL and evaluate whether hope mediated the relationship between psychological distress and QOL.

The conceptual model of QOL proposed by Wilson and Cleary and revised by Ferrans and colleagues served as the theoretical foundation for the study.

In this cross-sectional study, participants (n=194) completed a demographic and clinical questionnaire, a single item of self-assessed health, the Herth Hope Index, Impact of Event Scale, and a single item rating of QOL. Structural regression models (SRM) were examined to evaluate the inter-relationships among these variables, with QOL as the primary outcome.

The majority of the participants were women (81%) with breast cancer (38%). In the univariate analyses, poor self- reported health was associated with lower levels of hope. In addition, poor self-reported health and lower hope were significantly related to higher levels of psychological distress. In the final SRM, poorer health, lower hope, and higher psychological distress were significantly related to lower QOL. This model explained 60% of the variance in QOL. Of note, hope was found to mediate the relationship between psychological distress and health status, such that the direct association between distress and health status was no longer significant with hope in the model. Finally, hope partially mediated the association between psychological distress and QOL.

These data suggest that hope is an important dimension of QOL. Hope may be an important coping mechanism for patients with cancer that should be considered when trying to reduce the psychological distress associated with cancer.

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QUALITY OF LIFE IN PEOPLE EXPERIENCING GRAFT VERSUS HOST DISEASE FOLLOWING ALLOGENEIC BONE MARROW/STEM CELL TRANSPLANT.

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Graft versus host disease (GVHD), a common complication of allogeneic bone marrow and/or stem cell transplant (BMSCT), has multiple, well-documented complications. Most studies concerning quality of life (QOL) following BMSCT have given limited attention to GVHD and its impact on QOL. In the few studies that focused on GVHD, it was found to be a predictor of poor QOL in BMSCT patients.

Research about QOL of BMSCT patients who develop GVHD has been limited despite identification of QOL and symptom management as research priorities. The purpose of this pilot study was to test the feasibility of a future study to describe perceptions of QOL over time and to explore self-care management strategies used by people experiencing GVHD after undergoing allogeneic BMSCT.

The study framework was Roy's Adaptation Model.

This pilot study used a descriptive, longitudinal design with repeated measures. Convenience sampling was used to recruit subjects admitted for allogeneic BMSCT to an inpatient BMSCT unit in north Texas. Perceptions of QOL were measured at enrollment and at one, three, and six months after BMSCT using the Functional Assessment of Cancer Therapy–Bone Marrow Transplant. Symptoms of GVHD were measured at one, three, and six months after BMSCT using the modified Chronic GVHD Symptom Scale. Audiotaped interviews are in progress to assess perceptions of QOL and self-care management strategies.

Twenty participants were enrolled, nine of whom died during the study. Participants were mostly married (n = 16), white (n = 17), males (n = 11) with average age 53.3 years old (range 28-67). Multivariate analysis of variance for repeated measures revealed no significant changes in QOL or GVHD symptoms, although the small sample size limited power to find significant differences. Strong inverse relationships were found between QOL and GVHD symptoms at one month ($r = -.75$, $p = .002$, $n = 14$) and three months ($r = -.825$, $p = .006$, $n = 9$) after transplant. Future studies are needed to explore QOL and self-care management strategies of people experiencing GVHD after allogeneic BMSCT with the aim of identifying nursing interventions to decrease the impact of GVHD symptoms and promote QOL.

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PSYCHOSOCIAL ASPECTS OF LIVED EXPERIENCES OF PARENTS HAVING CHILDREN WITH CANCER IN IRAN.

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Threatening nature of cancer and aggressive treatments are the major causes of stress for the families. When a child is involved in a serious illness, apart from hardships regarding acceptance of the case, parents should not only be able to carry on their daily routine, but also control additional burdens resulting from this particular case.

This paper is a report of psychosocial aspects the lived experiences of parents whose children were diagnosed with cancer in Iran. In this qualitative study we examine psychosocial aspects of the lived experiences of parents whose children were diagnosed with cancer. Fifteen parents whose children had been under cancer treatment for at least one year took part in the study. The participants were between 25 to 45 years old, 4 of whom were fathers and 11 were mothers. Data was collected by individual interviewing. Diekelmann's phenomenological analysis approach was used.

Psychosocial aspects in lived experiences of parents whose children with cancer were: restraining feelings, devastated life, doomed to accept, isolation from others. In this study parents felt faulty or guilty and start thinking about their previous deeds. They blamed themselves and considered the disease as a payback for their own deeds; child's disease and society's unpleasant attitude about cancer patients caused the parents to get isolated. Disorder in the normal routine and disruptions in life discipline are important problems in the process of taking care of these children. Considering the trend of disease through time, being hospitalized time after time due to the side-effects of treatments, they eventually get to accept the truth of the disease.

Nurses in the cancer wards must be able to feel, console and remove parents' pains and grief's, also create a peaceful environment and a friendly atmosphere to decrease the tensions created by the child's disease.

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QUALITY OF LIFE AND OTHER OUTCOMES IN PATIENTS WITH ADVANCED CANCER AND THEIR FAMILY CAREGIVERS: A RANDOMIZED CLINICAL TRIAL.

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Cancer progression has a detrimental effect on patients and family caregivers. They need care that is family-focused and targeted to their needs. Screening patients' risk for distress status (high versus low), and providing them with interventions to meet their level of need, can improve clinical outcomes.

Few intervention programs assist patients and caregivers to manage advanced cancer and maintain their quality of life. This study examined whether: 1) patient-caregiver dyads randomly assigned to a brief or extensive intervention (FOCUS Program) had better outcomes than dyads randomly assigned to usual care, and if 2) patients' risk for distress had a differential effect on outcomes.

Stress-coping theory guided this study.

Advanced cancer patients (N=300) were stratified by cancer type (lung, colorectal, breast, prostate) and baseline risk for distress (high versus low), and then randomly assigned with their caregiver to a Brief (3 sessions) or Extensive (6 sessions) intervention or Usual care. The intervention addressed communication, optimism, coping, uncertainty, and symptom management. Intervention fidelity was documented. Outcomes were assessed using valid and reliable instruments: risk for distress (Mood RFD), appraisal (Oberst AIS), uncertainty (Mishel MIUS), support (SSQ), self-efficacy (Lewis CASE), communication (Lewis MIS), coping (Brief COPE), depression (CES-D), and quality of life (FACT-G). Data were collected pre-intervention and 3 and 6 months post-intervention. ANCOVA (3 intervention levels, 3 time points, 2 risk levels) was used to evaluate outcomes.

Significant time-by-group interactions indicated higher self-efficacy for intervention patients versus controls ($p<.01$); and, for intervention caregivers versus controls, better quality of life ($p<.01$), less depression ($p<.06$), and less avoidant coping ($p<.05$). Three-way interactions ($p<.01$) indicated that high risk intervention patients reported increased social support and low risk intervention caregivers reported better communication than low risk controls. Additional intervention effects were found between the extensive versus brief intervention groups. Risk status accounted for fewer differential effects than expected, but remained a strong predictor of initial need-for-care status for both patients and caregivers. Implications suggest that interventions can improve patient-caregiver outcomes and longer interventions generally are more effective for dyads facing advanced cancer.

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FACTORS INFLUENCING HOPELESSNESS AND COMPLEMENTARY THERAPY (CAM) USE IN PATIENTS WITH OVARIAN CANCER.

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Hopelessness affects cancer patients' overall quality of life (QOL). Despite widespread use of CAM to improve patients' QOL and hope, there is little evidence demonstrating beneficial effects. Oncology nurses need effective, evidence-based interventions to treat disease symptoms and treatment side effects during and after treatment.

The purpose of this study was to examine factors influencing hopelessness and CAM use in patients with ovarian cancer in 3 phases of illness: new diagnosis, recurrence and survivorship.

The Conceptual Model for Nursing and Health Policy guided this study, pointing the findings to the future development of interventions to reduce hopelessness and improve overall QOL.

Descriptive statistics summarized patient characteristics and patterns of CAM use. Correlation analyses described associations between variables of socio-demographics, disease state, psychological distress, physical QOL, and faith as causal variables influencing hopelessness and CAM use. Multivariate analyses quantified the hypothesized direct and indirect effects of independent variables on the outcome variable. A dataset (N=219) was concatenated from primary data in 3 QOL studies of ovarian cancer patients in treatment at hospitals within the Dana-Farber Harvard Cancer Center.

Several factors directly reduced Beck hopelessness scores (mean = 3.37): age >65 (-0.95, P=0.03), strong faith (-0.28, P=0.00), well controlled disease symptoms and treatment side effects, (0.11, P=0.00). Unexpectedly, massage therapy substantially reduced hopelessness (-1.07, P=0.02). Holding age constant, employed patients were twice as likely to use massage (OR 2.09; P=0.04). Survivors were less hopeless due to better physical QOL. CAM use was most frequent amongst patients age<65, more educated, with strong faith and well controlled disease symptoms/side effects. The least hopeless patients were survivors, age >65, employed, who were using massage, and had strong faith and well controlled disease symptoms/side effects. Future research should test massage interventions in a randomized controlled trial and an expanded cancer population. A longitudinal, multi-site study would increase diversity, deepening knowledge of study variables' changing effects on hopelessness and CAM use.

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DOES WHERE YOU LIVE MATTER? RURAL/URBAN DIFFERENCES FOR OLDER PERSONS WITH ADVANCED CANCER.

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There is a growing understanding that geographic location (rural versus urban) makes a difference in the ability of palliative care patients to access services. These geographic inequities are expected to rise along with the increase in the numbers of persons over the age of 65. Outcomes related to geographic locations, other than location of death, appear to be missing from reported research

The World Health Organization suggests that the purpose of palliative care is to promote quality of life. Does geographic location have an impact on the quality of life of terminally ill cancer patients? The purpose of this study was to conduct a secondary analysis of baseline data comparing quality of life and hope of older palliative home care patients in rural versus urban locations in a western Canadian province. It was hypothesized that there would be no difference between the rural and urban subjects in quality of life (McGill Quality of Life Questionnaire) and hope (Herth Hope Index).

Duncan's health geography framework of place guided this study.

A secondary analysis of baseline data of hope and quality of life that was collected as part of a psychosocial intervention study was completed. Demographic and responses to the Herth Hope Index (HHI) and McGill Quality of Life Questionnaires (MQOL)

data were collected from palliative home care patients. To test the hypothesis the Mann-Whitney U test and Wilcoxon statistics were used.

Of the 58 subjects enrolled, 34 were from 2 rural health regions without a comprehensive palliative care service and 24 from an urban health region. Demographic variables were not significantly correlated with hope or quality of life scores. Urban subjects reported significantly higher quality of life (U=218.5, p=.003) and hope (U=225, p=.004) than subjects living in rural health regions. These findings suggest that geographic location has an impact on quality of life and hope of older palliative care patients and underscore the growing call for changes to the delivery of rural palliative care. Oncology nurses who work with persons with advanced cancer should consider how to increase the support for their rural patients.

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TRAJECTORY OF AND BIOBEHAVIORAL FACTORS ASSOCIATED WITH SYMPTOMS IN ADOLESCENTS WITH CANCER.

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This pilot aimed to examine the trajectory of and relationships between commonly occurring symptoms (pain, difficulty sleeping, appetite, nausea, fatigue) and biobehavioral factors (stress, anxiety, hematologic function) during a cycle of chemotherapy.

Adolescents with cancer (AWC) find symptoms extremely challenging to tolerate. Improving self-management may reduce symptom burden but few studies have addressed this, with only a subset demonstrating improvement. Effectiveness of symptom self-management interventions for AWC may be enhanced by timely delivery of the intervention. As suggested by the Shifting Perspectives of Chronic Illness model, adolescents' readiness to learn how to manage illness may be enhanced by timing interventions with symptom occurrence. Thus understanding the symptom trajectory as well as biobehavioral factors that influence the symptom experience is critical for developing timely interventions.

Participants completed measures at: days 1 (T1) and 2 (T2) of the cycle, day 7 (T3, nadir), and day 1 of the next cycle (T4). Self-report measures of symptom severity, anticipatory anxiety, and state/trait anxiety, and biological measure of stress (salivary alpha amylase) and hematologic function (hemoglobin, absolute neutrophil count, platelets) were obtained. Nine recently diagnosed adolescents with cancer, ages 13–18 years, participated, for a total of 33 data collection points. Four were female, five were African American. The majority (n=7) reported 3 or more symptoms at each time. Using a simple random effects model treating subjects as random, significant changes in severity occurred over time with fatigue (p=0.003), difficulty sleeping (p=0.03), and nausea (p=0.04). At T1, anticipatory anxiety significantly correlated with nausea (r=0.86) and platelets with sleep (r=0.02). At T2, nausea correlated with appetite (r=0.75) and trait anxiety with sleep (r=-0.82). At T3, state and trait anxiety were both correlated with platelets (r=-0.84, -0.81 respectively), and stress (salivary alpha amylase) with pain (r=0.78). At T4, fatigue was significantly correlated with difficulty sleeping (r=0.78).

Significant symptom burden occurred across the cycle. Anxiety and stress correlated with several symptoms.

The significant trends in the trajectories suggest periods of suffering when self-management interventions could be targeted—not only during chemotherapy but particularly at nadir. Anxiety and stress may be critical factors to address when developing interventions.

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A BIO-BEHAVIORAL THEORY OF WORRY FOR ONCOLOGY NURSING RESEARCH AND PRACTICE APPLICATION.

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Worry, the aversive cognitive processing that occurs in threatening contexts, is a ubiquitous but highly relevant source of distress that contributes to lowered quality of life in individuals facing cancer. Individuals with cancer who have severe worry and multiple concerns are prone to long-term problems with psychological adaptation.

Worry has profound impact on how information is interpreted, integrated, and stored in memory. While shown to have both adaptive and maladaptive consequences, delineating factors that cause worry to become uncontrollable, perceived as problematic, and to need intervention are not well understood. Thus, the purpose of the inquiry was to integrate empirical findings to develop a bio-behavioral theory of worry for nursing application.

Using Walker and Avant's theory synthesis methodology, a systematic literature search was conducted for papers published between 1990 and 2010, a time period characterized by burgeoning worry-related conceptual research. Sentinel books prior to 1990 were also examined.

The theory synthesis culminated in development of a patient-focused, culturally sensitive bio-behavioral framework of worry. The framework links concepts of perceived threat, worry, and cognitive structure formation. Person-context characteristics determine degree of perceived threat that leads to worry. Worry is adaptive when it abates with threat resolution, reduces negative affect, enables problem-solving, and leads to integration of content promotive to adjustment. When worry is more severe, it is highly distressing, difficult to inhibit, and sustained. Worry strengthens threat-related content in memory. The stronger cognitive structures with heightened threat content bias tendencies towards perceiving threat, contributing to more severe worry. Negative outcomes of worry include cognitive dysfunction, heightened symptom perception, anxiety, and depression.

Oncology nurses routinely interact with worried patients and families, are tasked with assisting individuals to psychologically adapt to illness threats, and are in a central position to develop evidence-based interventions to manage severe worry. The theory synthesis permits the development of research questions and hypotheses that can be tested systematically, and can be used as a foundation for design and testing of context-based, process oriented, or cognitive-behavioral nursing interventions to reduce negative outcomes related to worry and to promote psychological adaptation in cancer.

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GENDER DIFFERENCES IN PREDICTORS OF QUALITY OF LIFE IN PATIENTS AT THE INITIATION OF RADIATION THERAPY.

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An evaluation of a patient's quality of life (QOL) is an integral component of cancer care. However, little is known about gender differences in the predictors of QOL outcomes in patients at the initiation of cancer treatment.

The purposes of this study, in a sample of male (n=96) and female (n=89) oncology patients prior to the initiation of radiation therapy (RT), were to determine the predictors of QOL and whether the percent of explained variance and the specific predictors differed by gender.

In the UCSF Theory of Symptom Management, patients' symptom experiences, as well as their demographic and clinical characteristics can have an effect on patient outcomes (i.e., QOL).

At the RT simulation visit, patients completed a demographic questionnaire, the General Sleep Disturbance Scale, Spielberger State Anxiety Inventory, Center for Epidemiologic Studies-Depression Scale, Lee Fatigue Scale, and Multidimensional Quality of Life Scale Cancer. In addition, patients wore a wrist actigraph to evaluate for sleep disturbance. All instruments have well-established validity and reliability. Linear regression analysis was done to determine the significant predictors of QOL in male and female patients.

For female patients, 65% of the variance in total QOL scores was explained by age (16.7% unique variance), functional status (6.8%), depressive symptoms (19.6%), and total sleep time (4.2%). For male patients, 74% of the variance in total QOL scores was explained by age (1.7% unique variance), ethnicity (2.6%), functional status (1.7%), number of comorbidities (1.8%), anxiety (5.6%), depressive symptoms (4.0%) and level of morning fatigue (1.6%). While the percentage of explained variance in QOL was large, gender differences were found in the actual predictors of QOL and in their relative contributions to variability in QOL between males and females. These gender differences in the predictors of QOL may be useful in the design of interventions to improve QOL in patients at the initiation of RT.

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SURVIVORSHIP AFTER PROSTATE CANCER TREATMENT: SPOUSES' APPRAISAL AND QUALITY OF LIFE AT 36 MONTHS.

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Spouses report more emotional distress following treatment for prostate cancer than their husbands report. Whether spousal distress continues into survivorship is not well understood.

The study's purpose was to determine the long-term effects of prostate cancer treatment on spouses' appraisal of caregiving and their quality of life (QOL).

The stress-coping model adapted from Lazarus and Folkman indicates that a series of pre-existing factors influence how individuals appraise a caregiving experience and manage the demands related to it which can affect their quality of life.

Spouses of men treated for early stage prostate cancer were recruited to participate in this descriptive, multi-site study 36 months following treatment. Computer-assisted telephone surveys were used to collect data. The sample consisted of 97 spouses, mostly female, mean age 60. Appraisal and quality of life were measured using psychometrically sound instruments: Appraisal of Caregiving (measuring stress, threat, and benefit), Dyadic Adjustment Scale (marital satisfaction), Sexual Satisfaction Scale, SF-12 (Generic QOL) and Caregiver Quality Of Life-Cancer (CQOLC). Correlation analysis and multiple regressions were used.

Correlation analysis revealed a significant relationship between spouses' negative appraisal and quality of life outcomes. Spouses who perceived more bother from their husband's treatment outcomes had more negative appraisal, less marital and sexual satisfaction and lower quality of life. Multiple regressions conducted on the appraisal of caregiving and quality of life measures, showed that stress significantly affected marital satisfaction ($t = 2.84$, $p = .006$) and mental quality of life ($t = 2.93$, $p = .005$) and negative appraisal [stress ($t = 5.15$, $p < .0001$), threat ($t = 4.32$, $p < .0001$), and benefit ($t = -5.19$, $p < .0001$)] affected quality of life.

Spouses' negative appraisal of caregiving resulted in lower quality of life. Men's treatment outcomes (sexual dysfunction and hormone problems) continued to bother spouses and resulted in more negative appraisal and lower quality of life at 36 months following treatment. Findings support the concept that prostate cancer affects not only the person diagnosed with the disease but also his partner. Tailored interventions designed to decrease negative appraisal (stress and threat) and improve quality of life during survivorship may benefit spouses.

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THE EFFECT OF "HOME-BASED AEROBIC EXERCISE PROGRAM" ON QUALITY OF LIFE IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA DURING MAINTENANCE OF CHEMOTHERAPY.

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Cancer diagnosis and its treatments for pediatric oncology patients are often associated with many negative side effects that significantly impact on their quality of life (QOL). Effective intervention for maintain and improve QOL in clinical practice is essential for improving children's quality of health care.

The aim of this study was to examine the effect of the " home-based aerobic exercise intervention" on QOL in children with Acute Lymphoblastic Leukemia during the maintenance stage of chemotherapy.

Psychobiological-Entropy Model suggested by Nail and Winningham was used to guide this study. Disease and its treatment are associated with many distressing symptoms which may lead to decreased patients' functional status as well as QOL. Any intervention that provides relief of a symptom that contributes to decreased activity may also serve to promote physical functioning, and may enhance QOL in children undergoing treatment for cancer.

A quasi-experimental study was conducted with twelve pediatric oncology patients in the experimental group and 10 in control group who were matched by age and sex. A six-week home-based aerobic exercise intervention was implemented for children who were in the experimental group while patients in the control group only received the usual care. Self-reported QOL data, assessed by quality of life for children with cancer (QOLCC). The QOLCC includes four generic subscales (Physical, Psychological, Cognitive, and Social functioning) and one disease specific subscale (Disease/Symptoms). The reliability of each subscale ranged from 0.69 to 0.79 and the construct validity was established in our previous study. Data were collected for 3 time points, including pre-intervention (baseline), post-intervention (after the completion of intervention), and 1-month follow up (one month after completion of intervention). Univariate and multivariate analyses (mixed effects mode) were performed in order to assess the specific hypothesis for this study by using the intent-to-treat analysis (ITT) as well as the per-protocol analysis (PP).

For both ITT and PP, the findings indicated that children who received the exercise intervention reported significantly improvement in psychological subscale ($F=12.05$; $p=0.001$; $F=8.98$; $p=0.006$) and total QOL scores ($F=4.22$; $p=0.046$; $F=4.42$; $p=0.045$) than those in the control group at post-intervention, but not at 1-month follow up. However, the findings indicated that there were no intervention and time effect for the subscales of physical, cognitive, social functioning, and disease/symptoms at either post-intervention or 1-month follow up. We hope this study will provide useful knowledge about the strategy for improving QOL for childhood cancer in clinical practice, furthermore, to improve quality of nursing care for children with cancer.

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THE EFFECT OF COMBINING FLAXSEED OIL, CAFFEINE, FASTING, AND EXERCISE ON TUMOR BURDEN IN WOMEN DIAGNOSED WITH STAGE III OR IV OVARIAN CANCER: A PILOT STUDY.

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Research has shown the cytotoxic effects of omega-3 fatty acids on tumor cell growth, which could subsequently reduce tumor burden and improve the patient's health-related quality of life (HQoL). Studies have found that fasting, caffeine, and exercise may enhance the beneficial effects of these omega-3 fatty acids by increasing serum levels of free fatty acids.

In women, ovarian cancer (OC) is the fifth leading cause of death and has the highest mortality rate when compared with other gynecological cancers. Prognosis for patients diagnosed with OC is associated with the stage at diagnosis. Approximately 75 to 80% of women present with advanced stage OC and have a low 5-year survival rate of 20%. Although 80% of patients initially respond to conventional medical treatment, most women will experience recurrent disease. Not only does treatment for recurrent disease remain limited, difficult, and challenging, it also commonly results in emotional distress, physical suffering, and death.

A potential treatment option for women with recurrent OC may be enhancing the effects of omega-3 fatty acids through an intervention that includes fasting, the consumption of omega-3 fatty acid and caffeine, combined with exercise.

The General Clinical Research Center-supervised intervention will occur over a three-day period once a month, over the course of 3 months. Data collection is currently in progress. Enrollment will be reached when 20 participants have been recruited. Analysis will include descriptive statistics on all continuous variables, as well as percent improvement over time for each variable.

The findings from this study may lead to larger trials that potentially could reveal significant reduction in the CA-125 tumor marker level and disease-related symptoms, enhancing the HQoL in women who currently have limited or no other treatment options.

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PREDICTORS OF HEALTH-RELATED QUALITY OF LIFE AT ONE MONTH AFTER HEAD AND NECK CANCER SURGERY.

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Head and neck cancer (HNC) survivors frequently experience treatment-related complications that may cause decrements in health-related quality of life (HRQOL). Before interventions can be designed to enhance HRQOL in the early postoperative period, descriptive research is needed to determine predictors of HRQOL in this understudied population.

The proposed study identified predictors of global HRQOL, and physical, functional, emotional, and social well-being at one month after HNC surgery. Variables examined as potential predictors included shoulder pain, shoulder function, and functional impairments (disfigurement, and eating, speech, and breathing impairments).

The University of California, San Francisco School of Nursing Symptom Management Model was modified and used to guide the study.

In this exploratory, cross-sectional study, we examined a convenience sample of 29 patients who had undergone HNC surgery with curative intent one month previously. Global HRQOL was measured using the Functional Assessment of Chronic Illness Therapy (FACIT) General Scale, including four well-being subscales. Shoulder pain intensity was measured using the Brief Pain Inventory, shoulder pain distress was measured using a 0-10 numerical rating scale, and functional impairment was measured using the FACIT Head and Neck Subscale. Shoulder function was assessed using a goniometer. Pearson correlations were initially applied to determine correlates ($p < 0.20$) that should be entered in subsequent stepwise regression models.

The only significant predictor of global HRQOL was eating impairment ($B = -0.20$, $p = 0.02$). Predictors of physical well-being were shoulder pain distress ($B = -0.10$, $p = 0.02$) and eating impairment ($B = -0.27$, $p = 0.03$). Predictors of functional well-being were speech impairment ($B = -0.43$, $p < 0.01$) and disfigurement ($B = -0.20$, $p = 0.02$). No significant predictors were found for emotional and social well-being.

The findings suggested that patients' physical and functional well-being can be influenced by eating impairment, shoulder pain distress, speech impairment, or disfigurement at one month after HNC surgery. Nurses need to monitor nutrition intake, provide proper pain management, and collaborate with speech and physical therapists to promote early rehabilitation. A longitudinal study with a larger sample size is warranted to describe needs for multidisciplinary care to improve HQOL after HNC surgery.

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THE IMPACT OF SOCIAL SUPPORT AND CONSTRAINT ON BREAST CANCER SURVIVORS AND PARTNERS.

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Most women who are diagnosed with breast cancer will experience a long, disease-free survival, but may experience social and psychological problems that impact their overall quality of life (QOL). Additionally, the diagnosis and treatment may affect partners of women who are diagnosed with breast cancer.

The purpose of this study is to determine if either the younger survivors' or their partners' QOL is significantly related to perceived support or constraint, depressive symptoms, and marital satisfaction. A second aim was to examine any differences on depression, perceived social support and constraint, marital satisfaction, and overall QOL between breast cancer survivors and their partners.

A theoretical model for predicting QOL, adapted from Ferrell and colleagues, informs research questions and analyses. Theoretically variables such as social support and social constraint, depression, and marital satisfaction predict QOL.

The sample consists of 494 younger survivors of which 227 had partners from whom data were collected. Breast cancer survivors were diagnosed at 45 or younger and are 3 to 8 years from diagnosis. Survivors were identified through the Eastern Cooperative Oncology Group and consented for a larger QOL study. After consent, women who were living with a partner were asked for permission to contact their partner about participating in the study. Psychological and social variables were measured by valid and reliable instruments as was overall QOL. Regression analyses were run separately for survivors and their partners. For survivors, perceived social support ($p=.001$), depression ($p=.001$), and marital satisfaction ($p=.014$) predicted well being. For partners depression ($p=.001$) and marital satisfaction ($p=.001$) predicted wellbeing. Additionally t- tests indicated that survivors had significantly higher levels of constraint and depression than partners, and partners have higher wellbeing than survivors.

The findings of this study indicated that depression and relationship factors are related to both the survivor and the partner's QOL as measured by the Index of Well being. Research must address

both the survivor and partner as we consider interventions to decrease survivorship problems.

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EXPLORING PROSTATE CANCER AMONG SINGLE MEN. A.J. Orsi, Nursing, San Francisco State University, San Francisco, CA

Prostate cancer is the most common cancer, excluding skin cancer, and the second leading cause of cancer-related death among men. Nearly 186,320 new cases were diagnosed in 2009, at which time there will be nearly two million prostate cancer survivors in the United States. Because most men are married the majority of the studies are about married men and little is known about the physiological effects of treatment on the psychosocial aspects in single men. The purpose of this study is to understand single men's psychosocial issues in response to the physiological effects of diagnosis and treatment.

The social cognitive processing theory will be used to guide this study. SCP theory integrates three key elements as related to positive psychological adjustment in cancer patients: (a) experience of diagnosis and treatment as a stressful or traumatic event, (b) extent of intrusive and avoidant cognitions related to the cancer experience, and (c) the role of the social environment in facilitating (or inhibiting) cognitive and emotional processing of the experience.

An interpretative, descriptive, qualitative design will be used. Approximately 30 single men will be recruited from a major cancer center in a large metropolitan city. Demographic questionnaires and qualitative interviews will be conducted. Interviews will be transcribed verbatim and analyzed.

Preliminary analysis of the interviews conducted August through December 2010 will be presented regarding how single men experience the psychosocial impact of diagnosis and treatment and specifically how the diagnosis and treatment impacted erectile dysfunction, urinary and bowl problems, sexual activity, intimate relationships, social support and access to care and comfort from providers. These data will illuminate how nurses can better assist men in the diagnosis and treatment and issues that need future research.

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ASSESSMENT OF HEALTH RELATED QUALITY OF LIFE (QOL) IN CLINICAL PRACTICE OF ONCOLOGY NURSES AND PHYSICIANS. W.C. Budin, Nursing Research, NYU Langone Medical Center, New York, NY; F. Cartwright, Oncology, NYU Langone Medical Center, New York, NY; A. Hill, Nursing/Psychosocial, NJ Commission on Cancer Research, Trenton, NJ; and K. Hennessy, Nursing/Psychosocial, NJ Commission on Cancer Research, Trenton, NJ

QOL is an important dimension of overall health status. It is defined as "a sense of well being which includes the perception of physical, psychological and spiritual functioning." Research suggests that routine use of QOL instruments as part of clinical practice has the potential to improve patient care outcomes. Because of the multidimensionality, complexity, and individuality of how QOL is perceived by each patient it warrants the use of evidence-based QOL assessment tools.

Currently there are a number of valid and reliable instruments that are able to distinguish patient outcomes that reflect quality of life. Although QOL assessments are widely accepted in clinical cancer trials, it is not clear if such recognition has taken place in the clinical practice setting. Purpose: 1) To determine the use of QOL assessment by oncology nurses and physicians in their clinical practices; 2)oncology nurses' and physicians' knowledge and use of specific QOL instruments; and 3) barriers to use of QOL assessment tools in their clinical oncology practice.

Gaining knowledge of health care providers' assessment of QOL in clinical practice must be pursued with the same rigor as the development of effective QOL tools.

Original survey developed by team of researchers and reviewed by experts in QOL. Survey was pre-tested for face validity and clarity on sample of physicians. Survey contained eight fixed choice and Likert type questions with an option to provide additional comments. Demographic information was collected from nurses. 264 physicians in medical, radiation, and surgical oncology practices and 790 oncology nurses responded.

Although 88% of physicians said they ask about QOL at every visit, only 12% used a standardized tool at every visit. 64% of nurses asked about QOL at every visit however only 23% use a standardized tool. When comparing the number and percentage of nurses and physicians who assessed specific area – there were statistically significant differences in several areas. Physicians reported that they assessed pain, sexual function, depression, physical function, and tx related symptoms more often than the nurses. There were no differences in rate of assessment of nausea, fatigue, emotional function, social function or role function. There were also no sig. differences between how often the nurses and physicians reported using standardized tools.Further research is needed on why oncology nurses and physicians do not routinely use standardized QOL tools.

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ADJUSTMENT OF MEN TO THE TREATMENT EFFECTS OF PROSTATE CANCER. S. Ballout, College of Nursing and Health Sciences, Florida International University, Miami, FL

Men around the world and particularly in the United States are faced by the increased prevalence of prostate cancer. The American Cancer Society (ACS) reported that 192,280 new prostate cases were diagnosed in the US in 2009. With the increased awareness and prostate-specific-antigen (PSA) screening, more men are diagnosed with prostate cancer annually. The purpose of this study is to identify behaviors that predict men's maladjustment and coping strategies to prostate cancer treatment effects.

Prostate cancer treatment options vary but the side effects are universal and include sexual dysfunction (erectile dysfunction and diminished desire), urinary incontinence, and bowel incontinence. Consequently, men go through an ordeal of emotional and cognitive burden. As a result, this experience is perceived to be major stressors and thus these men exhibit diverse adjustment behaviors that project of their psychosocial lives.

Lazarus's cognitive appraisal theory on stress and coping was used to guide the study and interview questions. A qualitative research design using content analysis is used to analyze 1 hour interviews of men with prostate cancer. Themes are extracted that describe the behaviors and coping strategies of men to adjust with prostate cancer treatment side effects.

Sexual dysfunction is the most common side effect of prostate cancer treatment (up to 80%) that affects men's physical, psychological, and social wellbeing. Men experience a great deal of distress, intimacy, and relationship issues. Accordingly, they report mood disturbances, poor marital adjustment, decreased spousal communication, and other negative changes in the partnered relationship. The need for a psychosocial intervention that includes family support, constructive couples' communication strategies, and sexual rehabilitation enhances the physical and psychological wellbeing of men. This understanding may provide a basis for the caring for these men. Also, it may act as a basis for developing programs that assist men and/or couples live through the experience smoothly. Ultimately, improving the coping strategies of these men and their partners is essential to promote their quality of life and functioning after the diagnosis of prostate cancer.

Health Promotion

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LIVING WITH HEREDITARY BREAST CANCER RISK. M. Underhill, Nursing, University at Buffalo, Buffalo, NY; and S.S. Dickerson, Nursing, University at Buffalo, Buffalo, NY

Women with high risk for hereditary breast cancer have up to an 86% lifetime chance of developing breast cancer. They are

advised to care for themselves differently than the average population. Pilot study data revealed that women participating in the Facing Our Risk for Cancer Empowered (FORCE) organization experienced hereditary breast cancer risk within the context of their past cancer experiences. Frequent medical appointments focused around breast cancer, resulted in the perception of illness despite being otherwise healthy. Access to a specialized breast program was cited as a valuable resource.

The purpose of the study was to explore, "How do women at high risk for hereditary breast cancer, with no personal history of cancer, incorporate this risk into their lives?" Primary aims: (1) understand how women living with knowledge of hereditary risk form self-identity, (2) explore practical knowledge and self care strategies women apply to managing this risk, and (3) describe the personal meaning of experiencing care through a high risk breast program.

An interpretive hermeneutic phenomenological approach will guide the qualitative research method to utilize narrative texts to capture the meaning of living with hereditary breast cancer risk.

25 women at high risk for hereditary breast cancer based on National Comprehensive Cancer Network (NCCN) guidelines, who have never had cancer, will be recruited from the Roswell Park Breast Cancer Risk Reduction and Assessment Program. Women will be asked open ended questions to elicit stories centered on personal experiences living as a women managing risk in context of receiving care from a high risk center. Interviews will last approximately 1-2 hours and will be audio taped, transcribed and de-identified for analysis. Consistent with hermeneutic methodology, the principal investigator will lead a team to analyze transcripts based on a modified Diekelman, Allen and Tanner method.

Results will provide clinicians with a deeper understanding of what it is like to live as a woman managing hereditary breast cancer risk and enhance clinician's ability to assess and communicate effectively. This will equip clinicians to provide more in-depth anticipatory guidance, health promotion and support.

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VIEWING MAMMOGRAPHY-SCREENING, DECISION-MAKING PROCESSES THROUGH THE LENS OF INTUITIVE AND REASONED THOUGHT.

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Breast cancer is a significant cause of mortality and morbidity. Impoverished women underutilize mammography screening resulting in a disproportionate cancer burden.

The problem is underutilization of mammography-screening services by medically-underserved women. Although factors related to mammography-screening behavior have been identified, little is known regarding the process of women's decision-making. Hence, the purpose of the study is to discover theory of mammography-screening decision-making processes.

A naturalistic paradigm provides the framework for a holistic and context-based approach to the problem.

Grounded theory is consistent with the inquiry regarding process. The sample consists of an estimated 20 impoverished women between the ages of 45 and 65. To date, 12 women have been recruited and interviewed. Analysis includes constant-comparison with open, axial, selective and process coding procedures. Results will be an explanatory theoretical model of mammography-screening decision-making. Standards of rigor include dependability, confirmability, and credibility. Dependability is evidenced by recording the interviews and transcription of the interviews using verbatim quotes. Peer examination is being used to minimize threats to consistency as well as to ensure confirmability. Researcher bias is minimized through peer examination of research intent, design, procedures, and data. Evaluation for credibility and internal consistency is accomplished through examination of the theoretical scheme by (a) checking for references to properties and dimensions of the central category in research documentation and (b) conducting member checks.

Preliminary findings suggest that dominant thinking style, i.e. intuitive or reasoned thought, impacts mammography-screening decisions. Cancer experiences, internal versus external knowledge, risk perception, trust, emotions, conflicting information, poverty, co-morbidities, and disability may interact within the context of dominant thinking style. Three models have emerged that illustrate these interactions and screening results: (a) Intuitive Dominance, i.e. intuition is the decision-making default resulting in mammography underutilization; (b) Intuitive Reliance, i.e. intuitive default emerges under certain circumstances resulting in mammography underutilization; and (c) Reasoned-Thought Reliance, a driving force resulting in regular mammography screening. Implications focus on nursing practice and client education, i.e. assessing for dominant thinking style in order to facilitate fully-informed decisions.

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A RECOMMENDED APPROACH FOR MEASURING EXERCISE IN HOME-BASED EXERCISE STUDIES.

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Measuring exercise in unsupervised settings poses multiple challenges. Patient-completed exercise logs, the most frequently used measure, are associated with concerns related to self-reported bias. These concerns are compounded by limited and conflicting evidence on the correlation between exercise logs and other exercise measures.

The purpose of this study was to test the validity of exercise logs against objective exercise measures and to determine the strength of the relationship between exercise logs and a well-validated Physical Activity Questionnaire (PAQ) in quantifying exercise levels. The parent study from which data were derived was guided by a theoretical framework adopted from the Levine Conservation Model. This model addresses fatigue and focuses on individual adaptation to maintain unity and integrity.

In this secondary analysis of data, we analyzed data from a home-based exercise clinical trial in which exercise was measured by pedometer use, daily exercise logs and the PAQ (completed pre-, mid-, and post-intervention). Spearman correlations were conducted to examine the associations between the three measures.

Results are based on 126 patients who completed the study. Missing data were present for 13.49% of the exercise logs and 12.77% of pedometer data. Excluding missing data, the average weekly exercise minutes from exercise logs ranged from 0-334 with a mean of 82.81 (s.d.=70.51). The average weekly steps recorded by pedometers was 42,363 (s.d.= 25,239). Five aerobic physical activities (walking, treadmill, jogging, swimming & biking) were chosen from the 15-item PAQ and converted to Metabolic Equivalent (MET) level values. MET values from the PAQ ranged between 0 -2,730 (mean=376, s.d.=443).

Spearman correlation showed that pedometer steps were significantly correlated with weekly exercise minutes calculated from exercise logs (spearman's rho=0.42, $t < 0.001$). Exercise log data were significantly correlated with the PAQ in quantifying exercise level (spearman's rho=0.67, $t < 0.001$). Findings suggest that low-cost self-reported exercise logs are a valid measure of exercise in unsupervised settings. The PAQ is also useful to supplement exercise data for participants with significant missing data on other exercise measures.

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CONCEPTUALIZING BEHAVIOR CHANGE IN THOSE AT RISK FOR CANCER; THE CASE OF THE HUMAN PAPILLOMAVIRUS (HPV) AND CERVICAL CANCER.

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This presentation will discuss the complexities of examining and conceptualizing health behavior changes in regards to a risk

of cancer, using the example of a diagnosis of HPV and Cervical Cancer.

There have been dramatic increases in the interest of preventing cancer through changes in lifestyle and participation in screening programs. Embodied in this interest has been the use and development of behavioral frameworks to represent the complex and multilayered approach to health behavior change. While the utlization of conceptual frameworks should reflect this multifaceted understanding, development and application of behavioral frameworks regarding a risk of cancer is not straightforward.

Applying a conceptual framework; the example of HPV. The oncogenic strains (high-risk types) of HPV are the major risk factor for cervical cancer; 99.7% of cervical tumors contain HPV-DNA. However, there are exogenous factors that influence the risk of progression from an HPV (high-risk) infection to cervical cancer. These factors are: smoking, high-parity, the use of the oral contraceptives and the presence of other sexually transmitted infections. It is indicated that three behavioral factors protect against persistent HPV and therefore prevent cervical cancer: safer sex practices, cessation of existing tobacco use and compliance with cervical cytology screening. Therefore the development of interventions to decrease the incidence of persistent high-risk HPV infections requires an understanding of the changes, if any, in the risk-relevant behaviors of women who receive a diagnosis of high-risk HPV.

This presentation will provide a proposed conceptual framework for women at risk for cervical cancer. It will highlight the strengths and weaknesses of such proposed framework while providing practical implications and recommendations for examining and conceptualizing behavior change within the cancer continuum.

This presentation will represent a preface with which health behavior change frameworks can be discussed within the cancer care setting. Furthermore, this work proposes to provide valuable insights into the relevant behaviors of women following a diagnosis of high-risk HPV.

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A PILOT STUDY OF HEALTH BEHAVIORS IN FAMILY MEMBERS OF PATIENTS WITH CANCER.

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After a cancer diagnosis many survivors contemplate and often make healthy behavior changes in relation to smoking cessation, nutrition, and exercise. However less is known about how the experience of cancer diagnosis and treatment impacts the health behaviors of family members. Understanding the degree to which an experience of cancer can trigger family members to make health behavior changes is critical to the development of educational interventions that may capitalize on the receptivity of both the survivor and family for healthy behavior changes.

The primary aim of this study is to describe the intentions to adopt/maintain a healthy diet, physical activity, and smoking cessation of adult family members of patients who are completing cancer treatment. Secondary aims are to explore relationships between a family member's intention to adopt/maintain healthy behaviors and perceived benefit, emotional distress, self-efficacy, family relationships, and patient characteristics (functional health and distress).

The theories of planned behavior and family systems guided the study's conceptualization.

A cross-sectional correlational design will be used. The sample will consist of 50 dyads of patients with breast, colon, head/neck, lung, or prostate cancer (Stage 0, I, II, III) and their family members. Patients will complete the SF-12v.2 Health Survey and distress scale three weeks or less before the completion of their treatment. A brief interview will be conducted to elicit the patient's future health goals. Within four weeks of the patient's completion of treatment, a family member will complete a survey of health behaviors, a distress scale, and a familyrelationship measure. A structured interview with the family member will be conducted to elicit salient beliefs about achieving or maintaining a healthy lifestyle and to assess any perceived barriers/facilitators to performance of healthy behaviors. Descriptive statistics and bivariate correlations will be used to examine relationships between variables.

Confirmation that the transition at the end of primary cancer treatment is a teachable moment for patients and their families, will suggest that oncology nurses have an opportunity to play a pivotal role in the implementation of family-centered, health promotion interventions at this point in the care continuum.

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MICROSATELLITE INSTABILITY AND IMMUNOHISTOCHEMISTRY TESTING OF COLORECTAL TUMORS AMONG U.S. CANCER PROGRAMS AND FOLLOW-UP OF ABNORMAL RESULTS.

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Abnormal results of microsatellite instability (MSI) or immunohistochemistry (IHC) testing of colorectal (CRC) tumors may suggest the presence of Lynch Syndrome (LS), a hereditary cause of CRC. Individuals with LS are at high risk for second primary cancers. Abnormal results of MSI and IHC testing influence care decisions. MSI is also a prognostic marker.

The purpose of this survey-based study is to determine the current MSI and IHC testing practices and subsequent follow-up of abnormal results in U.S. cancer programs. Study aims include exploring the practice of MSI/IHC testing between type of cancer program and the number of CRC cases accessioned during 2009 as well as identifying the process and factors associated with follow-up of abnormal results.

Routine MSI and IHC testing of CRC tumors is an emerging practice in the U.S. To date, no formal studies have described the practice of reflex testing for MSI and IHC abnormalities on colorectal tumors in the U.S.

A study packet (i.e., letter of invitation, survey, $5.00 incentive, and postage-paid return envelope) will be mailed to the cancer program and tumor registry directors at the 40 NCI-designated Comprehensive Cancer Centers, 567 ACS-accredited Community Hospital Comprehensive Cancer Programs, and 521 ACS-accredited Community Hospital Cancer Programs in the U.S. Collaboration will be encouraged and only the best set of survey responses per cancer program will be retained. The 11 item survey was developed based on input from an internal and external panel of experts followed by pilot testing in 22 centers (99.5% return rate). Recruitment will follow Dillman's method (i.e. pre-notice letter; study packet, thank you/reminder postcard; repeating up to 2 cycles). Center characteristics and MSI/IHC practices will be summarized using descriptive statistics. Chi square tests of association will explore associations between type of cancer program and MSI/IHC testing practices. Analysis of variance or planned comparisons will examine differences between program's CRC

cases in 2009 and the type of cancer program. Content analysis will be used to analyze narrative responses to survey questions.

The findings of this study may guide and enhance uptake and translation of the tools into cancer screening and prevention practice.

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PERCEPTION OF RISK FOR PROSTATE CANCER BY HIGH-RISK LATINO MEN.

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Little is known about how Latino men who have been treated for prostate cancer approached their treatment and disclosure decision situations nor about how high-risk brothers and sons perceive their risk and approach screening. Without understanding practices, experiences, and attitudes toward prostate cancer treatment, disclosure, and screening, it will be impossible to develop an evidence base from which to facilitate culturally relevant support as treatment, disclosure, and screening situations are faced by men in this vulnerable and growing Latino population.

Therefore, the purpose of this study was to understand prostate cancer treatment, disclosure, and screening decision situations from the perspectives of Latino men who have made prostate cancer treatment and disclosure decisions and high risk brothers and sons of Latino men treated for prostate cancer. These understandings form the evidence base to develop culturally relevant interventions to support Latino men faced with prostate cancer treatment, disclosure, and screening decisions. Specifically, we aim to:

1. Describe processes of how decisions to be treated for prostate cancer and disclose the diagnosis are perceived by Latino men who have been treated for prostate cancer .
2. Describe perceptions of risk and beliefs about screening for prostate cancer among brothers or sons of Latino men diagnosed with prostate cancer.

Symbolic Interactionism (SI) is the framework grounding this study. Understanding and perceiving what it means to be at higher risk for prostate cancer is an interactive process in which meanings are attributed to prostate cancer within men's cultural context. This study illuminates the meanings and interactions that influence the process of understanding at perceiving whether one is at risk for prostate cancer as a first degree male relative of a man who has had prostate cancer.

A 2-group descriptive design using "fundamental" qualitative description was employed. Two sets of interviews were conducted. We interviewed Latino men who have been treated for prostate cancer and high risk brothers and sons of Latino men with prostate cancer. In-person interviews were conducted with 30 men in each group. Interviews were audiotaped and transcribed verbatim and Spanish transcripts were translated using method developed in previous studies. Analysis used grounded theory techniques. This presentation will focus on preliminary results from the second specific aim on perception of risk by first degree male relatives.

Preliminary results are suggesting that many men were relatively unaware that they are at higher risk for prostate cancer. Some of the initial emergent categories include incomplete or minimal information from relative with prostate cancer, not understanding familial risk, not knowing what to do about increased risk. Categories will continue to be developed and dimensionalized through continued focused and axial coding. A theoretical framework will then be developed to describe processes of attributing and managing risk from which culturally relevant interventions will be developed to assist Latino men at high risk for prostate cancer

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USE OF INDIVIDUAL INTERVIEWS TO ESTABLISH CULTURALLY APPROPRIATE BELIEF INSTRUMENTS FOR COLORECTAL CANCER SCREENING AMONG KOREAN AMERICANS.

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Establishing culturally appropriate instruments measuring beliefs about CRC screening in KAs will inform culture-specific interventions to increase CRC screening in KAs.

Despite high incidence rates of CRC, KAs have low CRC screening participation. A review of CRC screening studies for KAs has revealed lack of culturally appropriate instruments measuring beliefs. The purpose of this study was to establish culturally appropriate belief instruments for CRC screening in KAs by modifying existing instruments. The specific aims of individual interviews were to examine cultural differences in the operational definitions of concepts and to make the scales culturally appropriate.

This study was based on the health belief model, the cultural assessment model for health, and the Powe fatalism model.

Qualitative individual interviews were conducted with 26 KAs (11 men and 15 women) aged 50 and older. Health beliefs (susceptibility, severity, benefits, barriers, and self-efficacy) and cultural beliefs (personal space, health temporal orientation, personal control, and fatalism) were examined. Menon's health belief scales, Russell's cultural belief scale, and Powe's fatalism scale were translated into Korean. Participants were asked to discuss health and cultural beliefs using semi-structured and open-ended questions and to review scale items using cognitive interviewing techniques. Audio recorded interviews were transcribed verbatim in Korean and coded using thematic analysis.

Data analysis identified culture-specific beliefs that were not included in the original scales: (a) KAs put family well-being before individual well-being (familism); (b) Symptoms are a cue to seek health care (crisis-orientation); (c) KAs view themselves as invulnerable to having CRC (optimistic bias); (d) Life is predetermined (traditional Korean fatalism). Scales for benefits, barriers, and fatalism were modified by adding new items related to these family-centered values and cultural beliefs using representative words that the participants mentioned during individual interviews. The knowledge gained from this study can make an important contribution to better understanding CRC screening behavior and to developing programs to increase CRC screening rates among KAs.

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A STUDY USING THE 2007 HINTS DATABASE: ARE SOCIAL CAPITAL AND/OR FATALISM SIGNIFICANT BARRIERS TO COLORECTAL CANCER SCREENING BY COLONOSCOPY?

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Colorectal cancer is the second leading cause of cancer death in the United States. Colonoscopy is estimated to reduce colorectal cancer by 60%, but this screening method is underutilized. This study adds evidence to what are the significant barriers to screening by colonoscopy in order to device strategies to promote its use.

Colorectal screening by colonoscopy is underutilized. In this study, the HINTS database is used in a secondary data analysis to study colonoscopy screening. Logistic regressions are performed to determine significant factors associated with screening.

The Health Belief Model is used as the conceptual framework to look for the barriers and facilitators affecting the individual's decision to screen for colorectal cancer by colonoscopy.

Logistic regression was performed with the dependent variable being "Had colonoscopy." OLS regression was used to test the Fatalism model. Logistic regression was used to test the Social Capital Model. STATA 10 software was used for the analysis. Jacknife approximation was used to weigh the sample since the sample was biased towards more educated and female.

Individuals who reported having a colonoscopy recommendation by their providers were 3.6 times more likely to screen. Individuals were more likely to report having a colonoscopy recommendation if they had insurance (three and a half more likely), a regular provider (more than twice as likely), cancer history (44% more likely), and if they trusted the information from their doctor/provider (38% more likely).

Individuals ages 50-64 were more likely to report having a recommendation to screen than individuals older than 64 (56%

more likely), but were 50% less likely to screen than their older counterparts. Individuals having less than a high school education were 56% less likely to receive a provider's recommendation to screen. Those with incomes less than 20K were 42% less likely as well. Persons living in the following regions: Pacific (less likely by 59%), East South Central (less likely by 51%) or West North Central (less likely by 45%) were also less likely to receive a recommendation to screen. Individuals with a history of cancer were one and a half more likely to having a colonoscopy within the last 10 years. Having a regular provider (almost twice as likely), and insurance coverage (almost twice as likely) were also associated with screening. These variables were also significantly associated with having a recommendation to screen. Living in the Pacific region was associated with a 50% chance of not having a colonoscopy. Individuals who reported avoiding the doctor were 47% less likely to have a colonoscopy screening within the last 10 years. A high score in the fatalism scale was associated with a 13% increase in avoiding the doctor/provider. Individuals ages 50-64 were nearly twice as likely to avoid the doctor/provider than those ages 64 and over. Individuals that trust the information from their doctor/provider were 27% less likely to avoid the doctor/provider. Individuals with insurance were 42% less likely to avoid the doctor/provider. Social capital was not found to be a significant barrier in this study.

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SOCIAL AND CONTEXTUAL FACTORS INFLUENCING TOBACCO USE IN AFRICAN AMERICANS. P.R. Jones, College of Nursing, UNMC, Omaha, NE; M.Z. Cohen, College of Nursing, UNMC, Omaha, NE; A. Scott, College of Nursing, UNMC, Omaha, NE; M. Siahpush, College of Public Health, UNMC, Omaha, NE; H.E. McIlvain, Internal Medicine, UNMC, Omaha, NE; and K.C. Okafur, Internal Medicine, UNMC, Omaha, NE

Significant disparities exist in the onset of smoking in ethnic minorities. African Americans become regular smokers as young adults, unlike Whites who tend to become regular smokers in adolescence. The later age of becoming a regular smoker and the disproportionate tobacco-related disease burden indicates a need for population-based tobacco control interventions that extend through young adulthood, particularly among African Americans.

Despite the knowledge that African Americans start smoking regularly as adults, there is limited information that examines factors that may lead young adults to start smoking later in life. The aim of this study was to understand the attitudes, beliefs, and other influences young adult African Americans decision to start smoking. Social Cognitive Theory provides the theoretical framework for this study. The theory explains how people learn and maintain health behaviors and provides a framework for the development of effective health promotion interventions.

This study used individual interviews and focus groups with African Americans, ages 19-25. Interviews were audio-taped and transcribed. The descriptive data was analyzed using a constant comparison approach.

Preliminary results show that participants associated tobacco use with transitioning into adulthood, using marijuana, and personal and professional success. Additionally, participants' decisions about smoking were impacted by parental advice about tobacco use, perceptions regarding levels of smoking in social network, stress, and alternative coping skills. The study results can inform practitioners, researchers, and policy makers of the critical factors to consider when developing a tobacco prevention and/or cessation program for young adult minorities.

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OBESITY, LEPTIN, AND BREAST CANCER. J.K. Payne, Nursing, MD Anderson Cancer Center, Houston, TX

The purpose is to critically examine the link among obesity, metabolic syndrome, and the effect that leptin may have on the development and prognosis of breast cancer.

The mechanisms by which excess weight/obesity induce carcinogenesis and their relevance likely vary by cancer site. To date the biological mechanisms which link excess weight/obesity and cancer are well understood only for cancer types with an endocrine component such as breast, endometrium, or prostate cancer. Obesity has been linked to increased risk of breast cancer in postmenopausal women. Increased conversion of androgens to estrogens by the aromatase enzyme in peripheral adipose tissues along with the reduced levels of serum sex hormone binding globulin have been hypothesized to be the main link between obesity and increased risk of postmenpausal breast cancer. Leptin, the most thoroughly studied adipocytokine, is a protein produced mainly by adipose tissue and may represent a growth factor in cancer.

Leptin regulates appetite and energy expenditure by signaling nutritional status to the hypothalamus and is also involved in a number of other processes including the regulation of reproduction and immune response. The metabolic syndrome is a cluster of related metabolic and cardiovascular alterations including visceral obesity, insulin resistance, and high blood pressure and is often associated with neuroendocrine and immunological dysregulation.

Significant research links obesity to cancer risk and diagnosis, especially breast cancer. Evidence shows that leptin, which is produced by adipose tissue, is related to obesity and therefore to the risk and development of breast cancer. Oncology nurses have an opportunity to voice their concerns about obesity and the health of their patients.

Obesity has reached global epidemic portions. Nurses need to be aware of the biological relationships among overweight/obesity, leptin, metabolic syndrome, and risk of breast cancer so they can better inform patients and health care policy makers.

Survivorship, Palliative Care, and End of Life

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PATIENT PREFERENCES REGARDING TREATMENT PLANS AND SURVIVORSHIP CARE PLANS. T. Marbach, Clinical Cancer Center, Froedtert Hospital and the Medical College of Wisconsin, Milwaukee, WI; J. Griffie, Clinical Cancer Center, Froedtert Hospital and the Medical College of Wisconsin, Milwaukee, WI; and K. Sweeney, Clinical Cancer Center, Froedtert Hospital and the Medical College of Wisconsin, Milwaukee, WI

The number of cancer survivors is increasing; it is essential to hear their voice as to when and how they would prefer initial treatment plan and survivorship care plans delivered. Cancer survivorship care is a growing area of research, however, the tools, timing, and delivery of this critical information has been understudied. Many organizations have developed guidelines for the creation and delivery of treatment plans and cancer survivorship care plans; however, there is a gap in the literature when it comes to the identification of best methods for format, timing, education style, and delivery from the survivor's perspective. The purpose of this study was to understand patients' recommendations for the content, format, and preferred methods for delivering an initial treatment plan and survivorship care plan.

The Patient/Client sphere of influence of the Clinical Nurse Specialist model was used. The CNS recruited participants for the research, constructed questions used during the focus groups, and analyzed data to improve survivorship care.

40 participants attended one of the four audio-recorded survivorship focus groups. Each group was divided into specific disease types based on treatment similarity. Participants were shown the initial treatment plan and survivorship care plan proposed for use, and were asked specific questions about the documents' content, delivery method, and overall usefulness. Qualitative analyses of the focus group transcripts were done using thematic analysis. Transcripts were read by each nurse

researcher, discussed, and themes were identified. The responses were categorized and content of these themes were validated with a doctorally-prepared nurse researcher.

Participants in the focus groups expressed emotional themes of anger, confusion, and fear at initial diagnosis and at the end of treatment. Participants expressed that had they received an initial treatment plan and survivorship care plan, they would have felt less psychological distress and anxiety pre- and post-treatment. Taking time to hear the voice of the survivor is critical in development of treatment and survivorship plans. Oncology nurses play a central role in the development, delivery, and implementation of these plans.

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WHY DO CANCER PATIENTS DIE IN EMERGENCY DEPARTMENTS? AN ANALYSIS OF NC CANCER PATIENTS WHO DIED IN THE ED.

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Emergency departments (ED) in the United States are utilized by cancer patients for symptom management, treatment side effects, oncologic emergencies, or end of life care. While studies report that most patients prefer to die at home, many die in health care institutions.

To date, there are no published studies describing cancer patients who die in the ED. The purpose of this study was to analyze characteristics of cancer patients who died in the ED in North Carolina (NC) during 2008, using data from the NC Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) population database.

A health services utilization framework of individual, societal, and health system characteristics guided this study.

Quantitative patient data were analyzed using descriptive statistics while qualitative data from the ED triage notes were analyzed using content analysis techniques.

Of 44,398 people with cancer who visited EDs in North Carolina in 2008, 354 (0.8%) died in the ED. Of the 354 who died, the majority of adults were males (62%),≥60 years (70%), and on Medicare (51%). The top presenting chief complaints were: 117/354 (33%) presented in cardiopulmonary arrest, 16% with respiratory distress, 14% with change in mental status or unresponsive, and 6% with abdominal or chest pain. This study is the first to describe characteristics of cancer patients who died in the ED. While a relatively rare event, cancer patients who die in EDs do so in environments that can be noisy with little to no privacy. More needs to be understood about precipitating factors and circumstances surrounding patient/caregiver/provider decisions to go to the ED. This study has implications for oncology nurses as they assist patients and their caregivers in anticipating emergent situations, preparation for death, and other concerns related to end of life. Cancer patients have the right to die in an optimal location. Ensuring that cancer patients receive quality end of life nursing care is essential in any setting, including the ED.

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FALLS AND FRACTURES IN COMMUNITY DWELLING ELDERLY CANCER SURVIVORS.

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Cancer survivors are living longer, but continue to encounter physical, psychosocial, and economic impacts of cancer until end of life. Of all types of injuries, falls pose the most serious threat to quality of life in the elderly.

The purpose of this study was to examine the impact of a cancer diagnosis on falls and fractures. An aging and nursing model of care were synthesized.

This is a longitudinal, retrospective, study comparing 865 with cancer to 8617 without cancer. We analyzed data from the Michigan Home and Community Based Services program Minimum Data Set and Cancer Registry for 2002-2007. In this vulnerable, disparate community-dwelling elderly patient population, we compared those with and without a cancer diagnosis on falls and fractures. Generalized Estimating Equations modeling was used.

Mean age was 77.1 years, 67.8% female, 74.0% Caucasian. Cancer diagnosis was 92.7% stage 2 or later. Cancer survivors' fall rate was 32.7% compared to 29.4% in those without cancer. Adjusted odds ratios (ORs) of falls were: 1.16 (95% Confidence Interval [CI]=1.02, 1.33) for those with cancer versus those without cancer; 1.12 (95% CI=1.03, 1.22) for male versus female, 1.29 (95% CI=1.19, 1.40) for antidepressants versus none, 1.53 (95% CI=1.41, 1.65) short-term memory recall problems versus none, 1.45 (95% CI=1.32, 1.59) for evidence of pain daily versus none, 1.56 (95% CI=1.37, 1.77) for weight loss versus none, and 1.07 (95% CI=1.04, 1.12) for comorbidities versus none. ORs for increased fractures were 1.28 (95% CI= 1.17, 1.40) for daily pain versus none, and 1.61 (95% CI=1.11, 1.22) for comorbidities versus none. The odds were smaller with age OR= 0.95 (95% CI=0.87, 0.99), for males versus females 0.76 (95% CI=0.67, 0.69), African Americans versus Whites 0.36 (95% CI=0.26, 0.51), and short-term memory recall problems versus none 0.91 (95% CI=0.83, 1.00). Cancer survivors fell at a higher rate, and the risk of fall was higher closer to the date of cancer diagnosis; however, fractures ($p > .05$) did not occur more. As elderly cancer survivor's transition through life, clinicians need to be aware that these patients are prone to increased falls, assess risk, and implement fall prevention measures.

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DEVELOPMENT OF A "FINDING BALANCE SCALE" FOR BEREAVED CAREGIVERS: A MIXED METHODS APPROACH.

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Oncology nurses can apply this innovative tool in a holistic assessment of the family caregiver during bereavement, focusing on the ability of the bereaved caregiver to find balance after the death of the patient from cancer.

Cancer is a leading cause of death in the world. Family caregivers of a palliative cancer patient are searching to find new hope after care-giving ends. Finding balance was a first step in this process and was described as "walking a fine line between deep grieving and moving on" in the author's previous grounded theory study. The purpose of this study was to develop and evaluate a "Finding Balance Scale" from qualitative research interview data. The specific aims were: 1) to construct a preliminary version of the instrument, founded on qualitative research data and the framework of the Dual-Process Model, 2) to quantitatively identify a content validity index for each item and the total scale from both grief experts and participants in the original study, and 3) to describe a tentative scale of finding balance for bereaved family caregivers.

A mixed methods exploratory design was used. The conceptual framework of Stroebe and Shut's Dual Process Model of coping with bereavement guided the selection of the items, from the qualitative data, as it describes how bereaved older adults oscillate between restoration and loss-oriented coping.

The thirty items for the original scale were derived from qualitative research interviews with older persons who are bereaved family caregivers of palliative cancer patients. The 30 items were then scored for content validity by several participants from the original study and by experts in grief and loss (N=19). The scale was then shortened to 21 items, based on each item's rating. The resulting "Finding Balance Scale" describes many facets of the complex process of finding balance. The scale will be used in ongoing research to evaluate the effectiveness of a finding balance intervention for bereaved caregivers. This scale may also be a useful tool for assessment of family caregivers during bereavement. This research is innovative as it applies a mixed methods exploratory design to develop a unique scale based on an insider's perspective from the population to which the scale may then be applied in ongoing research and practice.

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THE CRITICAL ROLE OF ONCOLOGY NURSES IN DEVELOPING SURVIVORSHIP PROGRAMS.

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The estimated number of cancer survivors in the U.S. continues to grow to over 12 million. Research in cancer survivorship is rapidly growing and challenging areas of survivorship care include the extended survival of patients with advanced disease and caring for the older survivors in light of co-morbid complications. Developing and implementing the structure for this research is a challenge.

Providing survivorship activities within cancer settings requires education of providers and survivors. Limitations in resources and staffing provide additional barriers to meeting these needs. The purpose of this abstract is to describe planning strategies used to implement survivorship activities within cancer settings by teams of nurses who participated in a 3-day, NCI funded educational program in Survivorship Education for Quality Cancer Care.

The conceptual framework for this course included principles of adult education and changing practice through performance improvement. Interactive education over 3-days provided general survivorship information, models of care were described and existing programs identified activities occurring in those settings.

Rigorous evaluation resulted in qualitative and quantitative data. Three goals individually identified by each team, were refined during the training program and followed at 6, 12 and 18 months post course for content and percent of achievement. Goals were coded using content analysis. Five major codes emerged: Program planning processes (P3) and the four components of survivorship care: Coordination, Surveillance, Detection and Interventions. Quantitative Analysis identified the percent of goal achievement by 18 months post course

P3 goals were most frequent across years: (2006-65%, 2007-71%, 2008-75%, 2009-78%) Examples of P3 goals included initiating a plan for a survivorship program, increasing survivorship transition visits, and creating a curriculum for cancer survivor education. Goals in P3 accounted for 24% in 2006, 31% in 2007, 31% in 2008 and 36% in 2009. Content analysis of the nature of the goals provides examples of successful steps taken by oncology nurses in initiating survivorship programs across varied cancer settings.

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PALLIATIVE CARE FOR QUALITY OF LIFE AND SYMPTOM CONCERNS IN LUNG CANCER.

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This National Cancer Institute funded Program Project (P01) supports a program of interdisciplinary research with central themes related to palliative care, quality of life (QOL), and symptom management across the trajectory of lung cancer affecting 213,000 Americans. Consistent with the recommendations of the Institute of Medicine Report on palliative care, symptom management and attention to QOL concerns of patients and families will be addressed throughout the trajectory of lung cancer.

This project is guided by the City of Hope QOL model and tests usual care versus a palliative care intervention encompassing a four component patient and family caregiver education intervention.

The P01 intervention was established through two pilot projects demonstrating the unmet needs in lung cancer across QOL domains and the limited use of supportive care services by those with lung cancer. From these 2 pilot studies, the most common symptoms were pain, cough, dyspnea and fatigue with only 64 referrals in 57 of the 100 patients.

The patient and family interventions are delivered by an Advanced Practice Nurse based on input from an interdisciplinary team. The project includes distinct education interventions for early and late stage lung cancer and for family caregivers.

Project 1, Early Stage Lung Cancer (N=207), provides a model of integrating palliative care throughout the trajectory of disease. Project 2 focuses on Late Stage Lung Cancer (326), a population who has decreased survival and high QOL and symptom concerns. Project 3 focuses on Family Caregivers (N=533) of patients with lung cancer.

Outcomes evaluation of the project include assessment of the impact of the education on patient symptoms, QOL, and supportive resource use as well as family caregiver QOL, self care and skills preparedness for caregiving.

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ELDERLY BREAST CANCER SURVIVORS: PRELIMINARY DESCRIPTIVE DATA.

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Cancer survivorship research is an emerging field of study and until recently examination of elderly subsets of survivors has been limited. The large, growing number of elderly survivors (over 6 million) mandates attention to the needs of this population.

The majority of cancer survivors are greater than 65 years of age and the needs associated with survivorship added to the concerns associated with aging make elderly survivorship qualitatively and quantitatively different from survivorship in younger survivors. The purpose of this presentation is to describe a cohort of elderly breast cancer survivors (BCS) from the American Cancer Society Studies of Cancer Survivors II (ACS SCS II) survey data relative to their cancer, aging and personal characteristics.

A conceptual model that identifies the personal characteristics, cancer-specific variables and aging related concerns pertinent to cancer survivorship (developed and submitted for publication) will be described. This model is based on the concept of functional or physiologic age (contrasted with chronological age) and the heterogeneity of health status associated with increased chronologic age.

The ACS SCS II with a total of 2885 BCS (average age 63.2) used stratified sampling to oversample minorities and to include 3 groups based on length of survivorship. Approximately 33% were included in each group (2, 5 and 10 years post diagnosis). A secondary analysis of the subset of BCS 70 years and older will be analyzed for this study. Tools chosen were shown to be reliable and valid including MOS SF-36, Multidimensional Scale of Perceived Social Support and Modified Rotterdam Symptom Checklist. Additionally treatment, comorbidity, modifiable personal characteristics (smoking status, physical activity, BMI), and demographic variables were measured by self-report. Descriptive and correlational statistics are planned for this presentation.

Analysis is pending. We will present the descriptive and correlational findings relative to modifiable personal characteristics, demographic, cancer-specific variables (length of survivorship, treatment modality), symptoms and aging related variables (social support, comorbidity, emotional status, physical function).

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CHARACTERISTICS OF BREAST CANCER SURVIVORS POTENTIALLY AFFECTING TREATMENT AND SURVIVORSHIP OUTCOMES.

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As breast cancer survivors are living longer, more attention is focused on both physical and psychological factors that affect quality of life issues. Therefore, information about survivors and their treatment can provide useful information for health professionals. Breast cancer (BC) survivors present for treatment with many differences which may impact treatment options, as well as survivorship. Differences in location, age, and family status may have implications for time of diagnosis and staging of disease. In addition, survivors may experience differences in treatment modalities (surgery, radiation, chemotherapy, hormone therapy), as well as prior cancers and other health conditions which may impact survivorship. Such descriptive data will be helpful in the exploration of risk factors related to the development of lymphedema (LE), other co-morbid conditions, and long-term survivorship.

BC survivors (BCS) are at lifetime risk for developing LE. Physical and psychological aspects of LE impact patients' daily lives and quality of life. More than 40% of BCS may develop LE, potentially impacting one to five million survivors. This descriptive analysis examined characteristics of BCS which may impact LE occurrence and survivorship.

The research was based on Armer's biopsychosocial model of post-breast cancer LE with predisposing, mediating, and outcome variables. Chapman et al. reported that recent studies of breast cancer cases concluded that deaths from non-breast cancer-related co-morbid diseases were more common than breast cancer-related deaths among older women.

Participants were enrolled following BC diagnosis (before treatment) and followed every 3 months for 12 months, then every 6 months to 5 years. Limb volume changes (LVC) were measured using: (a) circumferences, (b) infra-red perometry, and (c) symptom experience via interview. In addition, information was collected from interviews and medical chart reviews to ascertain personal and medical information. Data were analyzed with descriptive statistics.

Data were available for 248 survivors. The average age of the group at diagnosis was 57 years. Over half (153) were from rural counties; the remainder (95) were from areas served by major medical centers. Of the total, 19 were single, 25 were divorced, 31 were widowed, and 173 were married. A total of 58 had another primary cancer, as follows: 21 breast, 13 gynecological, 12 skin, 5 gastrointestinal/colon, and 1 thyroid. In addition to the primary breast surgery, 64 had a second surgery, 155 received radiation, and 162 were placed on hormone therapy. The staging at diagnosis varied from 27 at stage 0, 94 stage I, 77 stage II, 29 stage III, 12 stage IV, and 9 of unknown stage. These data will be helpful as we explore the risk factors related to the development of LE, other co-morbid conditions, and long-term survivorship. These preliminary findings provide evidence that BC survivors present for treatment with many differences which may impact treatment options.

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BREAST CANCER SURVIVORS' EXPERIENCES OF THE IMPACT OF BREAST CANCER.

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Current evidence indicates the need for development and implementation of appropriate models of care, guidelines, and follow-up care plans, especially for the vulnerable populations who may not fully comprehend what it means to be a breast cancer survivor because of a multitude of factors such as language barriers, differing cultural meanings of illness, age, acculturation, and the number of years in the host country.

This study explored experiences and concerns of South Asian (SA) breast cancer survivors (BCS) at different life stages in order to determine their understanding of follow-up cancer care.

This study employed ethnography to examine womens' experiences in the context of their lives and took a critical feminist approach to examine the social, political, personal and institutional factors that color these experiences.

Focus group and face-face interviews were audio-recorded and transcribed with SA women who were 3-60 months post-treatment, had non-metastatic breast cancer, and discharged from cancer agency. Groups were stratified by age into <44, 45-54, 55-64, and >65. Transcripts were subjected to thematic and content analysis by age group (life stage).

A total of 24 women participated in the study with 1 second interview to confirm data. Age ranged from 30-72 years. Preliminary findings suggest that physical, emotional and social effects are more intense in younger patients with older patients experiencing more consistent positive social and spiritual support with cultural nuances. Fatigue, fear of the unknown, and womens' inability to normalize post treatment were the most universal effects experienced by women. Emphasis on generalized survivorship care plan (SCP) with individualized content echoes the wide variation in breast cancer impact. Important elements include: treatment summary, information on exercise, expected side effects, follow-up schedule, and knowledge of information sent to family physician. Preferred media is a written booklet format for SCP and is similar for all groups. Consultation at beginning of treatment with an oncology nurse is ideal.

Findings indicate that SA women BCSs experience similar impacts of breast cancer, however cultural nuances need to be addressed in SCP's that will enhance quality of life. Effects vary by life stage, which impacts preferred content of SCP, but not format. Qualitative information on the impact of breast cancer at different life stages in this study will be used to help customize content of SCPs.

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WHAT IS THE EFFECT OF PALLIATIVE CARE CONSULTATION TEAMS (PCCT) ON THE EXPERIENCE OF HOSPITALIZED DEATH?

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Palliative care consultation teams (PCCT) have been developed in hospitals to address the inadequacies of end-of-life (EOL) care; however there are limited data describing the impact of such services on patient outcomes.

To determine the hospitalized EOL experience in our tertiary hospital/cancer center since the implementation of a PCCT, we replicated our published chart review study of 1994 hospitalized adult deaths (n=104) in a representative sample (n=100) of 2008 inpatient deaths. The modified (for use with electronic medical records [EMR]) DHMC End-of-life Chart Audit Form examines interventions and psychosocial support during the 48 hours preceding death.

This study was guided by RWJ Last Acts: Precepts of Palliative Care Model of a "Good Death".

Data were extracted from EMRs of 100 decedents. Summary statistics, Chi-square and two sample t-tests were used to compare groups who had received a palliative care consultation (PCC) during their stay with those who had not (non-PCC). A multivariate logistic regression identified factors associated with a PCC. An exploratory analysis compared 2008 PCC and non-PCC deaths with 1994 historical controls. The 2008 PCC decedents (n=32) were more likely to have an advance directive (72 vs 48%; p=0.028), comfort measures orders (97 vs 66%; p=0.001), and die in a non-ICU (25 vs 67%; p<0.001) compared with non-PCC decedents (n=68). PCC decedents received fewer invasive interventions (e.g., CPR, intubation and assisted ventilation, labs, v/s, dialysis, chemotherapy, intravenous fluids, and enteral or parenteral nutrition), had significantly higher documented rates of psychosocial care (81 vs 57%; p=0.01), pastoral care (78 vs 50%; p=0.008) and family presence at time of death (59 vs 37%; p=0.037) compared with non-PCC decedents. Factors associated with PCC included: CMO orders, no v/s monitoring and no parenteral or enteral nutrition, receiving opioids, responsiveness, and non-ICU death. Compared with 1994 historical controls (n=104) there was a higher rate of some invasive interventions (e.g. ICU care, intubation, labs, antibiotics) in the 2008 non-PCC sample while those with PCC generally had lower rates of use. Data from a retrospective chart review must be interpreted with caution, but may provide useful benchmarks to examine EOL care and to identify areas for improvement.

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BREAST CANCER SURVIVOR SYMPTOM SURVEY RESULTS.

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There are more than 2.5 M breast cancer survivors in the United States. In recent studies, at least 1 of 3 breast cancer survivors report persistent symptoms that impact quality of life (QOL).

The purpose of this study was to determine, by use of the Breast Cancer Survivor Symptom Survey (BCSSS), the presence and severity of usual and worst fatigue, sleep disturbances, pain, distress, and numbness/tingling, and the extent to which these symptoms predicted interference with general activity and enjoyment of life (QOL) during the past 7 days in breast cancer survivors included in the Oncobase at a large Midwestern NCI Cancer Center. Winningham's Psychobiological-Entropy Model of Functioning guided the study. A cross-sectional, descriptive design was used. All breast cancer patients in the Oncobase were mailed the 1-page BCSSS. Response rate was 188/419 (44.9%). The 12-item survey was adapted by the PI from the M.D. Anderson Symptom Inventory using similar wording and the 11-point rating scale (0-10), but extending the timeframe to the past 7 days. Data analysis included descriptive statistics, chi square, t-tests, and multiple linear regression.

Responders' mean age was 58.7(SD=10.2); 79% lived in urban areas; and breast cancer was diagnosed 1992-2007. Usual levels of symptoms were mild (0-3.99) and highest for sleep disturbances, followed by fatigue, distress, tingling, and pain. Worst level of symptoms was highest for sleep disturbance, followed by fatigue, distress, pain, and tingling/numbness. Worst levels rose to moderate severity (4.0-6.99) for sleep disturbances and fatigue but were mild for other symptoms. Symptom severity levels were unrelated to receipt of specific treatments. Interference of symptoms with general activity and enjoyment of life was mild. For the regression analyses, usual and worst ratings were averaged for each symptom. Fatigue (Adj. R2 = .308, p<.001) was significantly predicted by sleep disturbances (p<.001), pain (p=.002), and rural/urban status (p=.051). Sleep disturbance (Adj. R2 = .411, p<.001) was significantly predicted by fatigue (p<.001) and distress (p<.001). Findings inform the development of interventions to reduce multiple symptoms. Breast cancer survivors should be screened and treated for symptoms to reduce severity and interference with QOL.

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INFORMATION NEEDS OF OVARIAN CANCER SURVIVORS: PRE AND POST SURVIVORSHIP COURSE.

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The majority of survivors continue to experience concerns which generate information needs. Research that considers the late effects of cancer treatment and long-term survivorship issues for patients is an IOM, NCI, and ONS priority.

Information aids adjustment and enhances coping. It is important to have a baseline of information needs for women with ovarian cancer so that interventions can be targeted to address specific concerns. Research regarding information needs of women with ovarian cancer is lacking. This study examined the information needs among ovarian cancer survivors prior to participating in a one day ovarian cancer survivors day course. These baseline data were used to determine perception of information needs met immediately post completion of the course and 30 days after completing the course. The data were used to plan educational and supportive interventions to target specific concerns.

This study integrates components of Derdiarian's cancer information needs model and Lazarus and Folkman's Stress and Coping Theory. When information needs are identified, problem-focused and emotion-focused strategies can be targeted toward concerns.

Using a descriptive survey design, the Toronto Information Needs Questionnaire (TINQ) – for breast cancer was revised to collect information needs data from 78 ovarian cancer survivors. Descriptive data were reported (mean, SD, percent).

Seventy-eight women participated in the study. Participants (n = 78, 100%) reported their perception of information needs on a range of 1 (not important) to 5 (extremely important): disease control (M = 4.46, SD = .593), investigative tests (M = 4.05, SD = .894) treatment (M = 4.41, SD .663) , physical (M = 3.81, SD = .953), psychosocial (M = 3.57, SD = 1.01), indicating that information needs were high across all subscales, however, survival concerns (disease/treatment/tests) was higher than physical and psychosocial concerns. Participants reported perception of information needs met immediately post-course (n = 51, 65%) and 30 days after the course (n = 21, 27%) as follows: 69.2 % followed by 61% (8 disease control items), 66.46% followed by 72% (10 treatment items), 71% followed by 74% (5 tests items), 46% followed by 60% (5 physical items), and 56% followed by 60% (9 psychosocial items). Information needs regarding survival concerns were more frequently met than physical and psychosocial needs. Some information needs were better met at 30 days suggesting that recommendations made at the conference were incorporated. The present study provides a better understanding of ovarian cancer survivors' information needs and interventions that address these needs. In addition, the study provides information about what needs were high priority but not met by the course. The findings of this study were used to plan educational and supportive interventions.

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PARENTAL END-OF-LIFE DECISION MAKING IN PEDIATRIC BLOOD AND MARROW TRANSPLANTATION.

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Blood and marrow transplantation (BMT) increasingly is used as a treatment for children with life threatening malignant dis-

eases. Survival rates for transplant recipients vary from 25% to 50%. Children with complications from BMT typically die in the hospital after a prolonged stay. The parental decision to allow a child to die a natural death is typically made in an aura of emotional duress and bewilderment.

The purpose of this study, in progress, is to describe the process of parental decision making for Do Not Resuscitate (DNR) or to withdraw life support in pediatric BMT. The framework for this study blends the epistemological view of neomodernism (recognition of individual uniqueness yet acknowledgment that certain underlying universal principals exist) with the constructionist perspective that the nature of all things may be viewed as an ongoing, self-constructing process.

Grounded theory methodology is being used. The sample (determined through theoretical sampling) will consist of at least 10 in-depth interviews of parents of children who died following BMT and for whom the parent made an end-of-life decision. Data collection is ongoing; to date 3 interviews have been completed and transcribed. Data are analyzed after each interview using constant comparative analysis, a method that combines both substantive and theoretical coding of data, to result in a construction of a middle range theory about a social process of end-of-life parental decision making.

Preliminary findings identified key themes shared across all participants. Surprising results, that differed from previous reports in the literature, indicate that there may be a generational factor in the information parents seek and value in decision-making (via the internet and empirical observation rather than through health care provider or family support), and in the way they perceive the decision-making process i.e., as a fight ending in defeat. These and other results will have implications for nurses and other health care providers in their interactions with these families during this critical time of care.

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BREAST CANCER: A BUMP IN THE ROAD FOR OLDER SURVIVORS.

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Experiences unique to older breast cancer survivors is understudied. Knowledge gained from this poster will allow clinicians to anticipate which women are at risk for poor outcomes in early survivorship.

Preliminary evidence shows older breast cancer survivors experience a decline in QOL after treatment has ended. Little is known about cancer survivorship in context with older women's broader, non-cancer related life concerns. The purpose of this research is to explore how older women integrate surviving breast cancer with other challenges of aging. This research used grounded theory to understand the process of integrating breast cancer.

Grounded theory using a constant comparative method of content analysis was used. 20 older women with early stage breast cancer participated in one on one semi-structured interviews. Interviews used an open-ended question style and focused on what life has been like for them after treatment for breast cancer. Prompts were used as appropriate to clarify answers and memos were kept. Data analysis followed 3 stages: 1) open coding to break down and examine data; 2) axial coding to relate categories and subcategories; and 3) selective coding to integrate and fine categories so they represent the experiences of older women surviving breast cancer.

Analysis is ongoing. Preliminary findings indicate that most women integrate breast cancer smoothly into their lives; however, several factors including lack of knowledge, isolation and ongoing symptoms and side effects interfere with this process. Implications for practice, education and research are apparent and will be discussed.

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PATIENT PREFERENCES FOR EDUCATIONAL CONTENT AND APPROACHES AT TIME OF CANCER DIAGNOSIS.

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The complexity of cancer treatment and the multidisciplinary process suddenly challenges the newly diagnosed patient to learn to live in a new, unknown world. By understanding this challenge and the emotions generated by it, nurses are positioned to maximize the benefit of initial educational interventions to the uniqueness and needs of each patient. When initial education needs are successfully met, communication with the health care team is maximized.

The impact of the diagnosis of cancer upon each patient's quality of life is extremely complex. It is affected by health care providers and systems of care. Patients undergoing diagnosis and treatment for cancer are immersed in a complex medical world of sophisticated treatments. The diagnostic and treatment phases provide a unique opportunity for nurses to positively impact the patient experience. How best to provide individualized care to patients and family members, and communicate clear expectations of care and treatment via support and education, must be addressed.

The Patient/Client sphere of influence of the Clinical Nurse Specialist model was used. The Clinical Nurse Specialist solicited institutional support, recruited participants for the research process, worked with the research team to construct questions used during the focus groups, and with other advanced practice nurses, analyzed the data.

Approximately ten patients participated in each of four focus groups. Each focus group represented specific disease sites. Participants were grouped accordingly. As a framework for discussion, participants were shown copies of the educational materials that are provided as the institution's standard of care. Qualitative analyses of the focus group transcripts were done using thematic analysis.

Participants reported educational materials assisted in the management and alleviation of anger and confusion. There was strong consensus that an organizational binder was critical. Content information suggested by participants spanned a wealth of topics. Most importantly, participants wanted easy access to a glossary. Access to internet educational materials was requested, however, the written word was the media of choice.

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"I'M NOT AN ANOMALY, GET OVER IT" YOUNG WOMEN'S EXPERIENCES WITH CANCER: AN INTERNET ETHNOGRAPHY.

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Caught between the two worlds of pediatric and adult medicine, patients with cancer who are ages 20-39 are less likely to access optimal cancer services, including both medical and psychosocial services, than other age groups. Young women survivors have distinct needs during and after cancer care. Because many young female cancer survivors are beginning to share their narratives online, it is now possible to understand the experiences of cancer survivorship in their own words.

The purpose of this qualitative ethnographic study is to gain a unique perspective on the narratives shared online by young women cancer survivors, specifically related to their descriptions of disruptions in their life caused by the cancer diagnosis, as well as their barriers and facilitators in accessing healthcare services both during active treatment and during the survivorship phases.

The postmodern ethnographic methodology downplays dominant biomedical research paradigms to honor the patients' perspective. Feminist undertones will be noted as they are necessary to relate the centrality of gender in the shaping of the consciousness.

The ethnographic, descriptive study, will utilize thematic analysis of online cancer illness blogs that are self-initiated by young women cancer survivors.

Findings are forthcoming. Further study is needed among women, specifically, in determining if there are certain segments of the population who are most at risk for experiencing access-related adverse outcomes during and after cancer treatment. A necessary first step is to understand the experience of the disease through a physiologic, psychosocial, and access-oriented lens that the patient describes herself. Online data through illness blogs represent an innovative way of capturing the naturalistic experience of the journey 'outside' of the clinic walls.

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DEVELOPMENT OF A TAILORED, INTERACTIVE, WEB-BASED COMMUNICATION PROGRAM FOR CANCER PATIENTS AND THEIR FAMILY CAREGIVERS.

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Nurse-led interventions that strengthen communication and support between cancer patients and their family caregivers could potentially be delivered efficiently and inexpensively via the Internet.

Little is known about the feasibility of translating an existing nurse-delivered intervention to a web-based format. We sought to develop a web-based communication intervention for cancer patients and their family caregivers, and examined the usability and acceptability of the program among representative users.

Stress-Coping Theory and Family Stress Theory provided the conceptual framework for this intervention.

A tailored, interactive web-based family communication program for cancer patients and their family caregivers was developed based on an existing nurse-delivered intervention. The development process involved: 1) building a multidisciplinary team of intervention nurses and content and web design experts, 2) combining key components of the in-person intervention with the unique tailoring and interactive features of a web-based platform, and 3) conducting focus groups and usability testing to obtain feedback from representative program users at multiple time points. Cancer patients and their family caregivers participated as dyads in four focus groups (n = 22 participants) that assessed the content, design, and acceptability of the program. Participants' responses to a structured interview were content analyzed. During two usability testing sessions (n = 16 participants), users were observed as they completed specified tasks. The validated System Usability Scale was used to assess program usability and participants' responses were analyzed with descriptive statistics.

Response to the program's structure, design, and content was favorable, and patients and caregivers indicated that they felt comfortable using a web-based program together. The program was rated highly in terms of ease of use (mean 6.6 on a 7-point scale, SD 0.5) and overall usability (mean System Usability Score 89.5 on a 100-point scale, SD 8.2). Study findings suggest that nurse-delivered interventions for patients and their caregivers can be successfully adapted to the Internet. An iterative development strategy involving a multidisciplinary team and patient-caregiver dyads was critical to designing a web-based intervention that was accessible to older users and individuals with limited computer and Internet experience.

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MULTIDISCIPLINARY CANCER CARE: THE PIVOTAL ROLE OF THE ADVANCED PRACTICE ONCOLOGY NURSE NAVIGATOR (APONN) IN IMPLEMENTING A MULTIDISCIPLINARY GI CANCER CLINIC IN THE COMMUNITY HOSPITAL SETTING.

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Cancer treatment is increasingly complex as most patients are now being treated with several modalities over a longer period of time. Comprehensive cancer management requires a multidisciplinary collegial evaluation that includes clinical trial treatment options and addresses psychosocial concerns. This can be problematic in a community hospital setting where physicians in private practice are in competition with one another for patient referrals.

We noted several problems in meeting the goal of a multidisciplinary cancer clinic at our community hospital. The patient's case history and staging were frequently incomplete at the time of presentation. Patients frequently started treatment without having complete treatment options presented prospectively including clinical trials as initial therapy. Psychosocial needs and barriers to treatment were not addressed. There were communication barriers between physicians in private practice causing confusion for patients trying to make treatment decisions.

A systematic review of the literature was conducted to identify models of multidisciplinary cancer clinics in the community hospital setting. None of the models addressed all the problems relevant to our practice setting.

A task force was established to develop a model that could be implemented in the community hospital setting. A business plan and SWOT (strengths, weaknesses, opportunities and threats) analysis were completed to develop an action plan. Multiple meetings were held with stakeholders to obtain their input and create a framework from shared decision-making.

The framework that emerged established the APONN as the key person in coordinating the multidisciplinary process by meeting with the newly diagnosed patient initially to perform a thorough history and physical exam, and complete the staging workup according to evidence-based protocols. This comprehensive assessment will increase the opportunity for patients to participate in clinical trials, identify barriers to treatment, address psychosocial needs and link patients to supportive resources and referrals. Once staging is completed, the APONN will present the patient at cancer conference where a consensus on recommended treatment options will be reached. The medical oncologist and the APONN together will present these options in person to the patient. The APONN is a key team leader in the process of developing multidisciplinary treatment planning in the community hospital setting to provide a coordinated prospective comprehensive treatment plan, education, and support.

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ORAL ANTINEOPLASTIC ADHERENCE TRIAL: EVALUATING THE IMPACT OF PHARMACIST INTERVENTION.

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Oral antineoplastic adherence meta-analyses report adherence ranging from 20 - 100%. Pharmacist intervention using educational, behavioral and cognitive techniques improve adherence in other chronic conditions.

Nonadherence leads to disease progression, adverse events, polypharmacy, medication changes, hospitalizations, additional testing and increasing costs.

This prospective, randomized, controlled trial tests an 8 week individually tailored pharmacist intervention on adherence.

Adult patients with a new or recurrent cancer diagnosis beginning oral antineoplastic treatment are randomly assigned to either the usual care group (UCG) or pharmacist intervention group (PG). A Beliefs About Medicines Questionnaire is completed at the first visit. At 4 and 8 weeks, medication adherence is assessed by pill conts and self-report adherence questionnaires. In the PG, individualized counseling is provided during these visits with calls between visits. Baseline comparisons between groups using Student's t-test and Fisher's Exact Test. Data expressed +/- standard deviation.

21/30 enrolled subjects have completed the study. Mean adherence rates were 100% in the PG and 89.1% in the UCG. Strong health beliefs, counseling, reminders, and planned study visits contribute to adherence. Barriers include adverse effects, forgetfulness, polypharmacy, cost, prescription delays due to insurance and mail order issues. Pharmacists, nurses and oncologists play an important role in ensuring adherence to oral therapy.

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TARGETED TOPICS "OFF SCRIPT" FROM AN APN-TEACHING INTERVENTION. L. Cooke, Nursing Research, City of Hope, Duarte, CA; M. Grant, Nursing Research, City of Hope, Duarte, CA; R. Gemmill, Nursing Research, City of Hope, Duarte, CA; and W. AnnaCathy, Nursing Research, City of Hope, Duarte, CA

Probably the most vulnerable cancer population is the HCT (Hematopoietic cell transplantation) transplant population; teaching these patients may affect mortality, and complications. Tailored teaching to this population may meet patient's information needs, and positively affect health behaviors and self-efficacy.

This study presents the content analysis of "off script" themes of intervention nurses' debriefing of teaching sessions with HCT patients. Thiese data are drawn from a larger mixed methods study. These "off script" themes provide evidence of tailoring an intervention to the needs of the patient.

Content analysis was organized according to the COH-QOL (City of Hope Quality of Life) framework which consists of 4 domains: physical, psychological, social, and existential/spiritual.

The overall study design is a longitudinal clinical trial to test the effects of a standardized nursing intervention on quality of life outcomes for allogeneic HCT patients post hospitalization. The qualitative data nursing notes were taken from the Session 1 Debriefing form which recorded the intervention nurses' perception of the session. This Debriefing Form was adapted from previous intervention studies and a pilot study with the HCT population.

Content was taken from 141 intervention patients. Topics for Session 1 served as the comparison template for the content analysis, and included: skin care, mouth care, clinic routines, signs and symptoms of infection and reportable complications, dehydration prevention, and medication review. "Off-script" themes were identified as topics of discussion with patients that did not fit the script content.

Following presentation and discussion of the planned content, patients were asked about additional topics/concerns. Themes requested included: dietary challenges, additional physical complications/concerns, patient emotional and psychological issues, caregiver issues, issues with children, family disruption, value of exercise, resources/finances, religious/spiritual issues, cultural issues, relapse, hobbies, diagnosis retelling, sexual issues, teaching session reaction, patient rapport. Some topics were already scripted content for future sessions, however some were not. These additional themes will assist with the design and content creation for further intervention studies.

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WHY DO CANCER PATIENTS VISIT EMERGENCY DEPARTMENTS? D.K. Mayer, School of Nursing, UNC-Chapel Hill, Chapel Hill, NC; D. Travers, School of Nursing, UNC-Chapel Hill, Chapel Hill, NC; A. Leak, School of Nursing, UNC-Chapel Hill, Chapel Hill, NC; A. Layman, School of Public Health, University of North Carolina, Chapel Hill; and A. Waller, School of Medicine, University of North Carolina, Chapel Hill

Visits to the emergency department may reflect the quality of cancer care being delivered. By using a population based approach, variations in care may be identified by geography, clinical problem, type of cancer or other socioeconomic factors. Cancer patients may need access to urgent care for symptom management that may be better delivered outside of the emergency department setting.

Emergency departments (ED) in the United States are utilized by cancer patients for disease and treatment related problems, as well as issues unrelated to their cancer status. The North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) collects information about ED visits through a mandated statewide population database. These data provided an opportunity to describe ED visits by patients with a diagnosis of cancer

A health services utilization framework of individual, societal, and health system characteristics guided this study.

After obtaining IRB permissions, the 2008 NC DETECT data set was obtained and the cancer subset identified. Descriptive statistics and logistic regressions were performed. Of 4,190,911 reported ED visits in 2008, 59,218 (1.4%) visits were contributed by 44,398 people with a cancer diagnosis. Among patients, 79.4% had only one ED visit in 2008, the mean age was 64 years and there were slightly more women than men (53.0% vs. 47.0%). Among visits, 50.4% were paid for by Medicare and 10.8% by Medicaid. While 53.3% of these ED visits with a cancer diagnosis occurred on weekends or evenings, 44.4% occurred during usual clinic hours.

The top 5 chief complaints were related to pain (chest or abdominal), respiratory distress, GI issues (nausea/vomiting), injury (falls), and bleeding. Lung, breast, prostate and colorectal cancers were identified in20.3%, 13.5%, 9.4% and 4.9%, respectively, of visits with a cancer diagnosis, , with the remainder of visits with a cancer diagnosis represent other types of cancer (51.2%). Further, 46.4% of visits with a cancer diagnosis were admitted to the hospital. When controlling for sex, age, time and day of the week of the visit, insurance, and cancer diagnosis position (whether in the 1st or 2nd diagnosis position or later), patients with lung cancer were more likely to be admitted compared to a collection of all other cancer types [adjusted odds ratio 1.83 (95% confidence intervals 1.74, 1.91)]. This study is the first to provide a population based snapshot of cancer patients who go to the ED in NC. Efforts targeted to clinical problems (pain, respiratory distress, nausea and vomiting, and safety) and cancer populations (e.g. lung cancer patients) have the potential to improve the delivery of quality cancer care and potentially avoid some ED visits.

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THE IMPACT OF TELEPHONIC CLINICAL MANAGEMENT OF ORAL ONCOLYTICS IN A SPECIALTY PHARMACY SETTING. D.H. Geotis, Oncology Plus Inc., Brandon, FL; and E. Sredzinski, The Apothacary Shop, Phoenix, AZ

The use of oral chemotherapy put administration of these medications quite literally in the patient's hands. With oral therapies, patients now must assume primary responsibility for treatment adherence and monitoring for possible side effects, toxicities, and even drug interactions. The importance of quickly reporting any such untoward effects perceived or real to the physician is of unlimited value to the patient and the healthcare system. There is very little research on adherence with oral chemotherapy and the value of the interventions delivered within a specialty pharmacy medication therapy management program. The idea of collaboration with healthcare providers in the management of oral oncology drugs is a win/win for all.

A cycle management clinical program will improve QOL, decrease severity of toxicity levels by interventions. Adherence to therapy will be compared to a control group in a retrospective analysis with improved adherence and drug efficacy expected in the interventional group.

Based on Orem's Theory of Self Care, each person has the need for self care in order to maintain optimal health, it is believed that by providing guidance and education, the person is able to self report side effects through using a patient reported outcomes tool assisted by the nurse. The elicited responses obtained by using the tool will develop the patients belief that they are able to return to or sustain a level of optimum health and hope.

Clinical data will be collected on demographically similar patients monitoring QOL, depression, and side effects. The patient will be called on day one of therapy, day 14 and day 25 prior to refill for cycle one, and then day 14 and 25 for cycle two, then day 25 for cycle 3 and beyond. At each call there will be a side effect review using the MD Anderson Symptom Inventory (MDASI), a depression screening (Whooley) and education will be provided. For every side effect, the clinician will assess level of toxicity using the NCI- CTC (common toxicity criteria) and escalate the response to the HCP if >level 2 toxicity. All interventions and outcomes will be documented. The control group chart review will look at number of cycles of therapy patient was on, including any interventions and side effects the patient may have experienced. Data will also be obtained on number of ER visits and hospitalizations due to side effects.

Data collection will end on December 31, 2010. Findings and implications will be reported at the conference.

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ONCOLOGY NURSING VIGILANCE: THE PHYSICS AND ART OF CREATING BALANCE IN BEING WATCHFUL.

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Cancer diagnoses and treatments pose many threats to patients. Oncology nurses defend patients from threats through complex behaviors known as nursing vigilance. Nurses are ethically compelled to be vigilant by both the American Nurses Association and the Institutes of Medicine to prevent error and recognize complications early.

Despite the need for nurses to protect patients from such threats, little research has been conducted describing how nurses experience and enact vigilance. The purpose of this research study was to describe commonalities of the lived experience of vigilance as perceived by 7 oncology nurses. Participant nurses were recruited after being nominated as vigilant by patients and families, who were part of a larger study of vigilance experiences.

An empirical phenomenological approach guided the study. Philosophies about consciousness, intentionality, and bracketing framed the investigation.

Colaizzi's method was used to obtain nurses' experiences of vigilance in individual open ended, audio-taped interviews. Two broad-data generating questions were asked about nurses being vigilant for patients or observing patients or family members being vigilant. From the data, significant statements were extracted, meanings formulated, and organized into a hierarchy of themes and essential structure. Trustworthiness and credibility strategies included audit trails, expert validation, and detailed descriptions of process and findings.

Ten theme categories described nurses' vigilance experiences. Nursing vigilance was similar to constructing a perfectly balanced mobile; a work of both science and art. Like physicists who mastered the science of measurement, balance, and proportion, and like artists, nurses considered elements in constructing vigilance routines that were often overlooked by others. Nursing vigilance was experienced through behaviors such as: advocacy for patients and families, noticing small things, identifying threats, having specific routines, and monitoring patients' responses. Nursing vigilance was enhanced by knowledge and positive attitudes, or hindered by lack of knowledge and experience, fatigue, and disorganization. Vigilance was strengthened by three specific nursing strategies: developing trust and connectedness with patients and families and monitoring hope. Data indicated outcomes of nursing vigilance included patient and family safety and well-being. When nursing vigilance was recognized by patients and families, nurses felt appreciated, which reinforced the continued use of vigilance.

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NURSING PRACTICE ENVIRONMENTS IN OUTPATIENT CHEMOTHERAPY SETTINGS.

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Most individuals with cancer are treated in outpatient settings, where quality of care studies are scant.

Studies that have associated organizational attributes to patient outcomes have focused on hospital settings. Our study's purpose was twofold: to modify the Practice Environment Scale of the Nurse Work Index (PES-NWI) for suitability to outpatient oncology settings; and to identify additional contributors to favorable nursing practice environments.

The Quality Health Outcomes model informed our examination of system features that enable nurses to deliver higher quality care to patients with cancer.

We obtained informed consent from subjects and IRB approval. Participants were recruited through six Oncology Nursing Society (ONS) chapters, participant word of mouth, faxed invitations to oncology offices, and a mailed solicitation to ONS mailing list subscribers. Inclusion criteria specified registered nurses had to administer chemotherapy in the outpatient setting at least 16 hours per week. After the PES-NWI was administered, participants engaged in a 90-minute semi-structured discussion to identify problematic items on the PES-NWI, and identify other organizational factors associated with favorable environments. Three independent coders contributed to the thematic and item analysis. Revisions to the PES-NWI were performed iteratively, and later validated by three cognitive interviews with additional eligible participants.

We conducted two focus groups, with 12 nurses total. Themes from the focus group discussion included: (1) adequate staffing, plus the setting's capability to respond to surges in patient needs, is an important determinant of favorable environments; (2) while collegial nurse-physician relationships are important, healthy interactions with medical assistants and pharmacy staff are also essential, and; (3) disconnects occur between managerial focus on cost containment and nursing focus on adequate patient support and safe working conditions. The terms hospitals and units were replaced with "setting." Oncology nurses employed in outpatient settings identified characteristics of their work environment that contributed to high-quality nursing care. The existing PES-NWI, with minor modifications, is a useful instrument to study the practice environments of outpatient oncology nurses. Validation of these findings in larger, more representative samples is important to develop policy and management solutions to promote nurse retention and support quality care.

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KNOWLEDGE AND CONFIDENCE IN THE DELIVERY OF CANCER CARE PRE AND POST PARTICIPATION IN A CANCER CARE CURRICULUM FOR NURSE PRACTITIONERS NEW TO CANCER CARE: A PILOT STUDY.

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Currently, nurse practitioners without previous cancer care experience are entering oncology positions requiring a high degree of autonomy and decision making without any additional training or education, leaving susceptibility for poor patient outcomes, risk management vulnerabilities, and high clinician attrition.

This curriculum, "Adult Cancer Care: An Educational Program for Nurse Practitioners in Oncology" (Adult Cancer Care), a

program of education for nurse practitioners in their first year of cancer care practice, is a response to the critical educational need for nurse practitioners new to cancer care. To monitor the impact of the "Adult Cancer Care" curricula through participant's (pre and immediately post) self assessment in cancer knowledge and confidence in delivering cancer care. To evaluate the acceptability of content and delivery of the "Adult Cancer Care" curriculum from nurse practitioners in the first year of oncology practice.

Bloom identified three domains of educational activities that are incorporated into this curriculum, cognitive (knowledge), affective (attitude) and psychomotor (skills). The curriculum is developed to provide basic cognitive knowledge, an acknowledgement of affective component of this unique clinical position and an opportunity for application of knowledge through experiential workshops.

Weekly 8 hour seminar for six weeks of didactic and experiential learning was offered through the School of Nursing at the University of Pittsburgh Cancer Institute Campus. Content was based on the Oncology Nursing Society's Oncology Nurse Practitioner Competencies and through consultation with nursing and medicine leaders at the University of Pittsburgh Cancer Institute and Bloom's Taxonomy of Learning. Content included lecture, case study and standardized patient encounters for history taking, presentation and for difficult communication strategies. Pre and three month post seminar testing was conducted using a 5 point Likert scale (1 – Not at all to 5 - Very much) evaluating the participant's knowledge of the stated item and confidence related to performing that competency in cancer care. The items were worded according to forty three of the Oncology Nursing Society's Entry Level Competencies for Nurse Practitioner

There were 6 core participants with 5 of 6 (83%) returning post tests. Descriptive statistics were used. Knowledge of oncology content and overall confidence in performing skills related to knowledge items improved from pre and post test. Knowledge pre was composite 2.9(SD.38);Knowledge post improved to 5.0 (SD.3); confidence pre was mean composite 3.9 (SD.38); and confidence post education 4.8(SD.34). Lowest ranked competency pre education, composite mean 2.3 in knowledge was "initiates appropriate treatments and referrals for patients experiencing an oncologic emergency." This improved to composite mean 3.5 post education. Competency with most improvement (mean 1.8 increase) post education was "diagnoses of acute and chronic conditions that may result in deterioration or emergencies." Anecdotal information from participants and supervising physicians were positive regarding the improvement in knowledge and noted improvement in clinical skills including history taking and decision making. Content and delivery method were rated favorably by participants. Pilot findings support development and dissemination of large scale curricular dissemination and evaluation.

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PATIENTS' AND HEALTHCARE PROVIDERS' EXPERIENCE WITH NAVIGATION FOR CANCER CARE.

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Patient navigation has been widely supported in USA, but remains a new concept in other countries. Cancer is the leading cause of death in Taiwan; and patient navigation program is one of recent national initiatives to reduce cancer burden.

On-site, one-stop cancer navigation programs led by oncology nurses or social workers were piloted in six hospitals to address barriers of cancer care for cancer patients and their families. The function of navigation was unknown. Thus, this study aimed to understand the experience and meaning of navigation from the perspectives of cancer patients/families and oncology healthcare providers, and to identify its characteristics for future development.

A qualitative inquiry was used to realize the meaning and influence of the navigation through the lens of cancer individuals and their families, and the healthcare providers involved.

Open-ended interviews were conducted to elicit the experience of navigation for cancer care. A total of 23 purposively sampled participants were recruited from the 6 hospitals with navigation program across Taiwan. Participants included 6 cancer patients with various cancer and 4 family members who have received navigation, and 13 healthcare providers who have referred patients to or facilitated this program, including 6 oncologists, 5 nurses and 2 social workers. Open-ended interviews were taped and transcribed. Data was coded and categorized by using content analysis.

The patient/family participants described the on-site, one-stop navigation led by oncology nurses or social workers as their "extra hands" and as a function to their active involvement for cancer care. Both the patient/family and healthcare-provider groups valued the navigators as the patients' third-party consultant and the advocator for cancer care. The navigation was characterized as prompt, directing and resourcing supports, including emotional and informal supports, problem-solving, and logistical coordination. The healthcare providers valued navigation for mobilizing resources in the hospital and in the community, but suggested that the success of navigation relied on policy and administrative support and a good collaborative team work. The findings of this study can inform current and future program development of patient navigation for cancer care.

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ONCOLOGY HEALTHCARE PROVIDERS' PERCEPTIONS OF A WEB-BASED CANCER INFORMATION AND SUPPORT TOOL DESIGNED FOR INDIVIDUALS DIAGNOSED WITH COLORECTAL CANCER.

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The Internet has increasingly become an important source of health information for patients and health care providers (HCPs) alike. High quality web-based information and support tools have been found to improve patients' knowledge, perceived cancer competence, satisfaction with accessed information, maintain quality of life, and guide a more informed use of health care services.

Although studies have documented the impact of e-health interventions on patient outcomes, few have explored HCP's perceptions of these. The purpose of this study was to begin to examine HCPs' perceptions of the usefulness and implementation potential of the Oncology Interactive Navigator ™ (OIN).

Using grounded theory, a qualitative exploration was undertaken among oncology HCPs involved in colorectal cancer care in a university-affiliated cancer centre in Montreal, Quebec.

Ten HCPs were recruited and introduced to the OIN, provided with an access code to the site and asked to access the OIN during a one-week period. A follow-up interview was scheduled right after. Face-to face semi-structured interviews lasting between 30 and 60 minutes were conducted and tape recorded. Content was transcribed verbatim. Data analysis was performed using a constant comparative method.

Data revealed an array of HCPs' OIN perceptions. These centered around three main categories: (1) Technical characteristics of the OIN, such as page display design, search engine and ease of use, (2) The OIN as a significant complement to other navigation initiatives, and (3) Usefulness of model cases (i.e., scenarios involving diverse patients profiles) as effective when in reflecting on OIN relevance to patients. Several benefits as well as implementation challenges were highlighted such as the advantage of reducing repetitive teaching for HCPs, the importance for HCPs to be involved in reviewing and contributing to OIN content, language (being available in English only at this time), and time required to introduce the OIN to patients. These findings add to the existing e-health intervention literature by providing the perspectives of a multidisciplinary oncology team.

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AN EXPLORATIVE STUDY OF NURSING HOURS OF STEM CELL TRANSPLANTATION PATIENTS IN A HEMATOLOGY UNIT IN TAIWAN.

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Stem cell transplantation (SCT) patients require severe immunosuppression and are under high risk of infection. Nurses need to perform procedures (isolation protocol) to keep as low as possible the bacterial load in patient's room and reduce the risk of infection. Nurses need to perform time-consuming activities to care SCT patients.The purpose of this study were (1)to explore the daily nursing hours of a SCT patient; (2)compare the difference of daily nursing hours between allogenetic and autologous

The study composed of two parts. The first part, we used timer to measured every nursing activities selected. The second part of this research we recorded the amount of daily nursing activities that patients require related to the category of the treatment that these patients has received.

From February, 2008 to December, 2009, we recorded 788 days daily nursing hours of 22 patient (12 allogenetic and 7 autologous SCT patients).. There are three peak nursing time for allogeneic SCT. Those obtain day 0(7.17 hours), day +10(6.4 hours), and day +13(6.2 hour). The nursing time is reduced from day +22(4.22 hours).Every allogenetic SCT patient need 6 hours nursing care per day during day 0 to day 20 . There are two peak nursing times for autologous SCT. Those obtain day 0(7.13 hours) and day +10(6.45 hours). The nursing time is reduced from day +22(4 hours). Every autologous SCT patient need 6 hours nursing care per day during day 0 to day 20.

We find allogenetic and autologous SCT patients need the same nursing care during transplantation period. The results of this exploratory study give more information on work burdened for care of SCT patient. We suggest nursing manager use the same manpower to care allogenetic and autologous SCT patient to provide better care quality. The results could be aid for nurse managers in planning resources allocation. The small size of the sample may not be totally representative for the whole population, so we suggest increase more sample size in the future.

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A QUALITATIVE STUDY ON THE NEEDS OF GRADUATE NURSES ENTERING THE ONCOLOGY WORKFORCE.

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New graduate nurse's job satisfaction indicates that one of the most anxious and stressful periods in a nurse's career is during the first year as a professional nurse. The field of oncology nursing is also noted for its increased levels of anxiety and stress. In an acute care oncology setting the job satisfaction of newly graduated nurses was studied to determine the best recruitment and retention methods for future orienting nurses.

The study explored the needs of graduates as they transitioned from the educational setting to the practice setting. The study also explored those factors new graduates perceive as helpful or not helpful in making this transition.

The theoretical framework of Jean Watsons Theory of Human Caring was utilized as the sensitizing framework for the study.

The method for this study is a phenomenological qualitative research approach. Colaizzi's method of data analysis was used for interpretation of the research data. After examining the participant's interview responses, four primary themes and two sub-themes were identified during the data analysis. Four new graduate nurses made up the purposive sample. Data was obtained through semi-structured and open ended interviews with participants which lasted approximately 30-45 minutes.

The findings of the current study discovered the graduate nurses need for a mentor/preceptor to help build confidence and decrease the feelings of being overwhelmed. To monitor the needs of the graduate nurse, preceptors/mentors would need an orientation/education to speak to the graduate nurse's transitioning needs and the approaches which would be conducive to their learning. Applying Watson's carative factors to the graduate nurse's oncology nursing orientation would help the mentor/preceptor achieve a transpersonal relationship with each graduate and approach the transition realizing each graduate is a unique individual with different needs. Through the preceptors application of Watson's carative factors a decrease in the sense of being overwhelmed by the graduate nurse would take place as a part of stress management.

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EXPERIENCES OF CANCER SURVIVORS AND CAREGIVERS WITH ONLINE CANCER COMMUNITIES.

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Data from the 2007 Health Information National Trends Survey suggest a slight increase in online support group participation among Internet users. Approximately 5% of Internet users in the United States (US) participate in online support groups. More than 12 million cancer survivors are estimated in the US, and survivors report lower quality of life than the general population.

Little is known about the impact of online cancer communities on cancer survivors and caregivers. The aim of this qualitative descriptive study was to describe the experiences of cancer survivors and caregivers with online cancer communities.

A qualitative descriptive approach was used to describe the experiences of cancer survivors and caregivers with online cancer communities. A secondary analysis of qualitative data from the 2006 Pew Internet and American Life Project (N = 1,680) was conducted to better understand the experiences of cancer survivors and caregivers with cancer-related online communities. Krippendorff's thematic clustering technique of qualitative content analysis was used to discover recurring themes in online communities experienced by cancer survivors and caregivers.

Content analysis of online survey responses (n = 488) revealed patterns of support, knowledge transfer, empowerment, hope, and community. Making connections with "someone like me" mediated feelings of isolation particularly for those dealing with rare cancers. Participation in online cancer communities has the potential to improve quality of life for cancer survivors and family caregivers. Study findings support the development and testing of nurse-moderated online cancer communities as an intervention to improve quality of life in cancer survivorship. Online cancer communities provide an opportunity to increase nursing's capacity to address survivorship issues for a global society.

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STAGE-BASED EDUCATION TO FACILITATE STAGE OF READINESS FOR MAMMOGRAPHY USE AND MODIFY BREAST CANCER BELIEF AMONG KOREAN AMERICAN WOMEN.

J.H. Kim, University of Illinois at Chicago, College of Nursing

Breast cancer is the most frequently diagnosed cancer among Korean American (KA) women and KA women are more prone to breast cancer than women in Korea. KA women's screening mammography use remains suboptimal indicsting needs of culturally sensitive and theory-based mammography promotion intervention

A prospective, repeated-measures, two-group study was conducted to implement a culturally relevant, stage-based, targeted educational intervention, titled GO EARLY Save Your Life, specifically designed to facilitate the stage of readiness for mammography use among Korean American women aged 40 years or older.

The integration of the transtheoretical model (TTM) and the health belief model (HBM) guided the study. The educational program was a 45-minute, stage-based, interactive session on breast cancer/early screening knowledge, breast cancer-related beliefs, and Korean traditional cultural beliefs for KA women grouped according to stages of readiness for mammography use.

A total of 180 KA women participated. Each woman in the intervention group (n=90) completed a baseline survey, attended an educational session arranged by mammography stage at baseline, and completed a follow-up survey 16- and 24- weeks after the educational session. Women in the control group (n=90) completed questionnaires only at the same intervals as the intervention group.

Mammography use increased by 15% for the intervention group and 7% for the control group. The stage-based education was effective in modifying women's beliefs in various degrees between women in different stages of readiness of mammography use.

The GO EARLY Save Your Life intervention was feasible and culturally sensitive to KA women, and can be replicated in other KA communities. A longitudinal study with more repeated measures of mammography use is needed to assess the further educational impact on the movement of readiness to have mammography.

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GENDER DIFFERENCES AND FACTORS INFLUENCING AN INFORMED DECISION REGARDING COLORECTAL CANCER SCREENING AMONG OLDER AFRICAN AMERICANS.

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This study aimed to examine gender differences and factors influencing informed CRC screening decisions among older AAs. The Preventive Health Model (PHM) guided this study because it suggests health actions are influenced by internal and external factors and reflective of the self-system.

Colorectal cancer (CRC) screening rates among African Americans (AAs) are low resulting in advanced disease presentation and high CRC mortality rates. Factors influencing CRC screening decisions are not well documented. Identifying factors affecting informed CRC screening decisions among older AAs is important to designing interventions.

A descriptive cross-sectional design was used. A community-based purposive sample of 129 AAs 50 years and older was recruited from an urban, Midwestern city. Study variables were measured with reliable and valid instruments: Cultural identity sub-scales, CRC Perceptions Scale, MOS Social Support Survey, Family Influence Scale and Informed Decision Scale. Descriptive statistics, bivariate correlations, t-test and Multiple Regression analyses were used. Collectivism ($r = .32$, $p = .05$) and racial pride ($r = .38$, $p = .000$) positively related to informed decision for men. Family support (FS) positively related to CRC beliefs among men ($r = .50$, $p=.000$) and women ($r = .45$, $p= .000$). CRC beliefs positively related to informed CRC screening decision among men ($r = .32$, $p =.000$) and women ($r = .25$, $p = .000$). T-tests revealed differences for cultural identity (CI) and FS for men and women ($p< .05$). Among women, CI and FS explained 30% of the variance in CRC beliefs and CRC beliefs explained 6% of the variance in informed decision. Among men, CI and FS explained 44% of the variance in CRC beliefs and CRC beliefs explained 10% of the variance in informed decision. FS significantly predicted of CRC beliefs among men ($p < .05$) and women ($p < .01$). CRC beliefs significantly predicted informed decision among men ($p < .01$) and women ($p < .05$).

Despite differences in bivariate correlations and t-test results, the same factors predicted CRC beliefs and informed decision for men and women.

Interventions to increase CRC screening among AAs must incorporate gender differences, CI, FS and informed decisions as strategies.

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ARABIC WOMEN'S EXPERIENCE WITH EARLY STAGE BREAST CANCER TREATMENT IN THE U.S.: CONFRONTING A CHALLENGE FROM GOD.

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This study is the first that will start filling the gap in the current literature regarding decision making for surgical treatment of early stage breast cancer among other than Western patients specifically among Arab immigrant women at the U.S.

The decision for surgical treatment of early stage breast cancer is preference- sensitive. A substantial body of research exists on the experience of living with breast cancer, decision making for surgical treatment of early stage breast cancer, and the interventions that might facilitate women's participation in decision making. However, the overwhelming majority of this research reports on mostly Anglo-Caucasian, followed by African-American and Hispanic patients.

The purpose of this study was to understand the experience with early stage breast cancer treatment among Arab immigrant women in the U.S. The objectives were to (a) gain an understanding of women's knowledge of breast cancer treatment and how their treatment awareness has been informed, (b) explore women's preferences for involvement in their own medical care, (c) identify the extent to which these women perceived that they had surgical treatment options.

The theoretical perspectives of Heidegger's interpretive phenomenology were used to inform the study.

A qualitative research design was used. Hermeneutic phenomenology guided sampling, data collection and analysis. A purposive sample of 10 women with early stage breast cancer from several Arabic nationalities was recruited. Data was collected utilizing individual semi-structured interviews.

Six related experiential themes and one constitutive pattern describe Arab immigrant women experience with the diagnosis and surgical treatment of early stage breast cancer: (1) breast cancer as a life threatening illness; (2) breast cancer as a fate; (3) knowledge about own diagnosis and treatment;(4) trusting physicians for treatment choices and/or decisions; (5) Accessing/finding social support;(6) suggesting health practices for others. Constitutive pattern: Confronting breast cancer as a challenge from God.

Various contextual factors beyond race/ethnicity impacted on Arabic women's experiences with the diagnosis and treatment of early stage breast cancer. Thus, health care providers should individually assess patients' decision making preferences, invite them to participate in the decision making process, and provide them with tailored means necessary for such participation without making any assumptions based on patients' ethnic/cultural background.

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INFLUENCE OF RACE AND GEOGRAPHIC REGION ON CHEMOTHERAPY INITIATION FOR BREAST CANCER IN MARYLAND WOMEN.

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Epidemiology and Preventive Medicine, University of Maryland School of Medicine, Baltimore, MD; L. Gallicchio, Prevention and Research, Mercy Medical Center, Baltimore, MD; W. Citron, Radiation Oncology, University of Maryland, Baltimore Washington Medical Center, Tate Cancer Center, Glen Burnie, MD; and C. Drogula, Surgical Oncology, University of Maryland, Baltimore Washington Medical Center, Tate Cancer Center, Glen Burnie, MD

Poor and minority women are less likely to receive prescribed chemotherapy. Geographic region predicts breast cancer recurrence and mortality, but little is known about its influence on proximal outcomes, including treatment. The purpose is to describe the association between race and chemotherapy initiation[chemotherapy] and how it differs within rural, urban, and suburban Maryland regions in women prescribed chemotherapy.

Constructs from the Health Belief Model guided this analysis. Race and geography were investigated as predictors in a model of chemotherapy initiation.

Secondary analysis of Maryland Cancer Registry data was conducted using logistic regression. Sample included black and white Maryland women who received a breast cancer diagnosis between 2000-2006, breast conserving surgery, and chemotherapy recommendation. Department of Defense definitions of urban, rural, and suburban geographic regions were utilized.

Subjects (n=4,622) were predominantly white (72%) and insured (95%). Black subjects (n=1,287) more often were younger, privately insured, urban, and diagnosed with estrogen receptor (ER) negative disease compared to whites ($p<0.001$ for all). In the full LR model (n=3,116), suburban women had 0.75 (95% CI:0.58-0.98) the odds of chemotherapy initiation compared to urban women. Race was not associated with chemotherapy. Other predictors of chemotherapy included age, with odds (95%CI) of chemotherapy 0.63 (0.46-0.85) and 0.17 (0.12-0.24) for ages 50-64 and >=65, respectively, compared to age <50. Having ER negative disease also predicted chemotherapy ($p<0.001$).

In region stratified analyses, odds of chemotherapy initiation for ages 50-64 were no longer significantly reduced for rural (n=447) and urban (n=1,185) women. Suburban women (n=1,484) aged 50-64 continued to have reduced odds of chemotherapy (OR, 0.58;95% CI:0.37 0.88), however, compared to those <50 years. Women >=65 within each region continued to have significantly reduced odds of chemotherapy compared to those <50 years ($p<.001$). Race was not associated with chemotherapy in stratified analyses. Regardless of race, chemotherapy is less likely in middle-aged suburban Maryland women. Identifying additional associations between sociodemographic modifying factors and chemotherapy may enable targeting of treatment and improve chemotherapy rates in this group.

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PATIENT NAVIGATION IN BREAST CANCER CARE: ADDRESSING BARRIERS TO TREATMENT INITIATION AND FOLLOW UP.

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Patient navigation is one of the newest strategies to improve cancer care delivery particularly to underserved populations. There exists some variability regarding implementation of the role. Research reports are just now beginning to emerge defining the role, its processes, and goals.

The purpose of this study is to develop, implement, and evaluate a patient navigation program to identify and eliminate barriers to breast cancer treatment initiation through 9 months of care in underserved newly diagnosed patients, English- or Spanish-speaking. An additional goal is to promote effective use of resources and patient self-care advocacy.

The conceptual framework focuses on healthcare disparities, patient navigation, and quality of life (QOL).

A bilingual lay patient navigator (PN) was hired and trained to implement the study intervention. Weekly supervision of the PN is provided by the principal investigator. Consented study participants complete self-administered questionnaires (QOL, social support, mood, resource use, and satisfaction) at baseline, 3, 6, and 9 months. In addition to contacts with participants directed by participant need (e.g., identified barrier and steps to resolution), the PN provides intentional contact with participants weekly during the first 8 weeks of the study, then monthly for 7 months, by phone or in person at time of clinic visits. The PN develops a plan with the participant for eliminating self-identified barriers to treatment initiation, completion, or follow-up. Adjustments are made during continued contact, as barriers are resolved or new ones identified. Analyses will include descriptive, correlation, multiple regression, and repeated measures analysis of variance.

The sample currently enrolled (n=51) has Medi-Cal (68.6%) or Medicare (31.4%); high school education or less (89.3%); is Spanish-speaking (39.2%); Latina (64.7%); unpartnered (52.9%). The most frequent barrier category is disease and treatment-related, including participants' needs to speak further with providers to enhance understanding, mental health care, and appointment coordination. Other barriers include access to wigs, bras/prostheses, and transportation. Satisfaction with PN is high. Preliminary focus groups suggest the continuity of relationship with the PN is a key factor in participants' ability to identify and seek help for barriers. Gaps in knowledge and research challenges in patient navigation will be highlighted.

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COMMUNICATION CHALLENGES IN CANCER CARE DELIVERY: PERSPECTIVES FROM LATINA AND AFRICAN AMERICAN BREAST CANCER SURVIVORS.

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Significant cancer health disparities exist among racial and ethnic minorities in the U.S. African Americans and Latinas with breast cancer (BC) have unique healthcare needs that are influenced by culture, language and potentially, by perceived racial/ethnic discrimination. Yet how these factors affect perceptions of cancer care delivery remains understudied in cancer survivorship research. Therefore, the purpose of this study was to explore and describe how ethnocultural characteristics affect perceptions of cancer care delivery among Latina and African American BC survivors.

The conceptual framework guiding this study was critical race theory (CRT), which is based on the premise that socially constructed identities such as race, ethnicity, and culture are contextual phenomena that cannot be separated from people's everyday experiences and meanings.

An interdisciplinary, mixed-methods design was used. A sample of 39 minority women diagnosed with BC (Stages 1-4) within

the past 6 years were recruited from community-based organizations in Arizona. Semi-structured interviews were conducted by racially and linguistically matched nurse researchers. Data were analyzed using content and comparative matrix analysis. Qualitative findings related to communication challenges will be presented.

The sample included: 38.5% monolingual Spanish-speaking Mexican immigrants, 38.5% English-speaking Mexican Americans, and 23% African Americans. All had received BC treatment in the U.S. The mean age was 50 (range 36-67 years). Spanish-speaking Latinas had lower mean income ($10,000-20,000/yr) and education levels (7.7 yrs) compared to the other groups ($35,000/yr income and 14 yrs education). Similarities in perceptions across the three groups included feeling an enduring emotional traumatization by providers' method of communicating the cancer diagnosis, desire for increased compassionate communication from nurses and physicians during diagnostic and treatment phases, and inadequate understanding of cancer care despite use of Spanish-speaking translators in the Latina Spanish-speaking group. Providers' competency and caring communications were viewed as more important than racial/ethnic concordance between patient and provider. Patient-focused strategies that may improve clinical care for English-speaking and Spanish-speaking Latinas and African Americans surviving breast cancer will be discussed. Further exploration is needed to determine best practices for the interpersonal aspects of BC care delivery that is relevant for Latina and African American women.

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DIFFERENCES IN DISEASE PRESENTATION AND TREATMENT OUTCOME FOR AFRICAN AMERICAN PATIENTS FOLLOWING RADIATION THERAPY FOR PROSTATE CANCER.

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Incidences of prostate cancer in African American (AA) men is higher than Caucasian men (C), and tend to be more likely diagnosed at a higher stage disease. Thus, there is higher mortality in AA men.

The purpose of this study is to analyze and understand the ethnic differences in disease presentation, treatment techniques and outcomes in patients who received radiation therapy (RT) for prostate cancer.

The rationale of this study is to convey that in spite of the known incidence and mortality of the AA men, RT remains an appropriate treatment option. Interpretation of this data may prove to be helpful in behavior modification for clinicians and patients.

The study examined 3,207 cases of prostate cancer treated with RT from 1984 – 2009; 91% were C and 9% were AA. Data were collected on race, clinical and pathologic characteristics at presentation, treatment techniques, follow up, survival and recurrence outcomes. Pearson's Chi-Square and Kaplan Meier methods were employed for statistical analyses.

At presentation, AA men were younger than C men. However, C had higher T stage. Pathology revealed more AA men had Gleason score (GS) of ≥7. AA men had a shorter mean follow up. There was a statistically significant difference at 5 years with higher biochemical control in AA men. There was a trend in local recurrence, distant metastasis, and overall survival at 5 and 10 years favoring AA men. However, at 5 years and 10 years, AA men had a better cause specific survival at 5 and 10 years.

African American men presented at a younger age and higher Gleason score compared to Caucasian men. Caucasian men presented with higher T stage. Despite the differences in disease presentation, the outcomes were similar in local control, distant metastasis, and overall survival among the ethnic groups. Biochemical control and cause specific survival were statistically better in African American men. Patient education and community outreach are paramount for screening, early intervention, and management for patients with prostate cancer particularly for African American men.

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DISCORD OF MEASUREMENTS IN ASSESSING DEPRESSION OF AFRICAN AMERICAN CANCER PATIENTS.

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This is the first study that systematically examined the concordance of existing depression measures in assessing depression of African Americans. It sheds light on underlying cultural issues that differentiated AA responses to individual measures.

This study examines the consistency among the Center for Epidemiologic Studies–Depression Scale (CES-D), the Hamilton Rating Scale for Depression (HAM-D), the Beck Depression Inventory (BDI-II) and observer's rating in assessing depression of African American cancer patients.

The theory of phenomenology was used to guide the mixed method design and data collection of this study.

75 breast and prostate cancer survivors (33 men and 42 women) were recruited as a convenience sample, including 58 African Americans (AA) and 17 Caucasians. They were interviewed for 40 to 60 minutes. The interviews were audiotaped, transcribed and analyzed. The CES-D, HAM-D and BDI-II were administered and the interviewer's rating of depression was obtained. Nonparametric tests were performed.

There is a significant difference between CES-D and HAM-D or BDI-II in assessing depression across racial groups ($p \leq .05$). Using customary cut-offs, the CES-D identified depression in Caucasians more than the HAM-D, BDI-II and observer's rating by 29%, 38% and 6%. The CES-D also identified depression in AA more than the HAM-D, BDI-II and observer's rating by 12%, 24% and 9%, but under-identified 7% and 10% depressed AA than the HAM-D and observer's rating. Similarly, the observer's rating identified more depressed Caucasians by 25% and AA by 9% and 22% than the HAM-D and BDI-II, but under-identified 9% depressed AA than the HAM-D. For both Caucasians and AA, the HAM-D identified nearly 20% more depressive cases than BDI-II. Symptom items that incurred more frequent disagreements were examined.

Not surprisingly, the CES-D, a popular screening tool, identified more depressive cases than the HAM-D and BDI-II that are usually applied to patients diagnosed for depression. What was surprising is that this screening tool identified less depressive cases in AA than the HAM-D and observer's rating. It is known that the CES-D and BDI-II emphasize affective symptoms, while the HAM-D contains somatic symptoms and the observer's rating relies on nonverbal clues. The study findings suggest that a certain symptoms captured by observation and HAM-D tap at depressive manifestation unique to AA cancer patients, reflecting their unique life experience and culture.

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RESEARCH TO MEASURE EQUITY IN CANCER CARE AT DANA FARBER CANCER INSTITUTE (DFCI).

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Institute of Medicine publications Crossing the Quality Chasm and Unequal Treatment cite equity as a key element to achieving a quality healthcare. These publications detail evidence on inequitable care and provide a policy framework calling for collection of race-ethnicity data and public reporting of disparities.

National Institute for Nursing Research (NINR) and Oncology Nursing Society (ONS) have identified as a priority to the nursing discipline, building the state of science research, integrating biologic and genetic methods to reduce inequalities in healthcare. Under leadership of Nursing & Patient Care Services, Office of External Affairs, and the Community Benefits Program, a Healthy Equity Advisory Committee was formed to identify indicators of equity in cancer care, categories to measure race/ethnicity, a framework for pursuing the research, and sources of data.

The Population Health Framework proposed by Harper & Lynch in Methods for Measuring Cancer Disparities was used. This framework considers population health burden of disparities over time with the disparity indicator sensitive to changes in size, health, and socioeconomic status of population subgroups.

Adult patients seen in 2007 and 2008 were analyzed. Information on demographics, utilization of disease and service centers, new cancer diagnoses, clinical trial enrollments and patient satisfaction were analyzed. Data sources include: Clinical Operations Research Information Systems (CORIS), Interpreter services database, Cancer registry, Clinical trials database which includes therapeutic trials, banks, and some of the non-therapeutic trials. Press-Ganey patient satisfaction database Fifteen percent (9,147) of the 59,923 ambulatory patients seen at the DFCI were minority patients. The racial/ethnic breakdown of the patients was 7% (4,062) Black, 5% (3,228) Hispanic/Latino, 2% (1,270) Asian, 1% (587) "other," and 79% White (data were missing for 6% of the patients). The diseases centers with the highest and lowest minority groups were identified. Utilization of support services by race/ethnicity ranged from 1-9%. The largest minority group was Black patients (4%), followed by Hispanic/Latino (3%), Asian (2%), and "other" (<1%) patients. Disease stage (pathology or clinical) was examined for four cancers – breast, colon, lung and prostate, with some differences noted in the different racial/ethnic groups. Enrollment in all three types of clinical trials (therapeutic, non-therapeutic and banks) was higher for White patients than for Asian, Black and Hispanic patients. Although these three groups of minority patients accounted for 14% of the total patients seen in FY07/08, they accounted for only 7% of the clinical trial enrollments during that period.

This research was an important and required step to improve the measurement of health equity. Analyzing patterns of access, utilization, and care management for racial and ethnic minorities provides valuable insights into the provision of quality cancer care for all. One of the major challenges of this research was to identify a single, reliable source of race and ethnicity of the patients at DFCI combined with measures of socioeconomic status such as income and education. In disparities research accurate and complete race/ethnicity/education and income data are a key components to identifying factors that contribute to disparities in cancer incidence, prevalence, care, and outcomes.

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CULTURAL BARRIERS TO CANCER CARE FOR SOUTHWESTERN AMERICAN INDIANS.

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American Indians (AI) are diagnosed at later stages of cancer in comparison to Non-Hispanic Whites and have poorer outcomes as a result. Both systematic and cultural barriers have been identified to explain this disparity, but little is known about AIs from the southwestern U.S.

The purpose of this presentation is to discuss cultural barriers to cancer care for southwestern AIs. I utilized Critical Realist Ethnography to explore and develop a culturally-congruent model to illustrate the relationship between the AI groups studied and their relationship with cancer and cancer care.

Semi-structured interviews, field notes, and participant observation provided rich data, which were analyzed through a process of immersion, synthesizing, and recontextualizing until clear themes emerged. Informants validated these results to establish authenticity and trustworthiness of findings, and new data from the validation process were incorporated into the analysis. There were 24 informants, of whom 13 were AI people with cancer, ranging in age from 36 to 76 years, both male and female, and with a variety of tumor types. The other 11 informants were doctors, nurses, family, and community members, and were both AI and non-AI.

Cultural barriers to cancer care included the need for privacy, community service, food, traditional life, path in life, trust, politeness, and good fortune. Implications from this research include clinician inclusion of family in all decisions, consideration of the effect of cancer treatment on traditional life for AI patients, and need for AI-targeted teaching materials that include family and community.

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THE EFFECT OF THE "SAVE OUR BREASTS" FORUM ON BREAST CANCER BELIEFS, FEAR, AND FATALISM IN AFRICAN-AMERICAN WOMEN.

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The breast cancer mortality rate is higher in African-American women (AAW) and breast cancer incidence and mortality rates in AAW under 40 are higher than for any other ethnic group. From 2004 to 2005 the mammography rate for AAW decreased 10 percent.

Gaps exist in research aimed at culturally appropriate interventions for AAW that aim to reduce psychosocial and fatalistic barriers to mammography screening. The specific aim is to measure the effect of the "Save Our Breasts" Health Forum on AAWs breast cancer beliefs, fear, and fatalism. The forum incorporates AA breast cancer survivors' personal testimonies, poetry, prose, photographs, and quotations.

The Health Belief Model (HBM) and Powe Fatalism Model comprise the theoretical framework for the study. The HBM proposes that perceived susceptibility, benefits, barriers, self-efficacy, and cues influence whether a person engages in a health promotion behavior. Cancer fatalism is the belief in the inevitability of death once diagnosed.

A quasi-experimental pre and post-intervention longitudinal design is used. A convenience sample of 250 AAW 35 and older from churches and community organizations will be invited to participate. Seventy-four AAW have completed surveys that measure beliefs, fear, mammography self-efficacy, and fatalism prior to and immediately after the "Save Our Breasts" forum. Three-month post-intervention surveys are being administered. All instruments are reliable and have been validated in AAW. Nonparametric statistical analysis, using the Wilcoxon Signed Ranks test, appropriate for ordinal level variables and small sample sizes, was used to analyze differences from pre to post-intervention.

There were significant findings for all variables. Preliminary results showed that after the forum the women believed they were more susceptible to and fearful of breast cancer, perceived fewer barriers and greater benefits to having mammograms, had lower mammography self-efficacy, and were less fatalistic. Many AAW believe that the diagnosis of breast cancer is part of God's plan. Since the majority of participants attend church, the findings of less fatalism, greater susceptibility and fear are unexpected and warrant further study. When promoting breast health in AAW, nurses should use programs such as "Save Our Breasts", incorporating discussions of religion, fatalism, susceptibility, and fear.

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CULTURAL HUMILITY AND COMMUNITY ENGAGEMENT: APPROACHES FOR RESEARCH IN CANCER DISPARITIES.

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This presentation describes two approaches to use in the research of vulnerable populations living with cancer-- the processes

of cultural humility and community engagement. Examples from an ongoing qualitative study with low income African Americans with advanced cancer experiencing symptoms will be used to illustrate the approaches.

Our history illustrates that vulnerable individuals have been abused, disrespected or excluded from participating in research. Reasons given for not studying vulnerable populations include mistrust, poor communication, recruitment and retention challenges, gate keeping, and complicated protocols. These reasons are not sufficient to exclude disadvantaged groups from the benefits of research and must be addressed in order to begin to eliminate health disparities.

Cultural humility, originally described as a tool to educate physicians to better work with the increasing cultural, racial and ethnic diversity in the United States. In the context of research, it is an ongoing process whereby researchers examine their own beliefs and cultural identities. Beliefs about race, ethnicity, class, linguistic capability, and sexual orientation are explored. The process requires humility to develop mutually respectful and beneficial relationships between the researchers and study participants. Previous paternalistic views and gate keeping activities are replaced with honest communication and respect. The value of the participant's expertise is recognized and trust is established. Community engagement is also needed to build trust and meaningful research. Using the concepts of community based participatory research, strategies to engage community members in the planning, implementation, and dissemination of finding will be discussed. This collaborative approach involves all partners in the research process and recognizes the unique strengths that each brings. Attention to communication and transparency in the research process is needed when involving community members. The partnerships developed in this process promote the translation of research to the real world.

In order to eliminate the disparities in cancer care and outcomes, research must utilize a new approach that recognizes the expertise of the individual and the input of the larger community. Through the processes of cultural humility and community engagement, relevant and meaningful dialogue can guide research to address cancer health disparities.

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NEGOTIATING PARTICIPATION IN ONCOLOGY CLINICAL TRIALS FOR AFRICAN AMERICANS: RACE, IDENTITY, POWER, AND BARRIERS TO HEALTH.

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African Americans continue to develop and die from cancer at a higher rate than any other racial or ethnic population.

African Americans continue to be a disproportionately smaller population to participate in oncology clinical trials. Studies describe health disparities as numerical values of cancer cases, cancer deaths, participated and not participated in clinical trials, income level, education level, gender, and reported age groups. Information that tells us about relationships between researcher and the African American considering participation in oncology clinical trials is often missed.

This study examines how African Americans express through language in focus group discussion, race, identity, and the power differentials present in research relationships that influence their negotiating participation in clinical trials. Specific aims are: 1) describe and explore how three groups of self identified African American individuals understand their experience with or in relation to cancer research and how these experiences may or may not have influenced decisions to participate in oncology clinical trials, 2) Compare focus groups in terms of how African Americans understand, imagine, or describe their relationship to the research community that represents the dominant and the medical culture, and 3) explore and describe how these understandings and relationships with research influenced by history, culture, clinical trial recruitment material, and micro and macro social influences impact participation in oncology clinical trials.

A postcolonial framework and Gee's Discourse Analysis together facilitate an in-depth examination of perceptions, language, race, identity, and power.

This qualitative exploratory study design using three focus groups applies a critical approach to discourse analysis. A sample of 16 men and women were recruited. The focus group participants represent one of three situations: 1) Those who have participated in oncology clinical trials, 2) those that were invited to participate in an oncology clinical trial but declined, and 3) those who have never been invited to participate. The frameworks together influence the data sample selected from the transcripts in relation to how language is building significance, identities, relationships and connections, and how the data units are coded, sorted, and synthesized for further analysis of emerging themes and ideas.

The analysis is in process.

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USING BRFSS DATA TO IDENTIFY BEHAVIORAL RISK FACTORS CONTRIBUTING TO CANCER DISPARITIES.

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In June 2009, MA DPH, Office of Cancer Registry, published a statewide report of cancer incidence and mortality from 2002 – 2006. This report identified a variety of racial and ethnic disparities in cancer incidence and mortality rates. However, it failed to identify behavioral/social determinants of health that may contribute to cancer disparities. Public Health officials are eager to identify modifiable risk factors contributing to poorer health outcomes among race/ethnic/socioeconomic status subgroups.

The International Agency of Research in Cancer reports that obesity and physical inactivity may account for 25 to 30 percent of several major cancers. This research sought to identify and isolate factors such as obesity, asthma, physical activity, socioeconomic status, among others, that contribute to differences in health outcomes. Research will be used by legislators to formulate policies to increase healthy behavioral choices.

The MA Health Disparities Council developed it's own framework to pursue disparities research and interventions. This framework proposed six objectives for achieving health equity: Adopt Social Policies that Increase Equity; Promote Healthy Communities; Promote Institutional Transformation; Promote Provider Transformation; Promote Healthy Individual Behavior; Improve Access to and Quality of Healthcare and Health Outcomes.

The authors used the Population Health Framework proposed by Harper & Lynch, which considers population health burden of disparities over time with the disparity indicator sensitive to changes in size, health, and socioeconomic status of population subgroups.

The Behavioral Risk Factor Surveillance System (BRFSS) is an annual telephone survey that collects data on emerging public health issues, health conditions, risk factors and behaviors. Data from the MA 2001 BRFSS survey was imported into stata and compared to data from the 2007/2008 survey. To identify whether a disparity was significant, confidence intervals within the years were compared across various race/ethnicities. This same process was applied to the 2007-2008 data. When a significant disparity was identified, 2001 was compared to 2007/2008 and improvements or setbacks were reported. Several multiple regressions were run to determine the significance of race/ethnicity versus variable describing social economic status.

In 2001, the percentage of Blacks reporting overweight BMI (≥25) was 12.4% higher than Whites. Blacks reporting an obese BMI (≥30) was 7.5% greater than Whites. This improved slightly in 2008 with 10% more Blacks reporting an overweight or obese

BMI ≥25 and only 6% reporting an obese BMI (≥30). However, a significant increase in percentage of Whites (5.2%) in 2008 reporting an obese BMI may explain this improvement. The same comparison for Blacks was less significant with the percentage of Black reporting obese BMIs increasing by only 3.7%, with a combined overweight and obese increase of only 1.4%. Percentage of Hispanics reporting an obese BMI increased by 5.3% from 2001 to 2008 however these confidence intervals overlap. Multiple regression on obesity showed that race was trending significant (.07) but income and education were more significant. Additional findings and implications were found.

Research Design, Methods, and Clinical Trials

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RECRUITMENT AND RETENTION OF ADVANCED CANCER PATIENTS AND THEIR FAMILY CAREGIVERS IN A RANDOMIZED CLINICAL TRIAL. D.M. Weiss, Nursing, University of Michigan, Ann Arbor, MI; G. Newth, Nursing, University of Michigan, Ann Arbor, MI; A. Schafenacker, Nursing, University of Michigan, Ann Arbor, MI; L. Conlin, Nursing, University of Michigan, Ann Arbor, MI; F. Vigeant, Nursing, University of Michigan, Ann Arbor, MI; A. Pressler, Nursing, University of Michigan, Ann Arbor, MI; L. Northouse, Nursing, University of Michigan, Ann Arbor, MI; R. Lewis, Nursing, Karmanos Cancer Center, Detroit, MI; B. Williams, Nursing, Wayne State University, Detroit, MI; and D. Mood, Nursing, Wayne State University, Detroit, MI

Recruiting and retaining patients and their caregivers in a randomized clinical trial (RCT) is a major challenge, especially when patients have advanced cancer. The purpose of this paper is to analyze the enrollment and retention of patient-caregiver dyads in a longitudinal RCT and discuss strategies utilized for accrual and retention.

In large studies with advanced cancer patients and their caregivers, retention rates ranged from 31% to 76%. Retention rates are often low because patients are too ill or die during the study. To have sufficient power to detect intervention effects, it is essential to utilize strategies that facilitate enrollment and retention of advanced cancer patients and their caregivers.

An RCT was conducted with advanced lung, colorectal, breast and prostate cancer patients and family caregivers to test the effects of a family-based nursing intervention (FOCUS Program). Clinical sites referred 906 patient-caregiver dyads over a four year period. Of these, 12% were ineligible, 9% could not be reached, 25% refused participation (lack of interest or too busy), and the remaining enrolled (484 dyads; rate 68%). Effective recruitment strategies included letter from physicians, recruitment brochure, and the presence of nurse recruiters in clinic. The retention rate was 62%, with 300 dyads completing follow-up assessments at 3 and 6 months. Nearly 20% of the patients died prior to study completion despite eligibility criteria that included a six-month life expectancy. Retention rates varied by cancer type: breast 70%, colorectal 56%, prostate 74%, and lung 51%. Retention was facilitated by flexible scheduling with dyads (evenings, weekends), providing personalized thank you cards, and interesting incentives embossed with study motto "helping others through research."

When compared to other longitudinal intervention studies, the retention rate was good with majority of dyads completing study. Multiple cancer types and study strategies affected enrollment and retention.

Learning from other studies and implementing a variety of strategies helped to ensure successful study recruitment and retention.

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THE CANCER RESEARCH NURSES NETWORK OF CONNECTICUT. L. Versea, Whittingham Cancer Center, Norwalk Hospital, Norwalk, CT; J. Long, Whittingham Cancer Center, Norwalk Hospital, Norwalk, CT; M. Heery, Whittingham Cancer Center, Norwalk Hospital, Norwalk, CT; R. Frank, Whittingham Cancer Center, Norwalk Hospital, Norwalk, CT; D. Eannotti, Bridgeport Hospital, Bridgeport, CT; D. Perry, Greenwich Hospital, Greenwich, CT; S. Gran, Danbury Hospital, Danbury, CT; S. Murdock, Stamford Hospital, Stamford, CT; C. Pandolfi, Middlesex Hospital, Middltown, CT; B. Robbins, CT Children's Medical Center, Hartford, CT; C. Servodidio, Hartford Hospital, Hartford, CT; D. Viner, Medical Oncology and Hematology, P.C., Waterbury, CT; T. White, St. Vincent's Medical Center, Bridgeport, CT; and R. Votino, Connecticut Oncology and Hematology, LLP, Torrington, CT

The objectives were to establish a cancer research nurse network; To address nursing concerns regarding the conduct of clinical trials; To hold face-to-face meetings to discuss important issues such as standard operating procedures, budgets and managing study visits; To track clinical trial enrollment to promote patient referrals between practices for trials.

Oncology nurses are the backbone of the clinical trial system involved in nearly every administrative and regulatory aspect of the clinical trial system. Oncology nurses have not been organized to directly impact clinical trial enrollment and promote cooperation.

Initial survey was sent out to research nurses throughout the state to assess interest and nurses invited to be part of the network. Initiation of quarterly dinner meetings to discuss pertinent topics. Establishment of a web-site for the organization to enhance communication: www.cttrials.org.

Twenty-four surveys were distributed to community and university-based nurses at 17 individual sites. 10 surveys were returned. The main areas of concern for nurses was adherence to best clinical practices surrounding study schedules, insurance and budgets and tracking adverse events and concomitant medications. Lack of personnel support for administrative responsibilities. The time spent on administrative responsibilities hindered their ability to discuss open trials with other departments/offices. Quarterly dinner meetings were well attended. Best practices have been implemented surrounding enrollment issues and tracking concomitant medications and adverse events for patients on trial. Data were collected on barriers and referral sources.

The first Cancer Research Nurse Network has been successfully established in the State of CT. Early results suggest the network will lead to uniform SOPs, improve referrals for clinical trials amongst oncology practices and promote cooperation rather than competition. The Cancer Research Nurses Network could serve as a blueprint for similar networks throughout the country. This blueprint may serve as a formal way for other states to promote enrollment to clinical trials and identify ways to overcome barriers.

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MEASURING LONGITUDINAL CHANGES OF SYMPTOM CLUSTERS BASED ON FACTOR ANALYSIS. C. Xiao, School of Nursing, University of Pennsylvania, Philadelphia, PA; D.W. Bruner, School of Nursing, University of Pennsylvania, Philadelphia, PA; and A.L. Hanlon, School of Nursing, University of Pennsylvania, Philadelphia, PA

The purposes of this review paper are to provide statistical techniques that are appropriate for the analysis of longitudinal changes of symptom clusters resulting from factor analysis, and to discuss methodological issues inherent in longitudinal designs.

Exploring longitudinal changes of symptom clusters over time is important in cancer symptom cluster research. Although factor analysis is the most common statistical approach used for the identification of symptom clusters, the strategies to examine clusters' changes over time in terms of factor analysis are not well-documented.

Because research involving longitudinal changes of symptom clusters is in the early stages, it remains unclear whether cluster

structures (the numbers and types of symptoms within each cluster) are stable over time within a given patient population. Thus, the identification of the longitudinal changes of symptom clusters fall into two pathways. The first pathway makes no assumption regarding the stability of the cluster structure over time, and the statistical techniques include: repeated exploratory factor analysis, and factor analysis based on combined data sets. The second pathway assumes the identified cluster structure remains consistent over time, and the statistical techniques involved are: repeated-measures analysis of variance, area under curve analysis, latent growth curve modeling, random regression modeling, and generalized estimating equations. Selection of appropriate statistical methods depends on the study purpose and the strengths and weaknesses of each technique. In addition to making decisions about statistical techniques, other methodological issues inherent in longitudinal research designs contain the choice of the appropriate sample size, and arriving at the suitable number and timing of symptom data collection.

A clear understanding of the selected statistical techniques and a proper research design are required for executing meaningful longitudinal studies and for interpreting complex findings arising from longitudinal cluster analyses.

Assessing and identifying longitudinal changes of symptom clusters should be considered an important part of care for oncology nurses, which consequently can benefit clinical cancer symptom management.

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DEVELOPMENT OF A SCALE TO MEASURE ATTITUDES TOWARD SEXUAL HEALTH CARE.

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Oncology nurses should have sensitivity for dealing with patients' sexual health needs. However, sexual health care (SHC) is still inadequately addressed because of barriers such as conservative beliefs and incorrect assumptions regarding sexual issues.

Most of the current scales for measuring attitudes toward SHC are from the West, lack psychometric data, and may have limited relevance for oncology nurses. This study aimed to develop a scale that would be inclusive of oncology nurses' practice and reflective of cultural context.

This study's conceptual framework is based on the Theory of Reasoned Action, which emphasizes evaluation of attitudes and subjective norms in order to understand a person's intention.

A preliminary version of the instrument was developed through review of the literature and focus group interviews with 10 oncology nurses. This version consisted of 42 items rated on a 3-point scale. Eight experts reviewed the questionnaire for content validity and consolidated the number of items to 36. Data were collected from 342 oncology nurses in Korea. Exploratory factor analysis (EFA) was performed, and internal consistency was assessed using Cronbach alpha values. Pearson correlation coefficients were used to test concurrent validity with the Sexuality Attitudes and Belief Survey (SABS).

EFA revealed 17 items (4 factors), which accounted for 70.49% of the total variance. The 4 factors were (1) discomfort in performing SHC (7 items), (2) consideration of the discomfort of patients (4 items), (3) awareness of colleagues (3 items), and (4) limitation of time and space in providing SHC (3 items). Correlation of the sub-factors ranged from 0.35 to 0.63. The Cronbach alpha value was 0.92. Significant negative correlations were found between the attitudes by this measure and by SABS ($r = -0.57$, $p < 0.001$).

In conclusion, this scale showed validity and reliability in evaluating the attitudes of oncology nurses toward SHC and can be used to identify attitudinal barriers in oncology nurses as well as to develop and test educational interventions for the improvement of SHC.

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INTERDISCIPLINARY TRAINING TO IMPLEMENT A COMMUNICATION INTERVENTION FOR PARENTS OF CHILDREN WITH BRAIN TUMORS.

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This abstract presents an approach used by a research team of investigators, clinicians, and expert and parent consultants to launch an intervention focused on optimizing early palliative and end-of-life care (PC/EOL) communication for parents of children with poor prognosis brain tumors. We will discuss our approach to developing a standardized protocol and training materials and training procedures used for our physician and nurse (MD/RN) interveners to deliver our intervention to parents of children with a brain tumor.

Current treatments are often unsuccessful to cure children diagnosed with a brain tumor. Ongoing communication between healthcare providers and parents is important to helping parents understand their child's condition and enable them to make informed decisions regarding a shift from futile, life-prolonging treatments to a focus on PC/EOL. This study was designed to refine and pilot test a PC/EOL communication intervention entitled, Communication Plan: Early through End of Life (COMPLETE). COMPLETE features: (a) an interdisciplinary research team, (b) MD/RN interveners to deliver early PC/EOL communication, (c) visual aids and resource forms; and (c) hope and non-abandonment messages tailored according to parents' information preferences.

Implementation of a PC/EOL communication intervention requires careful planning. An overview of the planning and implementation of our Phase I interdisciplinary training activities will be provided. We will also describe an innovative study feature that engaged our parent consultants to participate in role-playing training activities.

Evaluation of Phase I training activities by our MD/RN team members was positive and helpful to launch the delivery of our intervention in Phase II of this study. Results of Phase II will be documented in a future report of this study.

Interdisciplinary partnerships equipped our team to complete the Phase I development and refinement of our intervention. Also, participation of parent consultants proved to enhance the receptivity of our MD/RN teams to practice our training activities. Contingent on evidence of MD/RN and parent receptivity to receive COMPLETE and on improvement of parental responses over time, we will evaluate the efficacy of COMPLETE with a larger population of parents in a future study.

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LINKING CLINICAL RESEARCH DATA TO LONG-TERM OUTCOMES USING LARGE POPULATION DATABASES.

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Clinical researchers are limited in the amount of longitudinal outcome data that can be collected on research participants.

Conversely, population databases rarely contain self-report data such as symptoms, function or social support. We report the development of a protocol to link individual clinical research data from a completed randomized clinical trial of a symptom management intervention to outcomes data from several large population databases in order to describe the long-term health outcomes of the research participants.

Large population databases can be used to study long-term health outcomes such as emergency room visits, hospitalizations, and mortality. Probabilistic linkage of multiple population databases can provide more comprehensive longitudinal information. Linking clinical research data to population databases has the potential to provide longitudinal health information on individuals previously enrolled in supportive care studies in oncology.

We have designed a protocol to use probabilistic linkage to join a small clinical research database (n=151) with two state population databases (the Utah Population Database and the Utah Emergency Department Database)to explore the relationship of clinical research findings with post-study outcomes. Several issues were considered when linking data. Researchers and database administrators worked together to ensure human subjects protection and data integrity including addressing how the final linked dataset protects subject confidentiality. Researchers and linkage experts determined what clinical study participant information was needed to allow high probability of matching participant data in the different databases. Open communication and collaboration between researchers, database administrators and linkage experts was vital in designing the linkage and protecting subject confidentiality and data integrity.

It is feasible to link clinical research subjects to large population databases. Linkages allow researchers to study longitudinal health outcomes and resource utilization as related to clinical research findings. Linkage to large population databases can provide oncology nurse researchers the opportunity to extend their research to answer important questions about long-term outcomes. Planning for such linkages is recommended in supportive care trials.

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DEVELOPMENT OF NURSE EDUCATION MODULE TO NAVIGATE CLINICAL TRIAL PROTOCOLS.

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A knowledge gap exists with nurses for the administration of clinical trials in a general outpatient oncology infusion unit.

Clinical trial protocols require strict adherence to specific instructions in the administration of investigative agents. A lapse in protocol compliance may result in a major violation that affects the integrity of the clinical research with potential outcomes for patient safety.

A literature search was performed to understand the current means used to educate nurses in the administration of investigative agents. The literature search focused on primary issues of protocol compliance with nursing responsibilities related to eligibility, treatment programs, symptom identification, symptom management, pharmacokinetic lab draw schedules, toxicities, and reporting of serious adverse events (SAE)s.

The findings from the literature review confirmed limited published nursing resources for the administration of investigative agents. This perceived knowledge gap directed the development of a nursing education module utilizing Malcolm Knowles' Theory of Andragogy and Self-Directed Learning for the adult learner.

The education module instructs the nurse in hands-on methods to access and put to use the on-line protocol to assemble specific information required by nurses to safely administer investigative agents. Evaluation of the education module goals is provided by a written post-test exam combined with computer return demonstration to assess for proficiency in protocol specifics identification.

Implications for nursing research center on course content to increase nursing knowledge for protocol compliance and patient safety. This education module provides for future development of a protocol administration template tool. This tool will be used to assemble protocol specific information required by nurses for the administration of investigative agents.

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LEVERAGING AN ACADEMIC-PRIVATE FOUNDATION EDUCATIONAL PARTNERSHIP GRANT TO SUPPORT RESEARCH DEVELOPMENT IN A SCHOOL OF NURSING.

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We describe the leveraging of a multi-year educational partnership grant from a private non-profit organization to enhance research development in a school of nursing.

Educational grants are not usually associated with the development of research programs since they focus mainly on curriculum. However, the resources and infrastructure of an educational grant can be used to further a school's research agenda.

The authors' school of nursing has a unique multi-year, multicomponent educational grant from Susan G. Komen for the Cure to heighten the awareness, knowledge, and skills of faculty, students, practicing nurses, and community members about the prevention, detection, and treatment of breast cancer. In addition to providing education, the Visiting Professor (VP) component of the grant has directly influenced research development. VPs bring breast cancer-related expertise to faculty, students, and others during two one-week visits in an academic year. Typical activities include one-on-one and group consultations, research seminars, mock grant reviews, lectures, and meetings with lay and professional groups, accompanied by longer term consultation.

To date, the school has hosted five VPs with expertise in lymphedema, early detection, symptom management, health disparities, and survivorship. Specific activities that have enhanced research development include: 1) consulting on the scientific agenda of a center of research excellence; 2) reviewing investigator-initiated and center grant applications; 3) providing input on individual programs of research, 4) offering career guidance to new faculty, and 5) initiating new research initiatives. Positive outcomes include submission and funding of research and career development awards, data-based publications, and new research collaborations.

Leveraging an educational grant to enhance research in a school of nursing is not only strategic, but efficient, as it integrates education, research, and service while simultaneously enhancing research development. The opportunity provided by this partnership is a model for other schools which might seek similar partnership grants.

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EVALUATION OF THE CONCURRENT VALIDITY OF THE LANSKY PLAY-PERFORMANCE SCALE.

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The Lanksy Play-Performance scale is a functional measure used as eligibility criteria for the thousands of children on pediatric clinical trials. It is a report of the parent's perception of their child's ability to carry out daily activities. The scale was originally tested in a sample of 98 pediatric oncology patients. Data on concurrent validity is limited because it was originally evaluated by asking a nurse to rate the child's functioning on a 1 to 5 scale.

The purpose of this secondary data analysis is to examine the concurrent validity of the Lansky scale with an established functional

measurement. An age-based standardized motor proficiency test was administered by a physical therapist to 80 patients, ages 1 to 17, who were newly diagnosed with acute lymphoblastic leukemia (ALL).

A developmental framework guided this work. Evaluations were performed concurrently as part of a proactive physical therapy intervention program. The Peabody Developmental Motor Scale (PDMS-2)was measured in the cohort of 50 children, ages 1-5. Two sub-scales from the Bruininks-Oseretsky Test of Motor Proficiency (BOT-2) were used for the cohort of 30 children, ages 6-18. Spearman rank order correlation was used to determine if higher parent ratings on the Lansky scale correlated with higher percentile scores on the motor test.

In younger children, there was a strong positive correlation between the PDMS-2 and Lansky Scale, $r = .56$, $p < 0.001$. In older children, there was a positive correlation between the BOT-2 Strength and Agility test scores and Lansky Scale, $r = .35$, $p = .03$. Correlation between the BOT-2 Body Coordination and Lansky Play Performance Scale was not evident.

In considering these age-group testing differences, parents of younger children may have observed performance changes if their child stopped doing basic skills such as running, jumping, and stairs. Parents of older children may have noticed decreased strength or agility if their child lacked endurance to walk distances or run, yet body coordination scores may not be reflected because parents may lack awareness of coordination changes unless they had compared their child to healthy peers in a setting such as an athletic game.

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MULTI-INSTITUTIONAL BEHAVIORAL INTERVENTION: EXPERIENCES OF THE SITE'S PRINCIPAL INVESTIGATORS AND PROJECT MANAGERS.

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The purpose of this study is to highlight benefits and challenges experienced by site project managers (PM) and site principal investigators (PI) while collaborating on a randomized controlled phase-II music therapy intervention for adolescents and young adults undergoing stem cell transplant transplant in the Children's Oncology Group.

Research on a multi-institutional level provides both benefits and challenges to study investigators. Recruitment numbers can be greatly increased when conducting research at more than one institution, resulting in a shorter timeline for accrual, analysis, dissemination, and ultimately integration of results into practice. With these benefits, however, come challenges for managing the study at multiple individual sites.

Recruitment for this study has taken place at 11 hospitals in 8 geographic sites. Strategies to enhance site performance and ensure correct protocol implementation include frequent communication through conference calls, comprehensive in-person standardized site training, and the use of technology to ensure consistent tracking across sites. The distinct roles and responsibilities of site PIs and PMs were fully reviewed during study initiation at each site. Site PMs benefited by gaining management experience, increasing understanding of nursing research and participating in dissemination. Site PM challenges included balancing patient schedules and symptom distress with protocol procedures, engaging nursing and study staff, navigating site-specific cultural differences and overseeing day-to-day study activities. Site PI's were responsible for monitoring study adherence, IRB reporting, resources allocation, data validity, documentation of study-related procedures, processes and events and troubleshooting site-specific challenges. Site PIs benefited by gaining understanding of research processes including underlying theory, study implementation, analysis and dissemination and forming valuable relationships with collaborators at other sites.

Site PI and PMs are crucial to the success of multi-institutional research. Balancing study demands with site demands can be challenging but also beneficial.

When implementing multi-site research a careful plan for education and communication with individual site leaders addressing both benefits and potential challenges for participation must be developed to ensure smooth implementation and individual satisfaction.

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TRANSLATION AND VALIDATION OF THE FACT-EGFRI-18 QUESTIONNAIRE TO ASSESS DERMATOLOGY-RELATED QUALITY OF LIFE IN PATIENTS TREATED WITH EGFR INHIBITORS INTO DUTCH.

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A lot of studies are being conducted about dermatological reactions to epidermal growth factor receptor inhibitors but we do not have specific tools to assess the impact of these side effects on the health related quality of life. A new assessment tool is developed but is only available in English, not in other languages. The process used ensures reliability, validity and comparability of the data collected between languages in international clinical trials.

The objective of this study was to translate and linguistically validate the FACT-EGFRI-18 in Dutch. The process used ensures reliability, validity and comparability of the data collected between languages in international clinical trials.

Dermatological reactions (dR) to epidermal growth factor receptor inhibitors (EGFRI) are common and impact dermatology related quality of life (DRQoL), which may lead to dose reduction or discontinuation of anticancer therapy. The FACT-EGFRI-18 is a patient reported outcomes questionnaire (PRO) that measures QoL related to dR from EGFRI treatment from the patient's point of view. It is a symptom specific subscale of the general Functional Assessment of Cancer Therapy scale (FACT-G) and assesses the psychological sequela of dR.

To create the Dutch version, we followed the FACIT multilingual translation and validation methodology, which was established to ensure that resulting translations of quantitative measures reflect conceptual equivalence with the source document in language that is culturally acceptable and relevant to the target population. This methodology requires two forward translations into the target language by native speakers, a reconciliation of the two forward translations performed by a third independent translator who is a native speaker of the target language, a back-translation of the reconciled version by a native English speaker fluent in the target language, and four independent reviews by native speaking linguists or QoL research experts. The translation coordinating team then reviews each step and decides on the

most appropriate translation, resulting in a pretesting version. After the Dutch FACT-EGFRI-18 went through this process, it was administered to 10 patients with various stages of dR to EGFRI in the Netherlands. Patients completed the pilot questionnaire and were asked questions in structured interviews about the items' personal and cultural relevance as well as their overall comprehension of the items.

This project resulted in a final Dutch FACT-EGFRI-18 questionnaire which can be used in clinical trials, intervention, etc. Formal validation and reliability testing is being conducted in the BeCet multicenter trial of EGFRI-induced patients with all dR severity grades. The FACT-EGFRI-18 is available at www.facit.org.

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PARTICIPANT ATTRITION AND ENGAGEMENT DURING A SYMPTOM MANAGEMENT RESEARCH STUDY.

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Longitudinal studies can be negatively impacted by attrition. The study's internal and external validity are at stake when high levels of attrition occur. Research has been done to identify participant characteristics of those at higher risk for dropping out of a research study. However, little is known whether or not length of time initiating the intervention can predict study engagement and participation, particularly among cancer patients. This information will be useful in identifying reasons for early drop-out, which in turn can be used to decrease attrition rates.

The secondary analysis study examined the relationship between the length of time required by study participants to complete baseline measures with engagement and participation during the intervention phase of the study.

Bandura's Self-efficacy provided the theoretical framework for this study, which suggests self-efficacy influences an individual's effort and persistence with a behavior when faced with difficult situations.

Women with a history of recurrent ovarian, fallopian tube, or primary peritoneal cancer are enrolling to participate with a study examining symptom management with projected sample sizes of 170 per treatment group. Following study consent and the completion of baseline measures over four weeks, participants are randomized into one of three treatment groups: usual care, nurse-directed, or self-directed. The intervention contains six phases over nine weeks. Following the intervention, participants provided data regarding 1) the length of time required to complete baseline measures and 2) the number of completed intervention phases.

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FACTORS AND OUTCOMES OF DECISION MAKING FOR CANCER CLINICAL TRIAL PARTICIPATION.

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Providing access to the benefits of cancer clinical trials while protecting research participants is challenging. Individuals with cancer may have difficulty distinguishing standard from experimental therapy. Literature indicates that multimedia approaches to patient education regarding cancer clinical trials was ineffective in promoting better understanding of clinical trial options and satisfaction with the decision regarding cancer clinical trial participation.

Research is needed to better understand factors and outcomes of decision making for cancer clinical trials in order to design interventional studies. The purpose of this study was to identify disease context and sociodemographic factors, patient preferences for research decision control, hope, quality of life, and trust that influence the decision to participate in a cancer clinical trial and satisfaction with this decision.

The Research Decision Model guided the study. This research designed model was based on Bowling and Ebrahim's Model for Treatment Decision Making. This was a cross sectional study with a mailed survey method that used 10 established and one investigator-designed survey. Data included self-reported survey responses and medical record review. A descriptive analysis summarized sample characteristics. Multiple logistic regression analyzes were performed.

A cancer stage of less than four, more hope, and more trust in the health care system predict increased cancer clinical trial decisions. The most frequently preferred decision making style for research participation was shared (collaborative) (83%). Shared decision making was a previously unrecognized factor that required further investigation.

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GENETIC RISK OF CANCER DEVELOPMENT USING AN ANIMAL MODEL.

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Copy number variation has recently been identified in germ line DNA as contributing to the development of cancer. Further elucidating the contribution of copy number variation will lead to identifying specific genetic risks for cancer and may ultimately be used to guide clinicians in disease treatment and symptom management. Due to the complexity of the human genome, another model of genetic variation is needed for human comparison studies. One possible model is that of the domesticated dog. The purpose of this study was to determine if dog CNV would be an appropriate model for disease comparison studies in humans.

DNA segments that are 1kb or larger and are present at variable copy number (gain or loss) are referred to as DNA copy-number variants (CNVs). Many CNVs span genes suggesting they may influence disease development and clinical presentation. Because dogs share much of their genome in common with humans and due to pure breeding are powerful resources for studying CNV genetics.

Our lab conducted CNV discovery in a small panel of normal pure bred dogs that represent the four classes of breeds. We quantified CNV by Comparative Genome Hybridization on a high resolution whole genome microarray and analyzed the CNV's use segMENT software.

Overall, we identified 204 CNVs at high confidence including genes with human cancer relevance. CSMD1, a putative tumor suppressor gene, was found to have microduplication in 64% of Rottweilers, but not in any non-Rottweilers. Rottweiler breeds have predisposition to cancer and in humans, deletion and reduced expression is associated with poor clinical outcomes. While a case-control study is necessary to confirm whether this CNV contributes to the development of cancer in this breed, this demonstrates the potential clinical relevance of using dogs as a genetic model of disease. Our study validates that dogs represent an exceptional model for studying CNV in human relevant diseases. This will lead to identifying specific factors associated with genetic risk for cancer and may ultimately be used to guide clinicians in disease treatment and symptom management.

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THE PATIENT PARTICIPATION AGENDA IN RESEARCH, HOW TO INVOLVE YOUNG PEOPLE.

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In terms of cancer care research, young people's participation will ensure professionals have better knowledge of their views and priorities, and help prioritize key issues and concerns amenable to future research studies. Measuring the effectiveness of a service will be more relevant in situations where young people

have been involved in the process of deciding how to monitor, what information to collect, how to interpret it and make recommendations for change.

Across a range of health services there is an expectation of increased and more meaningful consumer participation, involvement and attempts to see the world through the eyes of those who are consumers of health care. Although guidance on how to promote involvement has become more widely available, recent research suggests that the involvement of young people is often limited. Involving young people in health services research is about opening up opportunities to them for meaningful participation based on their own realities and enabling them to have a real influence on how care is managed and delivered. It is about building and sustaining a culture of participation in our organizations and facilitating ongoing dialogue with young people rather than imposing fixed structures.

Building a culture of participation is a not straightforward and relates to concepts of consumerism, partnership, and empowerment. This paper will draw on data from two completed studies and one underway to describe approaches to involving young people in research. It will illuminate levels of involvement that lie on a continuum from consultation, to collaboration and user controlled research. The paper will also focus on presenting the importance of careful planning and the decisions taken at all steps of the research process to maximize the contribution of young people. By involving young people in research professionals will foster a more equal power relationship that acknowledges their experience as service users. Young people have the right to be heard and involved in shaping and evaluating services that affect them. As a research community we need to develop evidence that supports meaningful engagement of young people in research.

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