

**12th International Conference of the Society for Integrative Oncology November 14-16,  
2015 in Boston, MA, USA**

**Poster Session Abstracts**

**Abstract 1 – POSTER SESSION:  
Limitations and challenges to the market  
globalization of Korean herbal products:  
A company-based survey**

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**Background:** The growth of herbal markets has markedly increased in South Korea. However, worldwide market shares remain small despite significant governmental efforts. Therefore, additional practical investigations are required. This study aimed to characterize manufacturing employment and identify general perceptions of employees regarding market expansion.

**Methods:** A survey study covering 567 companies was conducted using face-to-face interviews in 2012. Data were analyzed using comparisons among three manufacturing groups (i.e., the herbal dietary supplement manufacturing group, the herbal medicine manufacturing group, and the personal care product manufacturing group) or the manufacturers themselves.

**Results:** To investigate the current status of the herbal manufacturers in South Korea, we asked questions regarding occupational characteristics, domestic distributors, and primary ingredients for herbal products. Among the respondents, we found that the majority of all manufacturing employees were regular permanent and production workers. The domestic distributors were primarily chain stores/direct outlets or retailers/wholesalers, and the dominant product was red ginseng (*hongsam*). To assess the perceptions of market globalization, we asked a series of questions. "Advertisement/public relations" was cited as the most important factor for the development of the herbal industry. Major difficulties encountered in global marketing included "language problems" and "poor marketing strategies", particularly in conventional herbal medicine companies. To integrate into the global market, 59.3% of ginseng product manufacturers and 40.5%

of herbal drink manufacturers cited "seeking business partners," whereas half of the herb extract companies cited "financial support."

**Conclusions:** The responding companies exhibited a variety of perspectives in our survey. The herbal industry is a promising business worldwide, and its globalization is a governmental interest. Our results can be used to design a proper national plan by diminishing the viewpoint gaps between herbal product producers and policy makers.

**Abstract 2 – POSTER SESSION: Finding  
the Meaning of Life of Patients with  
Multiple Myeloma Correlates With Better  
Control of Their Disease by  
Conventional Treatment**

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**Background:** Myeloma Initiating Cells (MICs), malignant stem cells originating and disseminating multiple myeloma (MM) are driving relapse and resistance of MM as they possess heterogeneity and plasticity. Features like these are still difficult to overcome by chemo/immuno-therapy only. Therefore restoration of the patient's immune system ie the patient's tumour surveillance is essential. This can be done by allogeneic transplant of immune system or by restoring the patient's own immune system. Viktor Frankl et al discovered that finding the meaning of life has the ability to rebuild the patient's immune system.

We present observational data about meaning of life of MM patients and their disease control.

**Aims:** Patient involvement and engagement is a key part of high efficiency of chemo-immunotherapy in MM. The Slovak Myeloma Society organizes national patient conferences annually alongside whole-year regional and local activities. We conducted a pilot observational study during the national conference in 2014.

The aim of this study was to correlate the status of MM disease, the outcome of

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chemotherapy/stem cell transplant with the patient's attitude towards their disease and life, the meaning of life before and after being diagnosed with MM.

**Methods:** Collection of patient responses by anonymous questionnaires during the national myeloma patient conference in September 2014.

There were 130 participants, 52 family members, 5 physicians and 73 myeloma patients. 46 patients responded to an anonymous questionnaire which consisted of 7 questions about: 1) Age, 2) Gender, 3) Status of MM disease, 4) Status and timing of last chemotherapy, 5) meaning of life before myeloma, 6) meaning of life with myeloma, 7) qualitative changes of meaning of life before and after being diagnosed with MM.

Statistical evaluation of parameters: myeloma disease status, chemotherapy status and parameters about meaning of life.

**Results:** N=46 patients; Female n= 28; median age 62 years, age range 30-70 years. Male n=18; median age 64.5 years, age range 45-79 years.

57% patients had MM in CR (complete remission) or responding to chemotherapy with improving the parameters of meaning of their life (MoL). 4% patients had progressing MM with worsening MoL parameters.

22% patients had progressive MM but with improving MoL parameters. 17% patients had MM in CR or responding to chemotherapy but with deteriorating MoL parameters.

**Conclusion:** In 61% patients there is evidence (direct and indirect) that finding the meaning of life for patients with multiple myeloma may improve the outcome of chemotherapy.

Finding the meaning of life can be facilitated by logotherapy, established by Viktor Frankl et al and is a feasible therapeutical method and accessible via national logotherapy institutes.

**Abstract 5 – POSTER SESSION: Use of traditional folk medicine among cancer patients in Northern Norway**

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**Background:** Traditional folk medicine (TFM) in the north of Norway consists of

several practices like religious healing, cupping, herbal medicine, bloodstemming and bloodletting. These practices have a longstanding position throughout Northern Norway, specifically in areas with a large Sàmi/kven population. TFM has played a vital part in managing health and illness long before conventional medicine was made available in these communities and are still sought after, often for conditions as anxiety and cancer. The aim of this study is to determine the level of TFM use within one year in an adult population with a previous cancer diagnosis, and to compare use in 1995 and 2015.

**Methods:** The Tromsø Study series (I-VII) are prospective studies in the municipality of Tromsø, Northern Norway. The design includes repeated population health surveys to which total birth cohorts and random samples are invited. This preliminary results are based on data from the Tromsø IV study conducted in 1995 where 27158 men and women aged 25-97 participated.

**Preliminary Results:** A total of 3.3% of the cancer patients reported to have used TFM within the last year in the 1995 study. Similar use was found among men (3.4%) and women (3.3%). More men with cancer used TFM than men without cancer (3.9% vs. 2%). The use in women with cancer did not differ from women without cancer (3.5% vs. 3.7%). The highest number of users was found in the olders age group where 5.7% of the cancer patients, 5.5% among men and 6% women, reported to have used TFM. The results from the 2015 study is not yet available.

**Conclusion:** Recent qualitative data suggest that TFM is still actively used in North Norway. The low numbers indicated in this study can be explained by how people in this region traditionally deals with these practices silently, both in regards to having traditional healing skills and receiving traditional healing.

**Abstract 7 – POSTER SESSION: Integrative Medicine Modality Utilization and Impact Quality of Life in Cancer Patients: A Single Academic Cancer Center Experience**

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**Background:** The majority of patients with cancer incorporate integrative medicine strategies into their cancer experience however; patient reported preferences and impact on quality of life is limited. We present cancer patient utilization for specific integrative medicine modalities within the Mayo Clinic Arizona Comprehensive Cancer center and describe the patient perceived impact on quality of life.

**Methods:** Patients and family members attending the 2015 *Living with Cancer Symposium* at Mayo Clinic Arizona completed a survey indicating whether specific integrative medicine modalities were utilized during cancer treatment and whether utilization had an impact on the patients perceived quality of life. Patient diagnoses and stage were collected. A total of 119 patient surveys were completed and analyzed.

**Results:** The patient diagnoses included hematologic malignancies (27%), breast (25%), prostate (18%), and other (30%). Disease stage was nearly evenly distributed with stage I (21%), stage II (20%), stage III (16%), stage IV (15%), and unknown (28%). The most commonly utilized integrative modalities included nutrition (54%), natural product supplementation (34%), massage (33%), exercise (31%) including yoga (23%) and tai chi (1%), breathing and meditation interventions (26-28%), support groups (23%), and pet therapy (17%). The majority of patients (64%) reported integrative intervention utilization led to an enhanced quality of life during cancer therapy.

**Conclusions:** At a single academic cancer center, in a cancer type and stage diverse population, the majority of patients (64%) reported improved quality of life during cancer therapy with integrative medicine intervention utilization. Nutrition, natural product supplementation, massage, exercise, and meditative modalities were most commonly utilized. Interestingly, a large proportion of patients analyzed in this questionnaire-based study were afflicted with hematologic disease, a population

underrepresented in the current integrative medicine intervention research. More studies exploring the feasibility and impact of integrative therapies in the hematologic patient population are needed.

#### **Abstract 10 – POSTER SESSION: INTERNAL QIGONG: CAN PATIENTS RECEIVE ACUPUNCTURE MERIDIAN THERAPY THROUGH ADVANCED PRACTICE AND MEDITATIONS?**

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**Background:** Qigong is an accepted therapy by NCCIH and is included in the SIO guidelines. However, most popular Qigong therapies are “external practice” of mind body movements. Traditional practice from the Shaolin and Wudang temples decreed both external and internal practices. Using advanced and specific meditation techniques, the practitioners learned to systematically open all acupuncture meridians to increasingly high energy sources. These were all secret temple practices until recent times.

**Methods:** Qigong uses many S.I.O guideline therapies in its practice. Still meditation on “small circulation” techniques are used to open the front and back acupuncture meridians and specific points. The practitioner has distinct physical signs that clearly indicate the progress. Taoist yoga, relaxation with specific imagery, music therapy, distinctive massage, energy conservation, various special breathing techniques, fascia exercises, and the more familiar slow movements that one sees in external qigong and tai chi..... are all employed.

**Results:** Patients report a distinct feeling of what is known as “qi”. This is commonly reported first as heat, next as a feeling of tingling, then finally a clear bio-electrical flow. Superior health benefits are described in many Buddhist and Taoists texts. The original purpose was specifically for excellent health and longevity; this allowed the long practice of even more advanced religious meditations

**Conclusions:** Clinical studies have often used only External “moving” qigong without

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the Internal “still meditation” techniques. Ancient texts warn that this greatly reduces the benefit. Patients can be taught all basic qigong meditations with even weak health. The addition of External forms or Tai Chi enhances the practice. Patients can learn small orbit Qigong in increasingly shorter times than the old temple methods (often in a few weeks or months). Further advanced practices can open all meridians, including those not accessible by needles. The health benefits are worth researching further for the sake of all oncology patients.

**Abstract 12 – POSTER SESSION: A  
Preliminary Qualitative Study in Fatigued  
Breast Cancer Survivors: Rationale for  
Mind-Body Interventions**

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Secondary Authors: Catherine Kerr, Chloe  
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**Background:** Fatigue experience is an important mediator of a cancer survivor’s recovery following chemotherapy. Fatigue accounts for more distress and interference than depression, pain or nausea (Curt and Breitbart et al 2000). Daily fatigue causes significant distress to the individual. Fatigue affects all domains of life, including physical, emotional, cognitive, socio-behavioral, and economic well-being. These factors work against each other to create a complex, multidimensional mind-body experience of fatigue that impairs a cancer survivor’s full recovery and vitality. Fatigue likely involves complex somatic mind-body interactions with specific relevance for complementary and alternative medicine and mind-body medicine. (Mehling 2011)

**Purpose:** The purpose of this qualitative study is to assess the way breast cancer survivors experience fatigue differently than healthy age-matched controls. The study probes how breast cancer survivors talk about and experience fatigue across physical, emotional, cognitive, socio-behavioral, and economic domains of life. Ultimately, we will utilize this study to further our research into the usefulness of Qigong in alleviating experiences of fatigue in Breast Cancer patients.

**Methodology:** Eligible participants must score a 2 or higher on a ten point Likert Scale ranking subjective experience of fatigue.

Participants are excluded if they have any history of other chronic diseases, or psychiatric illness that has resulted in hospitalization. Eligible Participants are interviewed for approximately one hour using open-ended probe questions into fatigue experiences. The interviews are recorded, transcribed, and analyzed using thematic analysis techniques. All individuals receive a twenty-dollar gift card as reimbursement.

**Results:** Breast cancer survivors experience fatigue differently than healthy controls. Fatigue experience in cancer survivorship involves a complex multidimensional interaction between physical, emotional, cognitive, socio-cultural, and economic domains of life.

**Discussion:** The language that cancer survivors use to describe their fatigue follows well-defined patterns that are significantly different than the experiences described by the control group. As fatigue appears to affect multiple domains of a person’s life, this study demonstrates the need for a multidimensional mind-body intervention that helps generate a sense of vitality for these patients, which may be Qigong.

**Abstract 13 – POSTER SESSION:  
Efficacy of Screening and Treatment of  
Oncology Patients Reporting High  
Distress at a**

**Community Cancer Center**

Ryan M. West, M.A.; Elaine Smith, MS, LMFT

**Background:** The National Comprehensive Cancer Network (NCCN) Practice Guidelines in Oncology suggests that all patients be screened for distress. Validated research into effective management and treatment is needed to ensure a decrease in psychosocial distress in cancer patients. The effects of distress screening in oncology have been examined in 14 studies (7 randomized and 7 non-randomized). These studies have elucidated the need for the identification of cancer-related distress and also the development of programs to decrease distress to improve quality of life (QOL) and clinical outcomes.

**Materials and Methods:** This study was a retrospective, non-experimental impact design study that evaluated via pre-test and post-test the effectiveness of the Integrative

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Resource Assessment Program (IRAP) of distress screening and treatment at a community cancer center. The tool used for both pre-test and post-test was the MD Anderson Symptom Inventory (MDASI) that gauges the level of distress the patient has experienced in the last 24 hours rated from 0-10.

**Results:** Between 9/1/2014 and 2/27/2015, 435 patients with multiple types of cancer were screened for distress and 48.7% scored 5 or greater. Those patients were further assessed for distress, given information for management of distress, and referred to appropriate providers. 212 of these patients provided MDASI distress scores at baseline and then again at least 23 days after the initial assessment. The average reduction in the distress scores was 2.44 (1<sup>st</sup> MDASI  $\mu$ = 6.4, 2<sup>nd</sup> MDASI  $\mu$ = 3.4) with 150 patients (70.7%) reporting a decrease, 19 patients (8.9%) having no change, and 43 patients (20.2%) reporting an increase in distress. The 4 interventions most frequently referred and completed by the patient were mind body medicine 100%, acupuncture 38.6%, rehabilitation 34.4%, and massage therapy 30.6%.

**Conclusions:** This study demonstrates that half of patients with cancer reported significant distress level and early intervention using integrative medicine approaches will reduce the distress in 70% of cases.

**Abstract 17 – POSTER SESSION  
Evaluation of a CAM consultation training program for physicians consulting breast cancer patients: a prospective, multi-center, cluster-randomized, mixed-method pilot study.**

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**Background:** The aim was to develop a training program that teaches

communication skills and evaluate its feasibility and preliminary effects when consulting breast cancer patients.

**Methods:** In a cluster-randomized trial 8 breast cancer centers (2 physicians per center) were randomized to either a CAM communication training program (9 hours e-learning + 20 hours onsite skills training) or to the control group without training. Each physician was asked to consult 10 patients in whom he or she is not the physician in charge. We used mixed methods. Quantitative outcomes included physicians' assessment (empathy, complexity of consultation, knowledge transfer) and patients' assessments (satisfaction, empathy, knowledge transfer). For qualitative analyses, in each group eight consultations were videotaped and analyzed, and separate focus groups with the physicians' of both groups were conducted.

**Results:** A total of 137 patients were included. Although cluster-randomized, physicians in both groups differed. Those in the training group were younger ( $33.4 \pm 8.9$  vs.  $40.0 \pm 8.5$  years) and had less experience ( $5.4 \pm 8.9$  vs.  $11.1 \pm 7.4$  years). Overall the patient satisfaction with the CAM consultation was high in both groups (training group:  $23.4 \pm 4.6$ ; control group  $24.5 \pm 4.1$ ). The groups did not differ relevantly. After adjustment for differences in age and experience the training group had slightly better results in some outcomes.

The qualitative findings showed that physicians in the training group mostly structured their consultations as taught during the training. When comparing less experienced physicians from both groups, physicians that were trained in CAM communication felt more self-confident in discussing CAM-related topics than those without training.

**Conclusion:** A CAM communication-training program is feasible and might be especially helpful for physicians with less consulting experience when communicating CAM-related issues. A larger trial needs to confirm this.

**Abstract 20 – POSTER SESSION: Tumor-reducing effect of SB injection in a non-**

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**small cell lung cancer patient: A case  
report**

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**Background:** SB injection is made of materials that are mixed with three herbs (Pulsatilla koreana Regel, Panax ginseng, Glycyrrhiza uralensis Fischer) and is known to effectively suppress the proliferation of cancer cells. Nevertheless, there is few clinical study. So this study aims the effect of SB injection on tumor size in an advanced non-small cell lung cancer patient.

**Methods:** A patient was clinically diagnosed as advanced non-small cell lung cancer (Stage IIIa). Four cycles of intravenous SB injection were conducted. Each cycle lasted 4 days. The content of 7vials SB was injected every day. To compare the tumor size before treatment and after four cycles of SB injection, chest computed tomography (CT) was performed.

**Results:** Follow-up CT images showed that the tumor size was reduced. In admission, size of the tumor 6.7x8.5x9.5 cm on the left lower lobe of lung. After SB injection, size of the tumor 5.6x6.8x8.4 cm by Chest CT. The patient's symptoms such as cough, sputum were improving until four cycles of SB injection. Numerical rating scale (NRS) showed improvement of Chest pain from point 3 to point 0.

**Conclusions:** This case study suggests that intravenous SB injection may have significant effects of anti-tumor for non-small cell lung cancer.

**Abstract 23 – POSTER SESSION: THE  
EFFECTS OF ASHTANGA YOGA ON  
HEALTH RELATED QUALITY OF LIFE,  
DEPRESSION, AND ANXIETY FOR  
WOMEN AT RISK FOR BREAST  
CANCER-RELATED LYMPHEDEMA**

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**Background:** Breast cancer (BC) survivors who undergo surgery are at risk for poor

health related quality of life (HRQOL). Non-pharmacological interventions may improve biopsychosocial transitions following treatment. The purpose of this pilot study was to investigate safety and efficacy of a post-surgical Ashtanga yoga program for BC survivors at high risk for lymphedema. We hypothesized that performing yoga-focused exercise would promote positive HRQOL and psychosocial outcomes.

**Methods:** As part of a prospective, single group safety and efficacy trial, participants completed an 8-week Ashtanga yoga intervention that included in-person weekly small-group instruction, and home sessions. Patient reports of pain, HRQOL, depression, and anxiety were collected at baseline, and one and six months. Measures included: 1) European Organization of Research and Treatment of Cancer (EORTC) QoL and Breast Cancer Module (QLQ-30/BR23); 2) Center for Epidemiologic Studies Depression Scale; and 3) State and Trait Anxiety inventory. Descriptive statistics were calculated and paired t-tests evaluated change from baseline.

**Results:** Twenty-one women (mean age 50.9) completed the study. Compared to baseline, at one month, women reported improved social QoL (p=.035), and future perspective (p=.006). Trends were also found in cognitive HRQOL (p=.055), depression (p=.065), and body image (p=.079). At 6 months post-baseline, significant improvements were seen for depression (p=.040), future perspective (p=.026), breast symptoms (p=.039), and trait anxiety (p=.001). All other QoL domains trended toward improvement. No increases were seen in arm pain or volume.

**Conclusions:** This pilot study provides early support for the benefit of yoga to improve psychosocial and cognitive QoL, and to reduce anxiety and depression for female BC survivors. Moreover, the intervention was well tolerated, with non-significant improvement in pain and no treatment-related increases in arm volume in these women at high risk for lymphedema.

**Abstract 27 – POSTER SESSION:  
Reduced expression of HSP27 following  
HAD-B treatment is associated with Her2**

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**downregulation in OVCAR-3 human  
ovarian cancer cells**

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**Background:** To investigate the effect of  
HAD-B on ovarian cancer cells.

**Methods:** The effect of HAD-B on the  
proliferation and invasion of NIH:OVCAR-3  
and SKOV-3 human ovarian cancer cell lines  
was investigated. In additions, the  
expression of major signal transduction  
molecules and changes in the proteome in  
these cells were measured.

**Results:** HAD-B treatment effectively  
induced a reduction in the levels of cell prolifer-  
ation in serum-free conditioned media.  
However, unaltered levels of PARP and  
caspase-3 indicated that HAD-B does not  
reduce proliferation by inducing apoptotic  
cell death. Fluorescence-activated cell  
sorting analysis revealed that HAD-B altered  
cell viability slightly. Invasion assay results  
indicated a reduced rate of invasion following  
HAD-B treatment. HAD-B also influenced  
the expression of major signal transduction  
molecules; the phosphorylation of mTOR  
and AKT was reduced, while that of ERK  
was increased. Alterations in the proteomes  
of the two cell lines were investigated  
following HAD-B treatment. Among the 9  
proteins with differential expression,  
heat-shock protein  $\beta$ -1 (HSP27) was  
downregulated in NIH:OVCAR-3 cells  
treated with HAD-B. The reduced expression  
of HSP27 was associated with human  
epidermal growth factor receptor 2 (Her2)  
downregulation in these cells.

**Conclusion:** The results of the current  
proteome assessment suggest that HAD-B  
has the potential to suppress the proliferation  
and invasion of human ovarian cancer cells.  
HAD-B treatment of NIH:OVCAR-3 cells  
suppressed HSP27 expression and was also  
associated with Her2 downregulation.

**Abstract 31 – POSTER SESSION:  
PROTOCOL DEVELOPMENT FOR  
IMPLEMENTING A BRIEF YOGA**

**INTERVENTION DURING  
CHEMOTHERAPY**

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**Background:** Fatigue and other treatment-  
related symptoms (e.g., sleep disturbance,  
psychological distress) are critical targets for  
improving quality of life in patients during  
chemotherapy. Yoga may provide patients  
with skills to self-regulate stress and reduce  
symptoms related to cancer and its  
treatment. Yoga has been primarily  
investigated in the group-class format,  
although cancer patients with high symptom  
burden are less likely to attend. The current  
intervention was designed for a randomized  
controlled pilot study and will one of the first  
to be implemented in the clinic among  
patients receiving chemotherapy.

**Main Concepts:** We gave special  
consideration to fidelity and safety when  
developing the Yoga Skills Training (YST),  
which is brief and implemented individually  
while in the chair during chemotherapy  
infusions. Specifically, we established  
rigorous methods regarding treatment  
design, interventionist training, and delivery  
and receipt of treatment. In addition, we  
document adaptations made to movements  
and adverse events that may occur in this  
novel setting.

**Description:** The YST consists of four 30  
minute in-person sessions with daily home  
practice. The YST aims to teach the key  
elements of yoga in a simple manner that  
reduces barriers to participation during  
chemotherapy (e.g., scheduling, too sick)  
and facilitates home practice. Therapeutic  
goals of the YST are to reduce fatigue, sleep  
disturbance and psychological distress.  
Skills included in the YST are: awareness  
meditation, gentle seated movement,  
breathing practice, and relaxation  
meditation. Attention and ease are also  
highlighted. The YST protocol was informed  
by the principal investigator's yoga training,  
expert yoga therapists, and clinicians.

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**Significance:** The design of the YST is novel because it shifts the traditional paradigm from yoga taught to a group outside of the clinical setting to the individual during clinical care, which may reach patients with higher symptom burden.

**Abstract 32 – POSTER SESSION: A Brief Yoga Intervention Implemented During Chemotherapy for Colorectal Cancer: A Randomized Controlled Pilot Study**

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**Background:** Fatigue and other treatment-related symptoms (e.g., psychological distress, sleep disturbance) are critical targets for improving quality of life in patients undergoing chemotherapy. Yoga may reduce the burden of symptoms related to cancer and associated to cancer treatment. This study aimed to establish the feasibility of conducting the first randomized controlled study of a brief yoga intervention implemented in the clinic among patients receiving chemotherapy for colorectal cancer.

**Methods:** We randomized adults with colorectal cancer to a brief Yoga Skills Training (YST) or an attention control (AC; empathic attention and recorded education). Both interventions consisted of three fifteen-minute sessions, implemented individually while patients were in the chair receiving chemotherapy, and recommended home practice. The primary outcome was feasibility (accrual, adherence, data collection, retention). Self-reported outcomes (i.e., fatigue, pain, distress) and inflammatory biomarkers were also described to inform future studies.

**Results:** Of 52 patients initially identified, 28 were approached, and 15 enrolled (age Mean=57.5 years; 80% White; 60% Male). Reasons for declining participation were: not interested (n=6), did not perceive a need (n=2), and other (n=5). Intervention adherence to in-person sessions for both groups was 76% (intention-to-treat) or 97%

(retained in study). Two participants were lost to follow-up in each group due to treatment changes. Thus, 75% of participants were retained in the YST and 71% in the AC arm. Participants retained in the study completed all measures (descriptive statistics will be provided).

**Conclusions:** This study demonstrated the feasibility of conducting a larger randomized controlled trial to assess YST among patients receiving chemotherapy for colorectal cancer. Data collected and challenges encountered will inform future research. The design of the YST is novel because it shifts the traditional paradigm from yoga taught to a group outside of the clinical setting to the individual during clinical care, which may reach patients with higher symptom burden.

**Abstract 33 – POSTER SESSION:  
Mechanism for the suppression of  
colorectal cancer cell proliferation by  
Lithium Chloride involves induction of  
Wnt9A**

Irshad Ali, Bani M Fagla, Donald P Braun

**Background:**  $\beta$ -catenin is utilized by the canonical Wnt pathway (CWP) to promote cellular proliferation. It is stringently controlled by multiple modulators including components of the non-canonical Wnt pathway (NCWP). The NCWP, which does not utilize  $\beta$ -catenin for its activity acts in concert with the CWP to maintain homeostasis in healthy tissues. Malignant tissues, often characterized by dysfunctional Wnt signaling, exhibit uncontrolled proliferation. The aim of the present study was to assess the capacity of NCWP components to modulate human colorectal cancer (CRC) cell proliferation.

**Methods:** Primary lines (n=5) from resected tumors of CRC patients were treated with Lithium Chloride (LiCl) in the presence and absence of Wnt pathway modulators including: IWP-2, a pan Wnt ligand secretion inhibitor; conditioned media (CM) from LiCl  $\pm$  IWP-2 treated cells; Wnt9A antibody; and, recombinant Wnt9A protein. CRC cell proliferation and apoptosis were determined using MTS and Caspase 3 assays, respectively. Wnt pathway gene expression was determined by PCR and total and active  $\beta$ -catenin protein by ELISA.

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**Results:** LiCl, which normally stimulates proliferation through CWP, unexpectedly inhibited CRC proliferation (mean +/- SEM = 75% +/- 8; p<0.001) and increased apoptosis fifteen-fold (p<0.03) relative to media controls. This was associated with significant suppression of:  $\beta$ -catenin message (p<0.05); total  $\beta$ -catenin protein (p<0.05); and the activated form of  $\beta$ -catenin (2.6 fold; n=1). These changes were associated with increased expression of the NCWP ligand, Wnt9A (p<0.03). LiCl-mediated suppression was partially reversed by both the Wnt ligand secretion inhibitor, IWP-2 (p<0.05) and by specific antibody against the non-canonical Wnt9A ligand (p=0.05). Additionally, CM from LiCl treated cells inhibited CRC cell proliferation (p<0.05) which was not observed with CM from LiCl+IWP-2 treated cells. Finally, recombinant Wnt9A protein also significantly inhibited CRC cell proliferation (p<0.001).

**Conclusions:** This study demonstrates a novel mechanism for suppression of CRC cell proliferation through induction of a non-canonical Wnt pathway ligand, Wnt9A by LiCl. LiCl-mediated activation of the non-canonical pathway in colorectal cancer patients may be therapeutically beneficial.

**Abstract 34 – POSTER SESSION:**

**Enhancement of 5-AZA-2'-**

**Deoxycytidine-mediated expression of Wnt pathway genes and suppression of colorectal cancer cell proliferation by Resveratrol**

Irshad Ali, Bani M Fagla and Donald P Braun

**Background:** The balance between canonical and non-canonical Wnt pathways (CWP and NCWP, respectively) is dysregulated in cancer resulting in uncontrolled cell proliferation. This may come about through silencing the expression of genes that inhibit or modulate CWP via epigenetic mechanisms. Studies have shown that 5-AZA-2'-Deoxycytidine (AZA), a demethylating chemotherapy agent, reverses the silencing effects and suppresses CWP. Demethylating agents used at therapeutic doses can have deleterious side effects justifying studies utilizing these agents at more tolerable doses, alone or in combination with natural compounds such as resveratrol (RV). Such

studies show that combining AZA with RV can have synergistic effects that suppress cell proliferation greater than either compound individually. Nevertheless, relatively little is known about how the WP genes are affected by AZA+RV. The aim of this study was to evaluate expression of WP genes in human colorectal cancer (CRC) cells treated with AZA+RV, and the resultant effects on proliferation.

**Methods:** CRC cells were treated with AZA (10uM), RV (5ug/ml) or AZA+RV for 72h. Cell proliferation was determined by MTS assay and gene expression by quantitative RT-PCR WP gene expression arrays.

**Results:** Compared to CRC cells in control media, proliferation was inhibited by 49, 48 and 73% respectively by treatment with RV, AZA, and AZA+RV. RV alone only increased Wnt 9A expression (2.4 fold) whereas AZA increased expression of the NCWP genes Wnt 9A, Vangl2, and Wnt4; and the CWP mediator, Wnt7A and inhibitor, Dkk1; 20, 3, 1.8, 10 and 11 fold respectively, relative to media controls. The corresponding results for RV+AZA were 31, 18, 8, 17 and 30 respectively compared to controls. Thus, RV synergized with AZA to elicit substantially increased expression of what are predominantly NCWP genes compared to the levels seen in media controls.

**Conclusions:** Resveratrol enhances AZA-mediated effects on expression of Wnt pathway genes known to suppress the canonical Wnt pathway. This results in enhanced suppression of CRC cell proliferation suggesting the combination may increase clinical efficacy.

**Abstract 35 – POSTER SESSION: LOW LEVEL LASER THERAPY FOR THE TREATMENT OF CHEMORADIATION INDUCED ORAL MUCOSITIS**

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**Background:** Mucositis is a common and debilitating toxicity in head and neck cancer patients undergoing chemoradiation therapy. Mucositis has a significant impact on patient quality of life and can be a dose-limiting factor for treatment regimens. Low

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level laser therapy (LLLT) has been previously shown to prevent mucositis induced by radiation therapy. Therefore, we tested whether LLLT could treat existing symptomatic mucositis in head and neck cancer patients undergoing chemoradiation therapy.

**Methods:** Patients who were receiving head and neck radiation and had developed at least WHO grade I mucositis were included in this study. For LLLT, 6 areas in the oral cavity and oropharynx were treated with an 830nm laser (3 J/cm<sup>2</sup>) 3 days per week from the time of enrollment until the completion of radiation therapy. Mucositis grade (WHO grade), visible changes and functional symptoms (NCI-CTC), and pain (0-10 point scale) were assessed at baseline and weekly.

**Results:** Participants (n=16) completed the baseline, 1 week, and final assessment. At 1 week, the mean mucositis grade was significantly reduced compared with baseline (2.38 vs. 1.81, p=.4). In addition, the mean mucositis visual appearance score was significantly improved at 1 week (1.94 vs. 1.44, p=.04). At the final week of radiation therapy the mean mucositis grade (2.38 vs. 2.31) and mean visual appearance score (1.81 vs. 1.69) were not significantly different from baseline. The pain and functional measures did not significantly change from baseline at 1 week or at the final assessment. Notably, all 16 patients were able to complete their prescribed radiation course.

**Conclusions:** LLLT was shown to acutely reduce mucositis grade and visual appearance score, while it also prevented the worsening of mucositis through chemoradiation. Overall, these results support preliminary evidence that LLLT may be effective to treat and prevent worsening of symptomatic mucositis in patients receiving chemoradiation for head and neck cancers.

**Abstract 37 – POSTER SESSION:  
Religious Coping in the Emotional  
Writing (EW) of Kidney Cancer Patients**

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Texas, USA.

**Background:** Although spirituality/religiosity (R/S) is associated with improved cancer adjustment, less research has examined negative religious coping and quality of life (QOL) in cancer patients. Because previous research almost exclusively relied on R/S self-report instruments, which are susceptible to self-presentation and defensive biases, the purpose of this study was to identify religious coping observed in the writing samples of kidney cancer patients participating in an EW intervention and their associations with QOL outcomes.

**Methods:** Participants (n=138; 60% male; 48% advanced stage) wrote about their deepest thoughts and feelings regarding their cancer experience on 4 separate occasions and completed standard measures of R/S (Ironson-Woods R/S Index), depressive symptoms (CES-D), social support (MOS-SSS), fatigue (BFI), and sleep disturbances (PSQI) at baseline and 1 month later. Writing samples were coded for positive and negative religious coping (RC), and personal (e.g., private prayer) and collective (e.g., church attendance) religious engagement.

**Results:** Mean scores of the R/S Index were high (mean=104.8, SD=24.4) and 72% of the sample self-reported that R/S guides their daily activities “quite a bit” or “a great deal.” Without an R/S writing prompt, 70% of all EW samples contained positive RC, 45.3% revealed personal and 42.3% collective religious engagement. Negative RC was rare (8%). Although positive RC and personal and collective engagement were significantly associated with the R/S Index (P<.05), negative RC was not. Yet, only negative RC was associated with QOL outcomes. Those using negative RC references were more likely to report sleep disturbances (r=.21; P<.05) and less social support (r=-.19; P=.06). Controlling for baseline levels, negative RC predicted poor sleep ( $\beta$ =.18; P=.07) and low social support ( $\beta$ =-0.19; P<.05) at follow-up.

**Conclusion:** Behavioral coding of EW samples supported the literature suggesting positive RC is common among cancer patients. Although negative RC may be relatively rare, it may reduce patients' QOL.

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**Abstract 39 – POSTER SESSION: NEW  
METHOD OF DETECTING VARIOUS  
CANCERS AND THEIR BIOCHEMICAL  
INFORMATION AND EVALUATING THE  
EFFECT OF TREATMENT USING  
RAPIDLY CHANGING PART OF QRS  
COMPLEX OF ECGs & RISING PART OF  
THE T-WAVE**

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York Medical College, New York, NY, USA;

International College of Acupuncture and Electro-  
Therapeutics, New York, NY, USA; and Heart

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**Background:** Recently the author found that using rapidly changing part of QRS complex of electrocardiograms and rising part of T-wave can detect not only information on the different parts of the heart but also can detect various cancers existing in the rest of the body as well as medicine taken within 10 hours.

**Method:** High-frequency component of rapidly changing QRS complex of ECGs was used to find how much information on the cancers in the rest of the body can be detected. To detect such invisible information transmitted by high-frequency component of rapidly changing part of QRS complex of recorded 12 lead ECGs, we used the maximum Electromagnetic Field (EMF) Resonance Phenomenon between two identical molecules of the same amount using a simple method which received a U.S. patent in 1993. From recorded ECGs, EMF Resonance Phenomenon between specific cancer microscope tissue slides and rapidly changing part of QRS of recorded ECGs were evaluated with many electrocardiograms of cancers patients confirmed by standard laboratory tests.

**Results:** Rapidly changing part of dV/dt of QRS complex of ECGs contain invisible information of specific cancers. However, accurate biochemical information can only be found when rising or falling part of QRS complex is 1-1.2 mV or higher. Therefore, when maximum amplitude of QRS complex is less than 1 mV, information on the presence of cancer still exists but associated biochemical information is reduced. The author was able to detect cancers of various organs, find when the patient had more than one cancer in different parts of the body, and

detect most of the medicine taken within 10 hours.

**Conclusions:** Among 12 lead ECGs, if the QRS complex is 1.2 mV or higher, one can detect not only presence of cancer but additional information on the cancer and related biochemical changes can be obtained from rapidly changing part of the QRS complex. This method can not only screen various cancers, but also evaluate the therapeutic effect of any treatment.

**Abstract 41 – POSTER SESSION:  
Individualized, Safe, Effective  
Treatments of Various Cancers Using  
Optimal Dose for Average Adult of 400  
I.U. Vitamin D<sub>3</sub> Instead of Usual Dose of  
2000 I.U. or Higher & Inhibition of Cancer  
Activities by Application of  
Electromagnetic Field (EMF) Neutralizer  
on Bone Marrow Representation Area of  
the Face**

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Therapeutics, New York, NY, USA; and Heart

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**Background:** Before using chemotherapy or radiotherapy, safe, effective, individualized treatment is needed. We evaluated the effect of optimal dose of Vitamin D<sub>3</sub> and the effect of EMF neutralizer on the bone marrow representation area of the face.

**Methods:** We compared effects of one optimal dose of 400 I.U. for an average adult and the commonly used 2000 I.U., and examined the effect of these 2 methods on oncogen C-fos Ab2, integrin  $\alpha_5\beta_1$ , and 8-OH-dG using non-invasive measurement based on the EMF field resonance between two identical molecules, a method which was given a U.S. patent in 1993.

**Results:** One optimal dose of Vitamin D<sub>3</sub> will be converted to 25(OH)D<sub>3</sub> at the liver, and it will be further changed 1 $\alpha$ ,25(OH)<sub>2</sub>D<sub>3</sub> at the kidney. Therefore, if the liver and the kidney are not damaged, 400 I.U. of Vitamin D<sub>3</sub> often results in significant reduction of the cancer parameters, provided that no inhibiting factor, like Vitamin C, is present. However, commonly used Vitamin D<sub>3</sub> dose of 2000 I.U. or higher usually promotes growth of cancer, and cancer parameters often increase 2 times or higher. The optimal dose

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of 400 I.U. of Vitamin D<sub>3</sub> increases DHEA significantly, which not only improves circulation and reduces pain, but also acetylcholine increases significantly and enhances the excretion of bacteria, viruses, fungi, mercury, and lead into the urine, therefore improving symptoms of diabetes, high blood pressure, myocardial ischemia, memory problems, and Alzheimer's disease. However, high doses of Vitamin D<sub>3</sub> give completely opposite results. We also found that the application of EMF neutralizer on bone marrow representation area of the face rapidly reduces cancer-related parameters

**Conclusions:** The combination of an optimal dose of Vitamin D<sub>3</sub> of about 400 I.U. for an average adult, combined with the application of EMF neutralizer on bone marrow representation area can be used as a new approach for safe, effective cancer treatment.

**Abstract 43 – POSTER SESSION: THE EVALUATION AND CLASSIFICATION OF COMMONLY OCCURRING BREAST CANCER SYMPTOM CLUSTERS ACCORDING TO CHINESE MEDICINE PATTERN DIAGNOSIS (BIAN ZHENG)- A REVIEW OF THE LITERATURE AND SUBSEQUENT QUESTIONNAIRE DEVELOPMENT**

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**Background:** Acupuncture is among the more popular CAM modalities sought by cancer patients as adjunctive care. Pattern diagnosis (*Bian Zheng*) is a key component in the diagnostic and treatment process in Chinese Medicine (CM), which involves examining a patient's presenting signs and symptoms and clustering into a CM 'diagnostic pattern'. A review of the literature was conducted prior to the development of a self-report questionnaire to explore CM pattern identification and diagnosis in women with Breast Cancer.

**Methods:** An electronic search of published literature was undertaken on April 30, 2014 through *AMED*, *CINAHL*, *Cochrane Systematic Reviews*, *EMBASE*, *Web of Knowledge*, *MEDLINE*, *PubMed* and *China*

*Knowledge Resource Integrated Database (CNKI)*. The keywords employed to generate the search were 'Acupuncture', 'Traditional Chinese Medicine' and 'Breast Cancer'.

**Results:** From English databases, 12 relevant papers were found, while the CNKI database yielded 39. These 51 papers incorporated CM pattern diagnosis and the six most frequently identified patterns were 'Liver Qi Stasis' (n=38); 'Chong and Ren Mai Disorder' (n=30); 'Qi and Blood Deficiency' (n=30); 'Qi and Yin Deficiency' (n=17); 'Kidney and Liver Yin Deficiency' (n=16); and 'Toxic-Heat Accumulation' (n=14). Although the results of this review of the literature was limited in scope, the six abovementioned CM pattern diagnoses and their associated symptoms were compiled into a comprehensive list, which formed the basis of a self-report questionnaire. Initial data will be presented along with the main findings of the literature review, as well as the process involved in developing the questionnaire.

**Conclusions:** Research into the validity, reliability and application of CM pattern diagnosis is necessary for developing a more rigorous approach to CM clinical research. Questionnaires that clinically assess CM pattern differentiation in cancer patients will be a useful tool in examining CM treatment options (including acupuncture) and its clinical efficacy as adjunctive care in oncology.

**Abstract 44 – POSTER SESSION: Developing an Integrative intervention Palette for the Thoracic Peri-Operative Integrative Surgical Care Evaluation (POISE) Trial**

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**Background:** The purpose of the Thoracic POISE Trial is to study the effectiveness of naturopathic medicine used in combination with conventional medicine in the peri-operative care of thoracic cancer patients. The first stage of this three-stage trial will involve the development and refinement of an integrative intervention palette.

**Main Concepts:** The integrative intervention palette development process will be guided

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by three principles: 1) evidence of benefit and safety from scientific investigation, 2) holism across pre- and post-operative treatment goals and therapeutic approaches, and 3) consensus among doctors of naturopathic and conventional medicine.

**Description:** The trial intervention development committee (IDC), comprised of NDs, oncologists, surgeons, anaesthetists, and pharmacists, will be responsible for defining the integrative intervention palette. A two-step review will be conducted to collect information sufficient for the committee to make an evidence-driven, consensus selection of interventions, as objectively as possible, that is holistic across treatment goals and therapeutic approaches. First, a review of the integrative oncology practice - the OncANP membership - will identify key integrative interventions used in naturopathic oncology clinical settings for the care of surgical thoracic cancer patients. Second, literature evidence on efficacy and safety in humans will be collated for the interventions identified from the practice review. Using the aforementioned reviews as guidance, the IDC will choose, through discussion and consensus, interventions on the basis of demonstrated evidence, practice usage, safety, feasibility, taking into account holism across therapeutic approaches and treatment goals.

**Significance:** This trial is the first to explore the benefits of an integrative program of care for patients with thoracic cancer. In addition to exploring the impact of integrative care in a peri-operative setting, the process of developing the integrative intervention palette, driven by both practice and evidence, will build on and expand a strong collaboration between naturopathic and conventional medical practitioners.

**Abstract 46 – POSTER SESSION: A  
MULTI-MODAL RETREAT PROGRAM IN  
A NATURAL SETTING PROMOTES  
LONG-TERM HOLISTIC WELL-BEING  
FOR BREAST CANCER SURVIVORS: A  
12-MONTH OBSERVATIONAL STUDY**

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**Background:** Multi-modal retreats, held in natural settings, are a little studied but increasingly common part of integrative healthcare. Previous research suggests that such retreats can improve quality of life, mood, and adjustment to cancer. This study examined the short and long-term effects of a 3-day retreat on well-being among breast cancer survivors.

**Methods:** The retreat included relationship-building, healthy foods, stress reduction, creativity, personal rejuvenation, and time in nature. This observational study employed pre-, post-, 3-month, and 12-month follow-up web-based questionnaires. Outcomes included primarily previously validated scales to measure nature connection, sense of place, and biopsychosocial-spiritual well-being. A new holistic measure, Ritenbaugh's Self-Assessment of Change (SAC) was employed; changes of more than 10 points were considered clinically significant. Analysis included paired t-tests between each time point and baseline.

**Results:** Breast cancer survivors (n=136, mean age 54, range 29-74, 100% women) were recruited from the community to attend one of eleven weekend retreats. Valid paired questionnaires included: post (n=104), 3-month (n=70), 12-month (n=52). Post-retreat, participants experienced a greater sense of place, did more self-management, and more physical activity (p<0.0001). Perceived stress (p=0.014) and negative affect were lower while positive affect and transcendence were higher (p<0.0001). The SAC was positively changed by more than 20 points (p<0.0001). Nature connection, reflection, and wholeness were unchanged. At 3-month follow-up, participants experienced more positive affect (p=0.001) and less negative affect (p=0.017). Nature connection (p=0.009) and reflection (p=0.043) were improved. SAC maintained improvement (p<0.0001). At 12-month follow-up, sense of place (p=0.036), self-management (p<0.0001), perceived stress (p=0.035),

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positive affect ( $p=0.004$ ) and the SAC ( $p=0.007$ ) were improved over baseline.

**Conclusions:** This study suggests that multi-modal retreat programming in natural environments has long-term effects on the well-being of breast cancer survivors. It also demonstrates the utility of the SAC, a holistic patient-centered measure constructed for use in integrative healthcare research.

**Abstract 50 – POSTER SESSION: Yoga therapy within integrative cancer care**

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Care Coordinator

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Bayswater, Ottawa ON K1Y 2E5

**Background:** The purpose of this presentation is to describe how yoga can be a part of an integrated treatment plan for someone dealing with cancer. In particular, yoga and breath work can help a person acknowledge the shock, fear and anxiety that come with a cancer diagnosis.

**Main Concepts:** Yoga is unique in that it can de-pattern the trauma of a diagnosis (not unlike PTSD) and bring someone into a parasympathetic state easefully.

Patients feel more fully in their body and experience and less like a “victim”

These techniques can be used safely with chemotherapy and/or radiation therapy to help alleviate anticipated side effects.

**Description:** The presentation will include the following:

Background to yogic breath and how to practice safely and with confidence

Simple “Side Door” practices to stimulate the parasympathetic nervous system

A look at PTSD and diagnosis shock and how to help the nervous system create new patterns to respond to fear

Elucidation of the concepts presented will be made using a few representative case examples

**Significance:** A diagnosis of cancer can have a profound impact on the psyche leading to patterns of thinking that can produce symptoms of their own. Such changes can mean anxiety and depression and more physical expressions of debility. Yoga therapy has the potential to reframe and depattern modes of thinking to support quality of life and the ability to cope. This

presentation will demonstrate how yoga, a non-invasive and evidence-based therapy, can be incorporated effectively into an integrative cancer care plan.

**Abstract 51 – POSTER SESSION: Head Start: Review of a program designed to meet the immediate needs of women with newly diagnosed breast cancer**

Sarah Young, MA<sup>1</sup>, Anne Pitman, MSc<sup>1</sup>, Rabia Wilcox<sup>1</sup>, Linlu Zhao, PhD<sup>1</sup>, Dugald Seely, ND, MSc, FABNO<sup>1,2</sup>

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**Background:** The purpose of this presentation is to describe the Head Start Program for women newly diagnosed with breast cancer offered at the OICC. The presentation will demonstrate that while embarking on the survivorship path, this program provides support, guidance and an introduction to integrative cancer care.

**Main Concepts:** The head start program is unique, and is led by a group of therapists skilled in understanding and discussing the impact of cancer on psyche and quality of life. Mini workshops, support group sessions and experiential mind body techniques comprise the foundation of this 6 -week program. By measuring the impact of the head start program at the OICC we aim to demonstrate that teaching the benefits of lifestyle changes, equanimity, exercise and proper nutrition diminishes the fear and anxiety that accompanies this diagnosis, and create improved health outcomes over time.

**Description:** The presentation will include the following: barriers to collaborating with hospital based health care workers to support the program review of program components including: mind-body therapies like visualization, yoga and breath work and how they are experienced in order to *develop* positive health habits and assist each woman physically, emotionally and mentally. Review of results of shifts in quality of life, exercise and nutritional patterns based on three iterations of the program being run.

**Significance:** This unique program can help women reduce fear and anxiety, learn decision making tools, and establish a support network from the moment of diagnosis. Early findings indicate that this

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program has the potential to improve the quality of life of women with newly diagnosed breast cancer, however conclusions are limited by the lack of a control group and the fact the women self-select to join.

**Abstract 52 – POSTER SESSION:  
Association between Traditional Chinese  
Medicine Diagnoses and Prognoses in  
Postoperative Patients with Stage II & III  
Colorectal Cancer: A Case-Control Study**

Chao ZOU<sup>1\*</sup>, Cheng-he ZHAO<sup>1</sup>, Xia WANG<sup>1</sup>, Cun-jie LIN<sup>2</sup>, Ling-yun SUN<sup>1</sup>, Yu-fei YANG<sup>1\*</sup>

(<sup>1</sup>Xi-Yuan Hospital, China Academy of Chinese Medical Sciences, Beijing, China; <sup>2</sup>The School of Statistics, Renmin University of China, Beijing, China.)

**Background:** To determine the association between Traditional Chinese Medicine (TCM) syndromes and prognoses in postoperative patients with Stage II & III Colorectal Cancer.

**Methods:** We retrospectively analyzed outpatients of Stage II and III Colorectal Cancer after Radical Surgery from TCM oncology clinic in Xiyuan Hospital during Jan 1, 2000 to April 1, 2015. Patients with metastasis recurrence within 5 years (excluding the recurrence of the crowd appeared out within six months), were the case group. And Patients with more than five years whose recurrence did not appear, served as the control group. Case and control group ratio was 1:4. They were compared from age, gender, disease location, stage and TCM syndromes.

**Results:** Case group were 20 patients, average age  $58.8 \pm 12.9$ , and the control group were 80 patients, average age  $62.04 \pm 11.19$ . Comparison between the two groups by age, gender, disease location and stage showed no significant difference. In contrast, TCM syndromes differed between cases and controls: Higher proportion of cases had syndrome of disharmony between liver and spleen (11 vs 23, 55.0% vs 28.8%,  $P=0.027$ ) than were in the control. On the other hand, the control group had higher proportion of the syndrome of deficiency of spleen than that in the case group (2 vs 28, 10.0% vs 35.0%,  $P=0.029$ ).

**Conclusions:** We found that specific TCM syndromes may be associated with prognosis in patients with stage II and III colon cancer. These preliminary findings, if

confirmed in prospective research, can help better utilize TCM theory in the diagnoses and management of patients with colorectal cancer as part of integrative approach.

**Abstract 53 – POSTER SESSION:  
QUALITY OF OUTPATIENT DATA  
CAPTURE AS PART OF INTEGRATIVE  
ONCOLOGY PATIENT REPORTED  
OUTCOME (PRO) PROJECT**

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**Background:** PRO data is useful in clinical decision making and for supporting research in the area of Integrative Oncology. Quality patient care and research is rooted in the ability to consistently collect PRO data in a busy clinical setting. We report on our experience.

**Methods:** For the year 2014, we collected PRO data using electronic tablets and paper forms. We review (1) completion rate of pre-visit assessments relative to number of total clinical encounters and (2) completion rate of post-visit assessment for services with a pre/post visit assessment; the assessment included a modified Edmonton Symptom Assessment Scale (mESAS). Outpatient clinical encounters include physician visits (pre-visit assessment only); and service line visits of massage, meditation, acupuncture, music therapy (pre-/post-visit assessment). Visits include both initial and follow up encounters; completion is defined as answering at least one mESAS question. A benchmark of > 80% completion was deemed as successful.

**Results:** There were 4168 clinic visits in 2014 spanning the following service lines: physician consult (n=1301), acupuncture (n=1697), massage (n=1121), meditation (n=28) and music therapy (n=21). Of the total visits, pre-mESAS data was collected for 3408 (81.8%) of the visits. Completion rates of pre-mESAS varied by service type: physician consult (82.2%), acupuncture (81.6%), massage (82.0%), meditation (82.1%) and music therapy (57.1%). Overall, only 51.4% of participants completed both

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the pre and post questionnaire. The pre/post completion rates varied by service type: acupuncture (56.5%), massage (47.6%), meditation (60.9%) and music therapy (25.0%).

**Conclusions:** Although we observed successful completion (>80%) of our pre-assessments for the majority of our services based on our pre-determined benchmark, deficiencies were identified in completion of both pre and post assessments. Efforts should continue to further improve data capture and minimize data loss, enhancing both clinical care and producing research quality data. Such efforts include our move toward fully electronic data capture.

**Abstract 54 – POSTER SESSION: Natural Health Product Use and Adverse Reactions in Cancer Patients: Oncology SONAR Pilot Data and Feasibility Implications**

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**Background:** Cancer treatments often induce undesirable side-effects. To alleviate these adverse events (AEs), or to promote wellness, many cancer patients use natural health products (NHPs). The interaction between NHPs and prescription medications is poorly understood, particularly in oncology. Some NHPs may be protective or beneficial, while others may be harmful and potentially cause serious and unexpected AEs. A systematic approach is necessary to understand cancer patients' use of NHPs and establish a repository of NHP-related AEs. Therefore, we commenced an active surveillance program (Oncology SONAR) to address this need.

**Methods:** A pilot study was performed at the Cross Cancer Institute (Edmonton, Alberta, Canada). Patients presenting for routine appointments completed a short form comprising three questions: i) during the last month, have you taken any anticancer or prescription medications? If yes, please list

the medications; ii) during the last month, have you taken any natural health products? If yes, please list them; and, iii) during the last month, have you experienced any unexpected or undesirable effects? Completed forms were returned to the study team for analysis.

**Results:** In total, 147 forms were completed. 115 patients were taking prescription medication and 76 were taking NHPs. Sixty-two patients reported concurrent NHP-prescription use. AEs were reported by 51 patients. Of patients taking prescription medications only, 49% reported AE; no AEs were reported by those taking NHPs only; and, 36% of patients taking concurrent NHP-prescription medication, reported AEs. Further, inclusion of screening was feasible and well tolerated by clinic staff and patients. **Conclusions:** Preliminary data indicates that NHP use is high among cancer patients; many AEs were reported but fewer patients using NHPs-prescription concurrently reported AEs compared to patients using only prescription medications. NHP-related AEs therefore warrant further research, especially those that impact treatment. Oncology SONAR continues to address these clinical gaps in best practice care for cancer patients.

**Abstract 56 – POSTER SESSION: TRADITIONAL CHINESE MEDICINE CHARACTERISTICS ASSOCIATED WITH SURVIVAL OUTCOMES AMONG STAGE IV COLORECTAL CANCER PATIENTS—A RETROSPECTIVE CASE-CONTROL STUDY**

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**Background:** Traditional Chinese Medicine (TCM) herbal medicine has been used in China to improve overall survival time (OS) and quality of life for stage IV colorectal cancer (CRC). However, little is known who respond to this type of approach. This study aimed to identify the characteristic differences between best and worst overall survival (OS) groups.

**Methods:** In this case-control study, 19 stage IV CRC cases with OS less than 12 months and 76 matched controls with OS more than 18 months among 503 stage IV

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CRC patients (2001-2015) from Professor Yufei Yang's TCM oncology clinic in Xiyuan hospital, Beijing China were evaluated retrospectively. TCM syndrome diagnoses and use of TCM herbs were compared between cases and controls.

**Results:** Cases with worst OS (9.11±3.07 month) had a statistically significant higher frequency of TCM syndrome 'disharmony between liver and spleen' (p=0.004) and use of decoction 'QingHaoBieJia' (p=0.005), lower frequency of TCM syndrome of 'blood stasis'(p=0.040) and use of decoction 'SiJunZi' than controls with best OS (31.96±10.73 month). Subgroup analysis within controls with best OS showed TCM syndrome 'lung and spleen deficiency' had a statistically significant higher frequency in long (OS≥33 month) and mid(24≤OS < 33 month) subgroup (p=0.005, 0.040 respectively) than other syndromes.

**Conclusions:** We identified specific TCM syndromes and use of specific TCM herbal decoction associated with prognoses. These findings need to be verified in prospective research to understand the mechanisms of effects of TCM treatment for patients with stage IV colorectal cancer so personalized treatment is possible to improve outcomes.

**Abstract 59 – POSTER SESSION: USE AND BELIEFS OF COMPLEMENTARY/ALTERNATIVE MEDICINE (CAM) AMONG WOMEN WITH GYNECOLOGIC CANCER**

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**Background:** The use of CAM is prevalent among women with gynecologic cancers; however, little is known about the beliefs associated with its use. Studies have found that beliefs in CAM may be a predictor of use, particularly among Hispanic populations. We present the interim results of a survey that evaluated CAM therapies in Hispanic and Non-Hispanic women with gynecologic cancer.

**Methods:** Women who were diagnosed with a gynecologic malignancy and received treatment in the Division of Gynecologic

Oncology at our institution were eligible for participation. After providing informed consent, women were administered a cross-sectional survey that examined their use of CAM and associated beliefs. Demographics were abstracted from the medical record. Approval from the institutional review board was obtained.

**Results:** Thirty-six women (median age: 64.5 (range 36-85)) completed the survey. Eleven of 36 patients (31%) self-identified as Hispanic. Use of CAM was reported in 89% of all respondents and 100% of Hispanic women. The most commonly reported therapies were dietary change (70%), nutrition supplements (51%), and herbal supplements (38%). A larger proportion of Hispanics (43%) used oral supplements compared to non-Hispanics (28%). Most women 'agreed' or 'strongly agreed' that: CAM will relieve the side effects of cancer treatment (55%; 61%), they were comfortable using CAM (82%; 74%), believed CAM has fewer side effects than conventional medicine (82%; 65%), and agreed CAM is good for cancer treatment (82%; 56.5%), in Hispanic compared to Non-Hispanic participants, respectively. For some CAM therapies, less than half reported use to their doctor.

**Conclusions:** We observed that the use of and positive beliefs in CAM were widely prevalent, particularly among Hispanic women. Future analyses will expand upon these preliminary observations and identify if beliefs in CAM may be a target for improving counseling, communication, and delivery of CAM therapies in gynecologic oncology.

**Abstract 61 – POSTER SESSION: Creating an Integrative Survivorship Program with Complementary Health Approaches**

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**Background:** The Institute of Medicine report, *From Cancer Patient to Cancer Survivor: Lost in Transition* (2005) gave rise to the creation of new accreditation requirements for cancer treatment facilities that include a survivorship program as an official phase of cancer treatment. This

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program provides steps to developing an integrative survivorship program that introduces complementary health approaches within a conventional oncology setting using limited financial resources.

**Main Concepts:** 1) A health and wellness coaching model as a new model of survivorship care founded on the evidence-based effectiveness of health and wellness coaching toward lasting lifestyle change.

2) A volunteer-based initial program to maximize resources, provide needed services to patients, build community support, and enhance patient engagement.

3) The value of key staff over a large budget in introducing complementary health approaches within a conventional medical setting.

**Description:** Presentation of this case study reveals the barriers and opportunities of developing an integrative oncology program initially with a volunteer base and building to paid staff. It demonstrates the blending of a diverse complementary health program with conventional chemotherapy and radiation in a comprehensive manner through collaboration with facility administrators, development and communications staff, physicians, and nursing.

**Significance:** This case provides one model of instituting an integrative oncology survivorship program within a strongly embedded conventional medical culture and without a budget for complementary medicine services. It emphasized the importance of key staff over the significance of a large budget. Presented are seven core concepts found significant to the process of developing an integrative program that incorporates: mind-body medicine skills, Pilates, water aerobics, therapeutic massage, healing arts, mindful yoga, nutrition, survivor-to-survivor mentoring, pet therapy, and monthly educational workshops.

**Abstract 63 – POSTER**

**SESSION: UNDERSTANDING PATIENT  
PATHWAYS AND HEALTH CARE NEEDS  
AMONG PERSONS LIVING WITH  
COLORECTAL CANCER**

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**Background:** Studies show that the experience of living with colorectal cancer leads to significant changes in people's lives. The term *patient pathways* is in cancer care traditionally understood as clinical pathways that often represent standardized packages of conventional health care. However, clinical pathways address single-diseases and not patient pathways which deal with multi-morbidity and patient preferences. For example, many cancer patients' pathways include the use of complementary and alternative medicine (CAM). This study explored patient pathways defined as socially constructed, including both important health events and life events during the cancer journey. The overall aim was to contribute to supportive cancer care.

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**Methods:** The study was based on patients' perspectives on their experiences and situation, as opposed to medically defined patient pathways. 9 Norwegian patients recently diagnosed with colorectal cancer participated in qualitative interviews 5 times over a period of one year. Some also wrote diaries and participated in a work-shop where they made illustrations of their patient pathways.

**Results:** The patient pathways were illustrated as complex and circular, in contrast to lineal illustrations of clinical pathways found in medical literature. The participants experienced a public health service with its main focus on rendering evidence based medical services and a lesser focus on patient-centered health services. Many experienced gaps in the services offered, and several integrated CAM into their personal treatment programs to cope with unmet health care needs.

**Conclusion:** Understanding different types of patient pathways may provide health care professionals, researchers and health policy makers with an innovative and enhanced understanding of patients' health care needs, treatment preferences, and decision-making. Documenting patient pathways as seen from the patient perspective may contribute important knowledge to support targeted cancer treatment and care, including knowledge on patient-defined health care needs and cancer patients' experiences from integrating CAM and conventional treatment.

**Abstract 64 – POSTER SESSION:**

**Developing an Audio-based Mindfulness Meditation Program to Alleviate Distress Experienced by Metastatic Colorectal Cancer Patients and their Caregivers**

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**Background:** To help cope with high level of distress associated with the diagnosis, disease symptoms, and treatment, cancer

patients are increasingly seeking integrative approaches, including mindfulness practices and meditation. Little is known regarding the role of audio-based (e.g., online, mp3, or mobile app) mindfulness programs for patients with advanced cancer who may not be able to attend in-person classes.

**Methods:** This focus group study aimed to inform development of an audio-based mindfulness intervention for patients with metastatic colorectal cancer (mCRC) and their family or friend caregivers. Two separate 2-hour focus group sessions were conducted: one for patients and one for caregivers. Key topics discussed included definitions of mindfulness and meditation, benefits and barriers to mindfulness practice during chemotherapy, and the logistical implementation of the study.

**Results:** Thirty-four mCRC patients and 25 caregivers were invited to the focus groups; illness, schedule conflicts and distance were the top reasons for declining participation. Six patients (33% female, age range 37-64) and six caregivers (83% female, age range 28-68) participated. Participants shared that they experienced high stress and would be interested in learning stress reduction techniques. All participants owned a smartphone or tablet, and were interested in using their portable device to gain skills in mindfulness meditation. An audio-based program was perceived as a helpful tool for establishing a mindfulness practice for individuals with busy schedules, such as cancer patients or caregivers.

**Conclusion:** Our study suggests that an audio-based mindfulness meditation program may be an accessible and acceptable tool for mCRC patients and caregivers. Our next step is to conduct a pilot study to investigate the feasibility of an intervention using mp3 or online mindfulness program. If feasible, this is a promising area of integrative oncology research aimed at reducing distress and improving quality of life for cancer patients receiving chemotherapy and their caregivers.

**Abstract 70 – POSTER SESSION:  
PATIENTS AND ONCOLOGISTS'  
PERSPECTIVES ON PHYSICIAN  
REFERRALS TO A LIFESTYLE  
INTERVENTION PROGRAM**

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**Background:** Despite evidence supporting the value of exercise and diet as part of supportive cancer care, patient uptake and adherence to such lifestyle programs has been problematic. The purpose of this qualitative study was to explore patients' and medical oncologists' perspectives of being part of a physician-referral lifestyle intervention for women receiving adjuvant chemotherapy for breast cancer at a larger tertiary cancer treatment centre in Western Canada.

**Methods:** Interviews with eight medical oncologists who referred women to a lifestyle intervention, as well as twelve women with breast cancer who participated in the lifestyle intervention, were conducted by phone, transcribed and qualitative thematic analysis was completed.

**Results:** Four overarching themes emerged: 1) *Shifting the focus from disease to health* was valued by both oncologists and the women and was perceived to improve oncologist-patient communication and provide a sense of control and hope for the women; 2) *Integrating a lifestyle intervention with treatment* was challenging, especially for busy oncologists and for women who were working and had families; however, framing the intervention as a symptom management strategy and as a form of peer support was effective; 3) *Power of a "prescription"* served to encourage uptake by the women as it reinforced lifestyle considerations as an important part of cancer treatment and emphasized the safety of the intervention; and 4) *Recommendations for improving access to and uptake of the intervention* included considerations of geography, concurrent physical disability and language limitations, as well as flexibility in program availability, inclusion of long-term follow-up, and engaging other health professionals in initiating engagement and supporting participation.

**Conclusions:** These findings offer insights into the benefits of engaging medical oncologists in referring patients to exercise and healthy diet programs. Strategies recommended by study participants may improve integration and uptake of lifestyle interventions into cancer treatment and care.

**Abstract 72 – POSTER SESSION:  
Establishing an IM Service in a Cancer  
Hospital in Australia**

**Background:** People living with cancer often seek out other forms of health care including complementary medicines and therapies (CM) to manage cancer treatment related side effects. Consumers are frequently requesting that there be improved communication and coordination between their allopathic care and CM providers. 'Integrative oncology' has emerged largely in response to this consumer demand over the last two decades. Many cancer centres both nationally and internationally are developing 'Integrative Medicine' services or 'Wellness Centres' or offering complementary therapies through already established disciplines within the multidisciplinary team (e.g. psycho-oncology offering meditation).

**Aim:** The purpose of this presentation is to outline the development of an integrative oncology service in a hospital setting in Sydney; and provide insight into the establishment of an integrative oncology service.

**Method:** The integrative oncology service was reviewed using a combination of the key concepts in integrative healthcare developed by Boon (Boon, Verhoef, O'Hara, Findlay, & Majid, 2004) and Valentijn (Valentijn et al., 2015). This includes: description of program, components of care, administrative structure, process of care, and the level of clinical, professional and organisation integration. These findings were considered within the context of other integrative oncology services.

**Results:** Many features of clinical, professional and organisational integration are evident within the Chris O'Brien Lifehouse integrative oncology service.

**Discussion:** With the growth of integrative oncology services we hope that this presentation will provide some insight into

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establishing an integrative oncology service. Our integrative oncology program has several of the strengths of other integrative oncology programs, but has different approaches and economics.

**Abstract 73 – POSTER SESSION:  
Prognostic surrogate markers for  
survival, a case series for a novel  
antiangiogenic therapy (Multitargeted  
Epigenetic therapies/MTET)**

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Valley Metabolic Imaging

Patients with cancer are evaluated through different oncology laboratory markers, aiming at translation to clinical findings, both to evaluate progression of disease as well as translating to overall survival, as surrogate markers. This effort has been revolutionized as the traditional measurements of the tumor size in CT scans, and identifying cancer response by RECIST criteria, has failed to effectively translate into patient survival. Therefore establishing the prognosis in majority of patients, especially with heterogeneous tumors, has been extremely challenging.

One area of most recent attention in identifying surrogate markers has been the vasculogenesis and its related serum markers. Different stages of carcinogenesis and metastasis are greatly dependent on tumor angiogenesis, as a result of vascular endothelial dysfunction. Novel ways to assess vascular function in cancer include measuring levels of circulating endothelial cells (CEC) or Circulatory tumor cells (CTCs). The presence of circulating endothelial cells (CEC) has recently been recognized as a useful marker of vascular damage. Circulatory tumor cells have the ability to induce endothelial colonies and may contribute toward vasculogenesis. Increased vasculogenesis increases CTC viability, in a vicious cycle. Also, as the circulatory tumor cells transition to mesenchymal cells, their tendency towards vasculogenesis increases. Such transition appears to be dynamic and under the influence of stroma.

Secondly, there have been efforts in correlating FDG-PET scan findings with

patients' prognosis. That said, unfortunately there is no direct translation to survival, especially in heterogeneous tumors.

The current understanding of priorly described Warburg's effect, suggests increased "hypoxia" as a driver for tumor growth, as a common signature of highly malignant tumors with capacity to metabolize glucose quickly, to lactic acid. This pattern can be related to increased glycolytic enzymes activity. One recent finding was that activated hypoxia response elements (HRE) by hypoxia can activate hexokinases. This phenomenon could potentially translate into increased SUV findings at FDG-PET scan.

Our understanding of heterogeneity of tumors has led us to look more in depth at cancer stem cells and epidermomesenchymal transition (EMT). Logically, the tumors which have higher heterogeneity have higher stem cell potentials and increased EMT transition. Here again, hypoxia and related hypoxia induced factor (HIF-1) can also be a the promoter or origin of such increased activity in downstream targets, through Wnt, Snail and Slug pathways increasing the tendency of tumors to show more heterogeneity.

That said, as of today, there is not a single biomarker used clinically for assessing vasculogenesis, or intratumoral hypoxia and the correlation between FDG-PET findings and survival has not been strong, especially in more heterogenous cancers (such as breast and lung cancer). Several studies have failed to show direct harmony in CTC findings and FDG-PET (although in breast cancer some studies have shown some but not strong relationship between progression of disease in PET and increased CTC, when CTC has been less than 5). The same is true for NSCLC. In NSCLC (due to heterogenic features), we see discordant relationships, between CTC and FDG-PET findings, described in the literature as the more aggressive cases, can have less CTC readings, and vice versa, and there is very poor correlation of CTC with PET findings.

Here we hypothesize that serum/plasma VEGF measurements, as a biomarker for vasculogenesis (and possible intratumoral hypoxia), before and after therapy

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independently, or in addition to, circulatory tumor cells assay, can be used as a prognostic marker correlating with FDG-PET findings. Altogether, a meaningful companion diagnostic tool to translate to clinical outcome, and overall survival.

This is also important in therapeutic areas, as traditional chemotherapies in general (all anthracyclines, Alkylators, Platinum based chemotherapies, etc.) increase the serum circulatory tumor cells, as well as serum VEGF, by several mechanisms, including proinflammatory cytokines, disrupting the tumor vessels by disrupting endothelial dysfunction and causing tumor cell leaks. This necessitates new tools to overcome such negative measurable impact on potential survival.

Accordingly, here, we present a summary of thirty cases of advanced disease and in detail, we present three cases of heterogeneous stage four breast cancer who had failed several lines of chemotherapy, and were treated using a novel antiangiogenic therapy, consisting of natural and off label drugs. These are known to inhibit hypoxia induced pathways, in a protocol called multi targeted epigenetic therapy (MTET), resulting in independent and synergistic response identified by serum VEGF/CTC/ and FDG-PET combo findings, and translated to improved progression free, or overall survival.

We conclude that this sample, although small, presents considerable effect size and can impact the current practice of oncology by providing better prognostic and therapeutic tools targeting angiogenesis in refractory heterogeneous disease.

#### **Abstract 77 – POSTER SESSION: NATUROPATHIC ONCOLOGY MODIFIED DELPHI PANEL**

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**Background:** Naturopathic oncology is a relatively new and emerging field capable of providing professional integrative or alternative services to cancer patients. Foundational research is critical to identify topics of consensus among experienced practitioners for the clinical and research development of naturopathic oncology. The Delphi methodology provides a systematic approach to consensus development to assist in identification of foundational themes to provide education and guidance to naturopathic practitioners, conventional practitioners, and the general public.

**Methods:** This study implements the Delphi method to establish consensus among a panel of experts regarding ethical, philosophical, and research development concepts relating to naturopathic oncology. The protocol applied a nomination process to select a panel of 8 physicians and assist in question formulation. The panel of physicians conducted a systematic in-person discussion of 6 questions with multiple iterations. A post-discussion consensus survey was conducted to provide consensus statistics for quantitative data analysis.

**Results:** The protocol identified, ranked, and established consensus for numerous themes per question. The top 5 themes for each question were selected and analyzed for statistical analysis, and quotes from the panel discussion were highlighted to assist in clarification of each theme. Underlying key topics derived from the discussion include the importance of integration with conventional medicine, the use of evidence-based medicine, the importance of patient education and safety, and additional training requirements for naturopathic oncologists.

**Conclusion:** Naturopathic oncology has a strong potential for expansion as the desire for integrative and complementary medicine increases in the field of oncology. Foundational research, such as the naturopathic oncology Delphi panel, provides a platform for identification of key

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topics regarding ethics, philosophy, and research development for the continued growth of this emerging field.

**Abstract 78 – POSTER SESSION:  
Haematological Cancer and CAM:  
Patient Use and the Attitudes and Beliefs  
of Health Professionals**

**Introduction:** Blood cancers represent 10% of all cancers diagnosed in adults in Australia [1]. There are few studies in this field and no data currently exists on the use of CAM and beliefs by malignant haematological patients in Australia.

This study sought to examine the attitudes, use, disclosure and types of CAM usage in Australians with malignant haematological cancers. We also sought to investigate the attitudes to and knowledge of CAM held by health professionals working with patients with malignant haematological cancers.

**Subjects and Methods:** Subjects were Australian English-speaking cancer patients at least 18 years of age recruited from Royal Prince Alfred Hospital (RPAH) and through two patient groups associations. Health professionals were recruited from RPAH and the Haematology Society of Australia and New Zealand. Participants completed a self-administered questionnaire online or in hard copy between April 2015 and May 2015. A regression analysis is planned to identify the predictors on CAM use along with specific blood cancer groups and will be available for presentation at the Conference.

**Results** Of the 268 patients with haematological cancer, 61% currently use CAM. Reasons for use were to help cope with the experience of cancer (56%), reduce symptoms (51%) and decrease emotional stress (48%). One in five used CAM to treat their cancer (20%). Only 35% had discussed their use with their haematologist. The main reasons for not using CAM was not being able to find good CAM practitioners (41%). While others were concerned it would interfere with their conventional cancer treatments (36%) or may have side effects (37%). Of the 176 health professionals, 91% supported the use of mind and body therapies and 41% were supportive of the use of natural products in a haematological setting. But only 30% felt comfortable discussing CAM therapies with their patients

and 87% were interested gaining more knowledge in this area.

**Conclusion:** CAM use is common among patients with haematological cancer, yet disclosure to their haematologist is poor. The findings of this study demonstrate a lack of knowledge about CAM in both patients and health professionals. Given the number of patients using CAM with conventional treatments, we must address this gap in knowledge and a desire among health professionals to learn more about CAM and be able to offer reliable information to patients on efficacy and drug-herb-vitamin interactions.

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**Abstract 81 – POSTER SESSION:  
MODELING OF CANCER SYSTEM  
PATHOGENESIS: A NOVEL APPROACH**

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**Background:** Modeling behaviors of cancer cellular systems allows scientists to describe pathogenesis through the lens of a system approach. Microscopic natural systems in the human body such as cellular structures exhibit behaviors that show it has elements of a systems approach such as inputs, processes, output feedback that occur. Insightmaker.com is a simulation and modeling program and supports a web-based graphic user interface. This system based approach allows a user to create primitives such as stock and variables and add connections using link and flow elements. A simulation run provides a visualization of the defined stock against a timeline on a dynamic graph. Insightmaker was developed to handle two modeling approaches namely, systems dynamics and agent-based modeling. Systems dynamics

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models systems on an aggregate level by using rates of change and state variables. One challenge of modeling cancer system pathogenesis is that the cancer pathways are complex and that new cancer research reevaluate cancer pathogenesis from a systems perspective. Cancer complexity in itself can be managed when it is examined from its component parts and related back to its own survival & replication system and its immediate microenvironment. A systems perspective looks into the input, throughput, output and feedback loop of the cancer's cell pathways and pathogenesis. Using a simulation and modeling tool such as Insightmaker allows a researcher to change input values of the molecular compounds and see their effect on the throughput of the system and its expected output in real time and on the fly. This allows the researcher to create a matrix of values that can be used as initial assumptions in lab bench experiments and also creates a foundational and visual representation of dynamic assumptions to discuss and challenge with students in small group discussions. Loss of basement membrane adhesion can be represented as having stochastic properties and values of 0 to 1 with insightmaker.com. The interaction of the cancer cell and the extracellular matrix (ECM) has shown to having both synergistic and antagonistic interactions. Interaction profiles of fibronectin with galectin-3, galectin-8 or laminin have been associated with tumor metastasis. These molecular pairings have been extensively studied in lung cancer cells that can be described as having a non-deterministic adhesion profile in both in vivo and in vitro studies. These profiles can be determined in cancer lung cell and ECM interactions but may exhibit non-deterministic precision in other types of cancer cells and ECM interactions. These stochastic properties are modeled using 0 and 1 states in insightmaker.com and user can input can control these states to show the cancer cell and ECM interaction as component of the cancer pathogenesis. Angiogenesis contributes to the stability of the tumor as it attaches itself to ECM of the new tissue site. The increase in vasculature activity near the new tumor site facilitate the availability of lymphatic vessels

to the tumor cells which turn healthy protective macrophages into new tumor cell recruits.

**METHODS:** Using a systems thinking approach to model cancer system pathogenesis is a novel process in the undergraduate medical curriculum. The traditional lecture and discussion model provides the foundational model but falls short of exploring the breadth and depth of the biological systems dynamics of cancer pathogenesis. The development of an instructional activity that incorporates systems thinking to explain cancer system pathogenesis can be linked back to course, clerkship or thematic learning objectives. The instructional activity will have two parts, the first part will be a "complete this model" activity using insightmaker.com wherein instructions are provided and deliverables are clearly defined. The first part can be implemented as a "flipped classroom activity" that should be done outside of class and deliverables shared in an online discussion forum of their school's learning management system. The second part will be a "create your own model" based on a component of a biological model of cancer pathogenesis that a small student group of 4 can model, define attributes and values and create a working instance of their model. A short presentation and discussion will be done in class to showcase the group's biological model. The key for the increase likelihood of acceptance of a systems thinking activity is to it in bite sized chunks and in increments. Feedback from the students and faculty should be gathered to help improve the activity and implement it in the next offering of the course, theme or clerkship. The successful implementation of a system approach in a face to face classroom and online setting for understanding cancer pathogenesis is the packaging of the instructional activity and its supporting content in bite size and incremental approach and explicit description of the activity's deliverables.

**RESULTS:** The initial launch of this system approach necessitates the use of a free and easily accessible application such as insightmaker.com. The drag and drop interface and intuitive icon driven menu of

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Insightmaker is ideal for lowering the learning curve for a systems thinking instructional activity. The initial instructional activity will have to be designed with an easy to follow demo of an actual working systems model in systems biology or population ecology. This allows for the content to be familiar to the student. The constructive portion of the activity is a group activity that will allow a team of 4 students (2 model constructors, recorder and team leader) to construct a systems model of a portion of the cancer pathogenesis cycle such as tumor formation, tumor metastasis or tumor apoptosis. An evaluation rubric will be used to guide the development of the group created student model with evaluation categories such as narrative of the system model, attributes of the system, data flow and values used and a personal reflection of how their group model deepened or not deepened their understanding of cancer pathogenesis.

**CONCLUSION:** Modeling cancer pathogenesis is an important learning tool for early career clinicians and medical students. Medical instructors will be able to harness flexible and free systems modeling tools such as Insightmaker to help their students identify relationships between cancer systems and its microenvironment using dynamic models and time series graphs.

**Abstract 83 – POSTER SESSION:**

**Proteomic analysis of A549 lung cancer cells treated with the HangAmDan-B (HAD-B) using antibody arrayed-ProteoChip**

So-Jung Park\*, Hwa-Seung Yoo<sup>1</sup>

<sup>1</sup>East-West Cancer Center, Dunsan Oriental Medical Hospital of Daejeon University, Daejeon, Republic of Korea

**Background:** HangAmDan-B (HAD-B) consists of four species of Korean medicinal plants and animals. (*Panax notoginseng Radix*, *Cordyceps Militaris*, *Ginseng Radix*, *Boswellia carterii*)

**Methods:** We investigated the anti-proliferation effect of HangAmDan-B (HAD-B) in A549 lung cancer cells. We showed down-regulated expression of STAT3 and H-Ras using Antibody microarray-based proteomic analysis. STAT3 and H-Ras are related cell proliferation and apoptosis.

**Results:** HAD-B inhibited A549 cell proliferation in a dose-dependent manner. Whereas, HAD-B not effected NIH-3T3 cell. HAD-B inhibited solid tumor growth in A549 Xenograft animal model. HAD-B decreases H-RAS and STAT in A549 cell.

**Conclusion:** These data strongly suggest that the inhibition of proliferation and the increased apoptosis by HAD-B was due to downregulation of STAT3 and H-Ras in A549 cells.

**Abstract 84 – POSTER SESSION:**

**Integrative Program of Support and Revitalization for womans with breast cancer in Brazil (PRIINTAR)**

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1 FEDERAL UNIVERSITY OF CEARA (UFC); 2 INSTITUTE WHEEL OF LIFE;

3 UNIVERSITY OF FORTALEZA (UNIFOR); 4 STATE UNIVERSITY OF CEARA (UECE)

**Background:** The diagnosis and treatment of breast cancer cause serious biographical disruptions, changes in corporeal structure and quality of life of these women. In this study we were used singing wheels, meditation, kundalini yoga, body practices, conversation circles and floral remedies made with Brazilian plants intensively for 4 months and evaluate the impact on the reframing of the disease and quality of life.

**Main Concepts:** Women who participated in this program usually experience a situation of poverty and a lot of overhead in your family life. Group multiple modalities to effectively proven approaches can optimize treatment responses and more rapid changes in quality of life and reframing lives. Bring together professionals from different universities and also students of medicine, psychology, nursing united in a research program may cause changes in the structure of health services and also the concepts of the binomial health-disease.

**Description:** The program lasts four months and consists of 8 meetings that last a whole day (Saturday). The activities start at 8:00 am and close 18: 00h (beginning we have singing wheels which are sung folk songs that are chosen by the participants themselves, then kundalini yoga and meditation. We have a break for lunch that is

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offered by Institute. Rest and the evening we went back with a working body practices (biodance) and then we finished with a round of conversation during which the participants and professionals discuss the process). Before the program starts we offer an access workshop, where people can try the program before committing to meet the four months of treatment. All women are interviewed and examined and an informed consent form is presented for them to sign agreeing to participate in the program. We also send a letter to the oncologist explaining program details and requesting their agreement. The Institute has a multidisciplinary team of doctors, psychologists, physical educators, nurses, yoga teachers, masters of reiki, meditation teachers and scholarship students. All workers are volunteers and the program is offered free people because the Institute is a non-governmental organization. **Significance:** We offer this program for 35 women with breast cancer and the narrative of them show a significant change in quality of life, in fighting the disease and reframing of their own lives. We believe that this method can be easily replicated and can help many people.

87 According to the theory and principle of Chinese medicine, fatigue is considered as deficiency of Qi, which can be treated effectively using Chinese herbal medicine and acupuncture. Many research works done in China and in the U.S. have indicated that Chinese medicine Fu-Zheng therapy could enhance the host natural defense mechanism as a biological response modifier (BRM). Clinical trials have shown that Chinese herbs can reduce side-effects of chemical therapy and radiation therapy so as to help cancer patients to tolerate these treatment and improve their quality of life, (3) combining traditional Chinese medicine (TCM) with Western medicine (WM) in the treatment of cancer patients can improve overall survival rate and reduce recurrence of cancer. We conducted a preliminary prospective study on 37 cancer patients who suffered significant side-effects of chemotherapy and/or radiation therapy using a Chinese herbal formula and acupuncture. The study is designed to evaluate beneficial effects of these

treatments on symptoms of fatigue, pain, nausea, anxiety, and depression with a focus on fatigue symptom. The observation period for this study lasted 6-12 weeks. The statistical P value for the improvement of fatigue symptoms after treatment with Chinese herbal formula is significant ( $p < 0.0001$ ). This indicates that fatigue symptoms can be significantly alleviated by the administration of Chinese herbs and acupuncture. The purpose of this study aims to encourage TCM in the integration of WM in the treatment for cancer patients. The future goal is in the promotion of "integrated oncology" or "comprehensive cancer care".

**Abstract 87 – POSTER SESSION**

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**Abstract 89 – POSTER SESSION:  
Psycho-Oncology and Integral Life  
Practice**

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California Institute For Human Science  
California Institute for Human Science Annual  
Conference 2015  
Thomas Brophy Phd

Psycho-Oncology and Integral Life Practice

AQAL quadrant theory (Wilber, 2011) and spiral dynamics offer constructive insight into Psych-oncology. The integrally informed physician may feel comfortable in formulating an integral life practice (Wilber, 2010) for newly diagnosed cancer patients. The body, mind spirit approach to health (Maye, 2014) defines body as infrastructure. Mind is regarded as emotional and spirit is defined as life purpose. The psycho-oncology of cancer survival appears strongest when the patient agrees on personal re-invention. Ken Wilber has discussed the integral life practice of aerobic and weight training exercises. He has also suggests psychotherapy and meditation. Dr Frank Maye postulates that self-cultivation is integral to patient re-invention. The goal of the cancer patient is growing into higher levels and stages of awareness. The theory of spiral dynamics offers the patient an integrally informed map where their disease and circumstances are witnessed from increasingly evolved perspectives. The life purpose or spirit of one with cancer has become outdated. A higher level or stage may be achieved through integral psychotherapy combined with “NSEV Extra Ordinary Vessel Acupuncture”(Nevel-Atchison, 2014) which is a complete system pre-dating Daoism. NSEV views the extra ordinary vessels as seas of energy emanating from non-duality and forming four entangled levels constructed similar to AQAL quadrant theory. NSEV applies to physiology, emotional and self-cultivated evolution regarding life purpose or spirit.

**Abstract 90 – POSTER SESSION:  
INTEGRATED TREATMENT IN**

**METASTATIC PANCREATIC CANCER:  
COMPLETE REMISSION IN TWO CASES**

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\* Department of Oncology - San Feliciano Hospital –  
Roma

° Department of Oncology - Villa Salaria Hospital –  
Roma

The pancreatic cancer has a very low average survival, but its prognosis is further reduced in the case of metastatic spread. Medical therapy in these cases is the only applicable methodology and there are no standardized treatment protocols. During the anticancer treatments are common side effects: nausea, vomiting, arthralgia, neuropathy, alopecia as well as to the myelosuppressive effect. The toxicity of various drugs not only affects both the quality of life of the patient, but often the gravity is so high as to reduce if not block its administration. The use of natural substances, such as herbal medicine or traditional Chinese medicine, and methods such as acupuncture, hyperthermia, the reflexology proved their effectiveness in the reduction of side effects such as nausea, vomiting, asthenia, pain, neuropathy, myelosuppression and others. Co-administration of these methods with anticancer therapy has been called integrated oncology. Scientific studies have shown that a combined use of chemotherapy and certain natural substances, in the form of standardized extracts, have led to an effect of enhancement of the action of the chemotherapy.

They present two cases of metastatic pancreatic cancer than with the integrated cancer treatment showed complete remission of primary lesions and metastatic. The first case concerns the integrated treatment of a patient with cancer of the pancreas tail with metastatic involvement ab initio peripancreatic lymph nodes and liver parenchyma with numerous secondary lesions greater than 9.5 cm. The second case concerns the integrated treatment of a patient with cancer of the pancreatic body with metastatic involvement of the liver parenchyma with small lesion secondary.

**1° Clinical case:** The patient underwent during each chemotherapy cycle (the day after 6 hours, and the next day within 36 hours) to capacitive deep hyperthermia

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treatments. The patient was monitored with blood counts and instrumental. The patient at the end of the 4th cycle conducted an audit CT scan that showed a net reduction of pancreatic injury and secondary liver lesion. Almost absent in this period the side effects, with only a mild asthenia the day after the administration of chemotherapy. Presented alopecia complete the cycle III. It's confirmed then the anticancer therapy for further 4 cycles, as well as supportive therapy. ° control of the eighth cycle a new TAC T. Body highlighted the almost disappearance of pancreatic injury and a further clear regression of liver lesions with a "fuzzy" in the site of the lesion of 9.5 cm. Throughout the period of treatment anticancer the patient did not suffer from any problem. All blood counts remained stable, without the need for referral of the program of administration of the chemotherapeutic. At this point it was decided to continue with chemotherapy for 2 cycles, removing a drug (Oxaliplatin). The result was the disappearance of the nuanced liver.

**II° Clinical case:** Female patient of 55 years operated on for pancreatic pseudo cyst in 2013. December 2014 showed lack of appetite and bloating. Laboratory investigations showed no elevation of tumor markers (CEA, Ca 125 and Ca 19-9 in the standard). Following an abdominal ultrasound and a CAT scan Total Body was diagnosed with a lesion of the pancreatic body (Fig. 1) with small liver lesions (Fig. 2) and ascites. It was performed a biopsy of the lesion with the pancreatic histology of "moderately differentiated adenocarcinoma, G2, the pancreatic parenchyma." Given his young age and good patient compliance, was chosen treatment trifarmacologico (FolFirinOx: Fluorouracil + Irinotecan + Oxaliplatin with outline 1/8/21) that began in January 2015. The patient simultaneously with chemotherapy has started taking some substances natural such as curcumin, polydatin, the Lactoferrin, the AHCC derivative of Shitake, Melatonin and the Mistletoe, and Artemisinin. The patient was monitored with blood counts and instrumental. The patient at the end of the 3rd cycle carried out a check TAC which showed a clear reduction (60%) of

pancreatic lesion of the lesion and secondary liver. Almost absent in this period the side effects, with only a mild asthenia the day after the administration of chemotherapy. Presented alopecia complete the cycle III. It is confirmed then the anticancer medical therapy for a further 3 cycles, as well as supportive therapy. To the control of the 6th cycle a new TAC T. Body of April 2015 highlighted the almost disappearance of the pancreatic injury and of all the hepatic lesions. Throughout the period of anticancer treatment the patient did not suffer from any problem. All blood counts remained stable, without the need for referral of the program of administration of the chemotherapeutic. Continue the therapeutic treatment of the support.

**Discussion:** The pancreatic cancer with metastatic spread has a poor prognosis. Often chemotherapy when showing sensitivity can lead to reduction of the primary and metastatic lesions, but rarely to the disappearance of the disease. Furthermore, the reduction is not lasting, with relapse and loss of sensitivity to anticancer drugs. The prognosis of cases of pancreatic cancer with metastases ab initio stands at a median of 12.8 months from diagnosis. The use of natural substances associated with chemotherapy often lead instead not only to a reduction of side effects (nausea, vomiting, neurophaty) but it was also demonstrated their important anticancer action.

These cases with liver and lymph node metastatic spread ab initio were treated with a chemotherapy protocol very aggressive, but the use of integrated therapy with natural substances such as curcumin, polydatin, the shitake modified, melatonin and mistletoe not only they led to an almost complete reduction of side effects, especially hematologic one, but it was achieved an unexpected result with the disappearance of the primary lesions and those secondary liver.

These cases are a further demonstration that the integration of herbal medicine, acupuncture, nutrition and capacitive deep hyperthermia in combination with anticancer treatment can be a way to go along even in

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cases of metastatic malignant disease with poor prognosis.

Further studies will have to be made for a proper evaluation of the integrated therapy, to allow a clear relationship between the disappearance of the neoplastic disease and natural substances used, so that more patients can benefit from these aids.

**Abstract 91 – POSTER SESSION:  
INTEGRATED CANCER TREATMENT IN  
COURSE OF METASTATIC BREAST  
CANCER: CLINICAL CASE WITH  
COMPLETE RESOLUTION**

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Metastatic breast cancer has a poor prognosis. The treatments often tend to become chronic disease with a stabilization of the disease. The drugs used are unable to reverse spread of metastatic and often you see a slow but steady progression of the disease. In recent years it has begun to see that the use of traditional medicines with natural substances, acupuncture techniques and proper nutrition, has resulted in resolution cases with metastatic spread. Substances like turmeric, graviola, boswellia serrata, sulforaphane have a specific action with demonstrated anticancer scientific studies.

It was coined a term for the use of these substances in combination with traditional therapies: integrated oncology. More and more clinical cases that have shown the validity of this association. More and more we often find improvements in QoL and survival in clinical cases where the natural substances are used at the same time of traditional therapies. Here it is reported the case of a patient of 72 years after surgery to radical mastectomy for breast cancer and hormone therapy in 2000 until 2009, in 2014 he developed lung metastases. The combined treatment with an anti-estrogen and integrated therapy led to complete resolution of the case with the disappearance of secondary injuries.

**Clinical case:** This is a 72 year old in 2000 was submitted to left radical mastectomy for invasive ductal carcinoma (pT3, N0 (0/8) 80% ER, PgR 80%, MB-1 10% (LOW).

Tamoxifen has practiced from 2000 to 2003, then Arimidex 2003-2009.

In 2014 he had surgery for carpal tunnel left because of persistent pain and numbness in the hand and arm that remained persistent even after surgery for which her medic prescribed a painkiller (PATROL 1 tablet x3 / day). Always in 2014 due to dysphonia it runs lesion on CT scan that showed left vocal cord about 1.2 cm resulting in paralysis in abduction and lung tumors. Do not perform any work on the vocal cord but is sent to the Thoracic Surgery Clinic Humanitas of Catania where it is subjected, the 17/10/14 in PET and is performed the biopsy on 11/05/14 tumors of the chest wall (histology : metastasis of carcinoma solid-cord type breast). The therapy begins with Exemestrane (EXEGEN 25 mg) 1 tablet / day.

In December 2014 initiating therapy integrated with: potassium ascorbate and ribose (ONCOPHYT 1), (mithake, shitake, Cordiceps, ganoderma (ONCOPHYT 8), graviola, momordica, ac. Ellagic (ONCOPHYT 3), GALIUM to drink in one day , boswellia serrata (ALGIPLUS), bicarbonates alkalizing (ALKAFLO), sulforaphane (broccoli extract) and power according to the guidelines ARTOI.

Since March 2015 iniziato 2 sessions per week of Acupuncture pain relief with reduced intake of PATROL, who currently assumes the need.

PET performs control on March 25, 2015 showing a picture indicative of metabolic response almost complete.

**Discussion:** The metastatic breast cancer has a poor prognosis. Often chemotherapy treatments may give an advantage in maintaining stable metastatic disease, but this never happens with the use of an antiestrogen (exemestrane). The use of natural substances and methods such as acupuncture have shown to be able to increase survival, improve the QoL and in some cases lead to increase survival. This case has shown that the use of boswellia serrata and potassium ascorbate in combination with mineral and medicinal fungi not only gave an improvement in QoL with pain reduction and taking painkiller, but

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has led to the disappearance of metabolic metastatic disease.

The case is a further demonstration that the integration of herbal medicine, acupuncture, nutrition and in combination with hormone replacement therapy may be a way to go along even in cases of metastatic malignant disease with poor prognosis.

Further studies will have to be made for a proper evaluation of the integrated therapy, to allow a clear relationship between the disappearance of the neoplastic disease and natural substances used, so that more patients can benefit from these aids.

**Abstract 92 – POSTER SESSION: The effects of Emotional Disclosure interventions through writing in Cancer Patients: a review of Randomized Clinical Trials.**

L. Bidin\*<sup>1</sup>, C. Di Nunzio<sup>1</sup>, M. Monfredo<sup>1</sup>, L. Cavanna<sup>1</sup>

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**Background:** The growing number of recently published randomized controlled trials (RCT's) on emotional disclosure in oncology warrants an update of the evidence about the effects of this intervention on cancer patients' health.

**Methods:** We searched randomized trials on the effects of Expressive Writing (EW) as a means to achieve Emotional Disclosure (ED) in cancer patients. We performed a research of articles published between January 1999 and March 2014, in PubMed and Cochrane Library databases, using the terms "emotional disclosure" or "expressive writing", "cancer" and "RCT" or "CCT".

**Results:** We selected 17 independent RCT's out of 44 retrieved results. Out of 2015 patients (pts) enrolled, 975 underwent some kind of emotional disclosure and 1040 were controls in non-emotional intervention arms. Twelve out of 17 studies were published after 2006, year of the publication of the last meta-analysis on EW. 40% of the studies (7/17) showed an advantage in physical, and 75% (13/17) in psychological outcomes (mainly in subgroups). EW reduced pain perception and health care utilization. Some of the effects of the EW depended on pre-existent relationships of the patients with their closer entourage, showing larger

effects in pts with a low external support. In patients who really need to disclose their feelings, EW/ED is potentially useful to reduce distress through narration and it can positively affect destabilizing cancer experience. EW can be of great value in patients able to cognitively re-organize their experiences, and in subjects with adaptive resources sufficient to re-integrate the representation of their new "self" in the environment, according to new schemas after cancer. EW in cancer patients with specific personality traits, (neurosis, alexithymia) should be regarded with caution.

**Conclusion:** EW research in cancer patients is largely heterogeneous and it needs a consensus on trial design. Nowadays no definitive conclusion about EW as a therapeutic tool can be drawn, due to a great variability in study designs. Definite areas of benefit, and some possible drawbacks of EW are suggested. We think that EW stands among the therapeutic opportunities for cancer patients as the majority of trials reported positive outcomes.

**Abstract 93 – POSTER SESSION: Integration of Sleep into Cancer Risk Assessment**

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**Background:** It is increasingly recognized that sleep has a previously underappreciated impact on cancer. This review synthesizes the results from a number of studies we have conducted showing risk associations of sleep duration with early colon neoplasia and breast cancer aggressiveness.

**Methods:** In two studies of colon adenoma and breast cancer, we conducted computer-assisted personal interviews (CAPI) to assess patients' quality of sleep using the Pittsburgh Sleep Quality Index (PSQI).

**Results:** In the study of colon adenoma, 1,240 patients (338 with adenoma, 902 with negative screenings) completed PSQI before screening colonoscopy. There was no appreciable difference in the overall PSQI score between the cases and adenoma-free controls (5.32 vs 5.11; p=0.37). However,

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the cases were more likely to average less than 6 hours of sleep per night than the controls (28.9% vs 22.1%;  $p=0.01$ ). Multivariate regression analysis showed that individuals averaging less than 6 hours of sleep per night had ~50% increased risk of adenoma as compared to those sleeping at least 7 hours [OR = 1.47 (1.05 – 2.06);  $p$  for trend = 0.02]. In a study including 938 newly diagnosed breast cancer patients, self-reported sleep duration prior to diagnosis was associated with tumor grade. Patients who reported less sleep had higher grade (more aggressive) tumors (multivariate regression  $p=0.04$ ). Further, in the 101 breast cancer patients with available OncotypeDX recurrence scores, duration of sleep was inversely associated with OncotypeDX score, particularly among post-menopausal women ( $r = -0.41$ ;  $p < 0.01$ ).

**Conclusions:** Short duration of sleep is associated with risks of early colon neoplasia and breast cancer aggressiveness. Sleep duration should be included in comprehensive cancer risk assessment and survival models.

**Abstract 94 – POSTER SESSION:  
Integration of non-conventional support  
in cancer patients in a community  
hospital of northern Italy.**

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**Background:** In Italy, community hospitals offering organized programs including non-conventional support to cancer patients are uncommon. Cancer patients ask both standard therapies targeting the tumor, and interventions targeting the physical, mental and spiritual imbalances. We present a “real world” experience of a collaboration between a team of clinicians and a non-profit association that has filled the void left by Health Institutions.

**Main Concepts:** We report the impact of the introduction, in an oncology department, of Non-Medical Complementary Activities devoted to support cancer patients. The first challenge we faced was “feasibility” which encompasses: the possibility to find spaces and a dedicated staff, to engage oncologists informing patients, to verify patients'

attendance, to ascertain about non expected adverse events or drawbacks. Feasibility is the first step in order to plan clinical studies testing the real value of the integration of Supportive-Non Medical Techniques versus Usual Standard of Care.

**Description:** A program of Non-Medical Complementary Activities was offered to all cancer patients at the out-patient clinic, thanks to the cooperation between the Oncology Unit and the volunteers of the Association of Piacenza for the Oncologic Patients (AMOP) ([www.gruppo-benessere-amop.it](http://www.gruppo-benessere-amop.it)). AMOP is responsible for the initial psychological evaluation, and for the continuous training/education/support of the volunteers. Insurance policies, instruments and materials are provided by AMOP. The places needed are spaces of the Day Hospital, after hours devoted to clinical activities. A private swimming pool in Piacenza offered the use of a lane. Nineteen activities were offered to the patients guided by certified, experienced professionals, on a voluntary basis. A dedicated oncologist organized the group according to existing recommendations and guidelines in Integrative Oncology.

Data were recorded about 12 out of 19 activities: Qi Gong, Yoga, Tam The, Sound-therapy using Tibetan Singing Bowls, Ballroom social dance, Lectures about Traditional Cooking, Feng Shui Lectures, Traditional Chinese Medicine (TCM) Lectures, Aquatics classes, Back/Shoulders Chair Massage, Feet/Hands Massage, Shiatsu.

From May 2013 to August 2014, 2120 attendances to 588 total events were recorded: 396 massage sessions (including: shiatsu, hands/feet and back/shoulders massages), 103 meetings of oriental energetic gymnastics (including: Yoga, Qi Gong and Tam The), 32 Aquatics sessions, 20 dance classes, 17 sound therapy sessions and 20 lectures (including: cooking, feng shui, TCM).

147 cancer patients, from all doctor's offices of the Oncology Department, participated; 88% were female. The majority (81%) had no evidence of metastases, while 19% had metastatic disease. Males represented about 20% of the metastatic, and 6% of non-

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metastatic patients participating to support activities.

Each patient took part to several activities. Initially, the majority of the 147 pts desired to experience 2-6 different activities; subsequently each patient kept the ones best fitting his/her needs. Consequently, we have recorded 2120 participations to 588 events.

221 patients chose, as their first request, a Group Activity, while 198 patients initially approached the group through an Individual Activity.

Subsequently, Group Activities registered 46% abandonments (102/221). However, of the remaining 119 pts, 62 (52%) remained in the course for a long time.

29% of the patients who initially requested an Individual Activity abandoned it, after the first appointment (57/198); per patient, maximum attendance to individual activities was about 30% of each professional, indicating equity in the admission of the participants.

“Passive” support (massages, conferences, sound therapy) was requested by 275 patients and the “active” support (Oriental gymnastics) about half, 144 patients; abandonments were 40% in both subsets: 51/144 patients abandoned an active and 108/275 a passive activity.

No adverse event related to complementary treatments occurred. Patients reported global subjective benefits and objective reductions of lymphedema in 4 cases; furthermore neglected dermatological problems emerged in some cases, and could be cured.

There wasn't any major criticisms in costs, thanks to the voluntary nature of the operators' performances, the utilization of hospital spaces that otherwise would not be used in times after clinical activity, and the economic charges undertaken by AMOP.

Significance: At 15 months from the beginning, the large amount of events and attendances is the proof that cancer patients are curious, interested and willing to participate to self-empowerment programs. The numbers observed are in favour of the feasibility of the initiative.

A strong reluctance to seek unconventional support has emerged between male

patients, who represent about 20% of the metastatic, and 6% of non-metastatic patients participating to support activities.

The observation of the initial preferences and subsequent spontaneous behavior of the patients, allowed us some hypothesis about their expectations and needs, possibly underlying the adhesions observed.

Group Activities were initially more attractive to patients, but subsequently they showed a 30% greater abandonment vs Individual Activities.

“Passive” support resources exerted a greater initial attraction vs “Active”. When patients were let free to focus on their preferences, abandonments were proportional; in both cases, abandonments were 40%.

It seems that, initially, patients desire to be involved in groups, in physically active engagements, but they often tend to shift to individual and passive activities. This phenomenon reflects the need, in cancer patients, to confidently abandon themselves to the guide, or to the touch, of another human being, mainly through massages and sound-therapy.

Nevertheless, it is remarkable that half of the patients who tried Oriental Energetic Gymnastics attended them with perseverance, proving that an important subset of cancer patients has a feeling of benefit from activities requesting some body-mental task.

In evaluating patients' satisfaction we can't disregard that, in our experience, they often played an active role in the organization of the events, giving their spontaneous contribution to the preparation of the places. Moreover, we noticed that, in many circumstances, negative/locked-in/aggressive attitudes, due to patients' fear/worry/anxiety/loneliness, markedly decreased over time. This simple observations proves that a non-pharmacological support, directed to the “wellbeing” meets the basic need of “self-empowerment” of cancer patients: the participation to their own healing, guided by an expert professional to “take care of themselves” physically, mentally and spiritually.

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Our experience demonstrates the feasibility of a Non Conventional supportive approach in a Community Hospital Oncology Unit, in partnership with a voluntary association; it would be desirable that the Italian Public Health Service recognizes and endorses this kind of needs in cancer patients.

In our opinion Support Activities offered in an Oncology Unit represent an opportunity for the amelioration of the standard of care offered by Health Care Services, and a rich soil for the implementation of specific Clinical Research with a yet incompletely understood potential.

**Abstract 96 – POSTER SESSION: Distress level evaluation in Korean gastric cancer patients**

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**Background:** Gastric cancer can cause suffering due to cancer diagnosis and symptomatic discomfort especially with poor digestive function. In Korea, Gastric cancer is the second most common cancer among general populations. But, distress level from patients with gastric cancer was rarely evaluated. In this study, we surveyed distress questionnaire from patients with gastric cancer and evaluated factors that are associated with elevated distress thermometer (DT) scores.

**Methods:** We assessed 119 patients (M:87, F:32) with NCCN distress survey (Korean version) at Gastric Cancer Center outpatient clinic during March 2015. 65 patients (54.6%) were diagnosed at early stage and only 7 patients had recurrence at the time of survey. Descriptive statistics and logistic regression models were used to analyze DT and patients' epidemiological and clinical data.

**RESULTS:** Mean score of DT was 4.0(Standard deviation: 2.6). Percentage of patients who reported higher than DT score 4 was 55%. Especially 20 of those had score higher than 7 with emotional concerns, but only 3 received professional help. Each patient had mean 4 problems. Top 4 common complaints were fatigue, dyspepsia, worry and tingling sensation. Many patients could be referred to psycho-

oncology specialist to relive symptoms of anxiety and insomnia.

**CONCLUSIONS:** Even though gastric cancer is common in Korea, there is very little interest in their QOL and distress management. This result shows that almost half of gastric cancer patients have significant level of distress with unmet needs on emotional problems and consistent symptoms. We plan to distress screening and will follow them longitudinally.

**Abstract 97 – POSTER SESSION:  
ABSTRACT FOR SIO 2015 FIGHTING  
THE GOOD FIGHT: A first hand account of  
surviving terminal cancer with integrative  
oncology**

KATHERINE ROTH, MD, GREGORY HOLMES,  
Ph.D.

**BRIEF DESCRIPTION:** In this compelling presentation, Drs. Holmes and Roth will describe their experience fighting a rare and deadly Sino-nasal undifferentiated carcinoma. They will give voice and credibility to their unique perspectives; as patient and caregiver, and as husband and wife. Background details concerning the diagnosis and treatment of Dr. Holmes' cancer will be provided, the main thrust of the talk will describe their journey as they pioneered the path of science based integrative oncology.

**Abstract 99- Poster Session: Demand,  
control and social support in the  
workplace: The role of job strain on  
ovarian cancer risk**

Trudel-Fitzgerald C<sup>1</sup>, Kubzansky LD<sup>1</sup>, Poole EM<sup>2</sup>,  
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**Background:** Ovarian cancer (OvCA) is one of the leading causes of cancer death for women. Thus, the identification of modifiable risk factors is critical for reducing incidence and mortality. Research suggests that low social support would be related to progression and survival in OvCA, but less is known about other forms of chronic psychosocial stress, such as job strain.

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**Methods:** Women (n=31,946; mean age 55 years) from the *Nurses' Health Study* completed a job questionnaire in 1992 and 1996. They were categorized according to their job type (low demand/high control ("low-strain"), low demand/low control ("passive"), high demand/high control ("active"), and high demand/low control ("high-strain")) and level of social support provided by the coworkers and the supervisor (low/moderate/high). OvCA incidence was assessed through 2012. Cox regression models, adjusting for potential covariates (e.g., demographics, health status, ovarian cancer risk factors, and behaviors), were used to estimate hazard ratios (HR) of OvCA risk.

**Results:** There were 196 OvCA cases during follow-up. Compared to the "low-strain" jobs (reference group), the "passive" (HR=1.35; CI:0.91–2.01), "active" (HR=1.22; CI:0.80–1.86) and "high-strain" (HR=1.06; CI:0.70–1.62) jobs were not significantly associated with an increased risk of OvCA. Levels of social support were not related to cancer risk.

**Conclusion:** Among the current sample of midlife nurses, no significant association was observed between job strain and OvCA incidence. These findings might be due to lack of statistical power and the relatively late age at job strain assessment. Further research on such modifiable factors is encouraged, particularly in younger populations.

**Abstract 100 – POSTER SESSION:  
Analysis of anti-tumorigenic and  
antimetastatic influences of O3/O2-  
pneumoperitoneum on liver cancer -  
Case Report**

Barreira Ana Cristina<sup>1\*</sup>, Genaro Roberta<sup>2</sup>, Mariz Adilson<sup>3</sup>, Cavalheiro Carlos<sup>4</sup>

<sup>1</sup>Ozonotherapy Brazilian Association - ABOZ, VP,<sup>2</sup>General Surgeon, <sup>3</sup>Vascular Surgeon,

<sup>4</sup>Biomedical engineer, Rio de Janeiro, RJ, Brazil, São Paulo, SP, Brazil

**Background:** The liver cancer is one of the most aggressive cancers with high mortality rate. on this account it shows the intraperitoneal ozone therapy as a therapeutic alternative in a failure case in conventional treatment

**Methods:** Patient with liver cancer who didn't respond to conventional therapeutic

for chemoembolization and without surgical treatment criteria

**Results:** RMC, male, 71years, with symptoms of jaundice, lower limbs edema and ascite. Diagnosed with liver cancer and metastasis to the superior vein cava and right atrium. Realized conventional treatment: embolization and chemotherapy, with slight improvement of ascites and edema of the lower limbs without the hepatic tumor and metastases changes. Initiated intraperitoneal ozone treatment with four sessions.

First CT showed:

- expansive lesion in the left hepatic lobe exophytic component measuring 8.7 cm x 8 cm

-extensive intraluminal filling defect in the right atrium extending from the vein cava intrahepatic

Initiated intraperitoneal ozone treatment with four sessions, and repeated CT that presented:

- rude calcifications in the vein cava plan to atrial level of residual aspect chemoembolization

PET CT:

- absence of metabolic findings suggestive of malignancy

**Conclusions:** After fifteen days of treatment metastasis of the right atrium disappeared and patient had healing trial.

**Abstract 101 – POSTER SESSION: Title:  
Novel anticancer diagnostic and therapy  
through P53 tumor suppressor gene:  
Targeting with dietary agents.**

Serge Jurasunas

**Introduction:** Treating disease of cancer with more efficiency and less toxicity remain one of the greatest challenge of the XXI Century – New treatment is badly need and naturopathic oncology may take this challenge by using new scientific Conception and demonstrate the efficacy of natural agents as support to conventional treatment. What is cancer? Cancer is an accumulation of abnormal mutated and differentiated cells that evade from apoptosis one of the main Hallmark of cancer (1). Evasion of apoptosis is a characterize feature of human cancer that promote tumor formation, progression and invasion.

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Apoptotic players: P53 tumor suppressor gene known as the Guardian of our genome (Lane 1982) is directly involved in the initiation and programmed cell death to prevent from the accumulation of abnormal cells. P53 plays a key role in practically all types of human cancer and the mutation or loss of P53 is identified in 50-70% of all human cancer (2) and responsible for resistance of cancer cells to chemotherapeutic agent (3). Furthermore other apoptotic players are involved and controlled by P53 such BAX and BCL-2.

New diagnostic and treatment Restoring the activity of mutant P53 to a normal (WT) function is now considered as diagnostic, prognostic and anticancer therapy (4) New approach of cancer patients include P53 testing using laboratory test such the Elisa Assay before and after treatment.

Natural bioactive agents are known to activate death signals and to induce apoptosis in pre-cancerous or cancer cells (5).

Many dietary agents such Curcuma, Apigenin, Polyphenols, etc... work in synergy with chemotherapy by increasing death of cancer cells through apoptosis (6). The author presents results of 8 years of clinical experience with the application of P53 test and dietary agents with scientific basis.

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and promise – April 17-21-1999 Washington DC USA

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**Abstract 102 – POSTER SESSION: Using Integrative Navigators In Oncology Care**

C. O’Toole, L. Pole

Institute for Integrative Oncology  
Navigation, Smith Center for Healing and  
the Arts, Washington, DC

**Background:** Integrative Oncology Navigation is a relatively young and minimally tested practice.

Integrative navigation goes beyond conventional navigation, providing psychosocial support and comprehensive care throughout the cancer continuum, with an emphasis on the use of integrative therapies through every phase of cancer.

The purpose of this presentation is to illustrate how integrative patient navigation services can be woven into various settings where oncology care is provided.

**Main Concepts:**

- Brief description of integrative oncology navigation
- Description of the roles of professional, lay and peer integrative navigators across the cancer continuum
- Practical guidelines for weaving integrative oncology navigation into the health care setting.

**Description:** This presentation is a blend of brief didactic lecture with panel discussion. The presenters and panelists, all practicing Integrative Oncology Navigators, will inform the audience of the value of providing patient access to integrative oncology navigation services. There will be comparisons and contrasts of more traditional models of navigation with an integrative navigation model. The presenters will clarify the distinctions in training and practice and roles of professional, lay and peer navigators. Finally, the presenters will focus on ideas, practical considerations and guidelines for using trained integrative navigators in a variety of oncology care delivery settings and in the community.

**Significance:** ACOS now requires its participating cancer programs to provide

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navigation services and psychosocial assessment. The Institute of Medicine declared that oncology care is not complete unless psychosocial care is included. In *Seminars in Oncology Nursing* Cantril and Haylock stated there is a need for all navigators to be well-versed in helping patients to access integrative cancer care therapies. Using navigators who are trained in traditional as well as integrative cancer care navigation, represents a logical and coordinated means to guide patients in accessing comprehensive, individualized cancer care.

**Abstract 103 – POSTER SESSION: New Perspectives on Integrative Treatment of Renal Clear Cell Tumor**

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**BACKGROUND:** Clear cell tumor is a neoplasia currently accounts for 2-3% of known malignant cancer, and clear cell tumor is a histological type that matches 70 - 90%. About 20% of patients at the present moment CCT's diagnosis present metastatic disease CCT. Patients with resectable disease course recurrence match to 1/3.

**METHODS:** Patient's case report with renal clear cell tumor underwent conventional therapy with no prospect of cure, being approached by integrative therapy instituted at Clínica Conceito Saúde.

**RESULTS:** This case is about a male patient, 56 years old, asymptomatic, with diagnosis of malignant renal neoplasia, clear cell tumor (CCT) – Fuhrman classification III. Therapeutic indication was a complete nephrectomy which evolved with iatrogenic pancreatic lesion during operation. The patient's condition was extremely serious when admitted to ICU with estimated risk of death by 93%, so he was evaluated and conducted through BDORT (Bi-Digital o-Ring Test) during all the hospitalization and following outpatient, after liquid biopsy – genetic tumor platform – for definition of oncological conduct of the case.

**CONCLUSIONS:** The result obtained with this method support was proven by imaging test that presented the tumor reduction. Magnetic resonance was conducted on

04/05/2015 where it was identified a reducing expansive formation in the right adrenal gland in topography when compared with the first MRI on which the lump had 9,1cm decreased to 6,8cm its largest axis diverging from the literature review therefore lighting up new therapeutic possibilities.

**Abstract 106 – POSTER SESSION: Integrative Oncology: Understanding the Practice, Therapies and Evidence**

Judith M. Fouladbakhsh, PhD, PHCNS, BC, AHN-BC  
Author<sup>1</sup>

<sup>1</sup>College of Nursing, Oakland University, School of Nursing, Rochester Hills, Michigan, USA.

**Background:** Estimates of use of complementary therapies in the US range from 34% to 76% depending on the therapies and populations studied. Approximately 44% of all cancer survivors use these therapies most often integrated with conventional oncology care. Prevalence of use and availability of evidence-based complementary therapies is increasing as new integrative oncology centers are established across the country and worldwide. In particular use of special diets, herbs, and supplements is significantly higher among those with cancer (5%, 23%, and 67%, respectively) presenting potential serious health concerns due to interactions with cancer treatments.

**Main Concepts:** Practice of integrative oncology (definitions, standards of care, scope of practice, practitioner credentials); decision-making related to use of complementary therapies; philosophical basis of selected practices/systems of care and related therapies (TCM, Ayurveda, Traditional Healing Systems); research evidence for selected therapies offered in integrative cancer settings.

**Description:** This presentation aims to meet the following objectives. Upon completion participants will be able to: 1) Discuss whole systems of care and related therapies used by patients with cancer; 2) Describe the use of specific therapies (mind-body, natural products, energy therapies etc.) used by patients to reducing the side effects and manage symptoms associated with conventional cancer treatment; 3) Analyze current evidence for

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use of integrative oncology treatments; 4) Critique the role of the advanced practitioner in integrative health care practice, including the role of nursing now and in the future.

**Significance:** These presentations will inform attendees of the practice, therapies and evidence to support use of various therapies to complement conventional oncology care to support health, improve symptom management and enhance quality of life. Important information on side effects, interactions and potential deleterious effects will be presented; decision-making and practitioner roles in integrative oncology will be discussed.

**Abstract 107 – POSTER SESSION: Self-Care for the Integrative Oncology Provider**

Judith M. Fouladbakhsh, PhD, PHCNS, BC, AHN-BC Author<sup>1</sup>, Mary Legett, RN, OCN Author<sup>2</sup>

<sup>1</sup>College of Nursing, Oakland University, School of Nursing, Rochester Hills, Michigan, USA; <sup>2</sup> Reiki Master Teacher, Pennsylvania Community College

**Background:** Stress is a recurring condition among healthcare providers with dire consequences for physical, emotional and mental health. This is especially prevalent among oncology nurses, physicians and other providers who directly care for cancer patients who are dealing with a cancer diagnosis, prognosis, treatment decisions and outcomes of cancer therapies. Evidence supports the importance of stress management and holistic self-care for providers who must handle difficult clinical situations, thereby promoting health for all and preventing serious negative consequences.

**Main Concepts:** Biophysiological and psychosocial effects of stress; importance of self-care in oncology practice; integrative approaches to stress management for oncology providers.

**Description:** The following topics will be presented as discussed under the following objectives. Theoretical content and experiential practice will be included. This session will allow participants to:

Analyze the critical importance of managing stress to prevent illness and enhance healing (physiological, psychological, and spiritual effects of stress; costs and benefits

of stress management for self-care; research evidence).

Explain the theoretical and practice perspectives of three different types of meditation, and how this complementary practice can be incorporated into one's daily life to manage stress, enhance self-care, and improve quality of life.

Describe energy therapies (Reiki, Healing Touch) as healing practice for self-care and stress management.

Critique effects of music for self-care, stress reduction and healing.

**Significance:** This presentation will inform attendees of the cascade of deleterious effects of stress on health for patients and oneself. Stress-reducing therapies will be presented and practiced for use in self-care, thereby promoting holistic approaches for health promotion.

**Abstract 109 – Poster Session: Integrating Cognitive Behavioral Therapy (CBT) and Integrative Movement Therapy (IMT)™ Yoga for Pediatric Patients with Cancer and Blood Disorders Experiencing Pain**

Leslie Cunningham, PhD\*, Bess Abrahams, ERY-T 500, IMT Therapist, Corinne Sweeney, MA, Division of Pediatric Hematology, Oncology, and Marrow and Blood Cell Transplantation, Children's Hospital at Montefiore, Montefiore Medical Center, Bronx, NY, USA

**Background:** Among children with cancer and blood disorders, chronic and acute pain causes significant distress and disability, impacting all areas of life. While research has demonstrated that both CBT and yoga are effective interventions for pain management in pediatric populations, no known program utilizes these modalities in conjunction. This combination was chosen based on the demonstrated benefits and shared premises of each modality.

**Main Concepts:** CBT for chronic pain and IMT™ yoga both focus on developing physical and meta-cognitive awareness. CBT and yoga also directly teaches coping skills such as abdominal breathing and guided relaxation which can have a positive effect on stress. Finally, both modalities help patients reframe the way they view their pain through experiencing more nuanced manifestations of sensations and

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by the act of thinking and doing something to distract themselves from pain.

**Description:** The class consisted of 30 minutes of didactic CBT and 30 minutes of IMT™ yoga. During the CBT portion, topics discussed included identifying automatic thoughts, examining evidence for thoughts, and restructuring cognitive distortions. The yoga section continued these themes through guided instruction during physical postures and relaxation. For example, in a class designed to increase flexibility in thinking, participants reflected on their thought patterns and during yoga, patients were asked to find the “upside” and the “downside” of each of the yoga techniques offered.

**Significance:** CBT and yoga exercises can easily be integrated. In our ten month, weekly one-hour program, several topics emerged in group discussions that should be considered for future interventions, including empowerment of the body through physical movement, communicating pain experiences to others, and self-advocacy. Response from participants was largely positive, suggesting initial promise for this program.

Abstract 110 – POSTER SESSION:

Observational Study with a Natural Preparation in Patients with Neuropathy During Chemotherapy Treatment Based on Derivatives of Platinum and / or Taxanes

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Every year in Italy more than 6500 people are undergoing cancer chemotherapy. A third of these patients affected by peripheral neuropathies induced by chemotherapy of varying severity involving pain, loss of sensation and loss or impairment of mobility or dexterity.

The problem relates to different classes of chemotherapeutic agents used for the treatment of tumors of the ovary and the testis, lung, breast and colon.

From the medical point of view, peripheral neuropathy is a complication of chemotherapy in the peripheral nervous system.

The problem that frequently arises the oncologist in the presence of a symptomatology evocative of a peripheral neuropathy, is whether the patient can continue the chemotherapy treatment and therefore risking a worsening, or cancel it because the symptoms may become debilitating in the long-term treatment. The biochemical information collected till now confirm that the central element of the neuronal damage is oxidative stress associated with a deficit of energy metabolism.

In this regard, neurodegeneration is observed always an accumulation of macromolecules peroxidate suggesting oxidative stress exerts a crucial role in the pathogenesis of peripheral nerves.

For this reason, an observational study was undertaken to evaluate a supplement made from natural substances that can reduce and counteract oxidative stress and neuronal restoration of biological energy required to neuronal tropism. The observational study includes evaluation of 80 patients receiving chemotherapy with drugs based on platinum derivatives and / or taxanes that already have symptoms of neuropathy. Patients using the usual medications for neuropathy is recommended to take the new drug based natural alpha-lipoic acid, acetylcarnitine, n-acetylcysteine, inositol. The study involved the evaluation of a "scale of neuropathic pain" before taking, for one month and will conduct a final evaluation three months. The initial results have shown a reduction in subjective symptoms at the first month in 45% of patients.

**Discussion:** Peripheral neuropathy induced by chemotherapy drugs is a side effect very frequent and often leads to a reduction, if not stopping therapy to prevent permanent damage. The neuronal damage is primarily concerned with the accumulation of macromolecules from oxidative stress. many natural substances are able to reduce the accumulation and restore the neuronal trophism.

The observational study we have undertaken, from the early results, appears to show that it is possible to recover with the help of natural substances such as alpha-

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lipoic acid, the acetylcarnitine, the N-acetylcysteine and inositol.

It will require additional studies and insights for a clear and comprehensive demonstration of the validity of this result and the validation of the natural preparation.

**Abstract 112 – POSTER SESSION:**

**WEIGHT LOSS INTERVENTION  
FEASIBILITY TRIAL FOR  
POSTMENOPAUSAL BREAST CANCER  
PATIENTS ON AROMATASE INHIBITOR  
THERAPY**

Authors: Sramila Aithal, MD, Medical Oncology, Cancer Treatment Centers of America, Philadelphia, PA, USA, Amanda Agamy, RD, Department of Nutrition, Cancer Treatment Centers of America, Philadelphia, PA, USA, Jen Koffs, RD, Department of Nutrition, Cancer Treatment Centers of America, Philadelphia, PA, USA

**Background:** Body mass index (BMI)  $\geq 25$  is associated with poor outcomes in breast cancer survivors. The aim of this study was to assess the feasibility of a weight reduction intervention which provided prepared meals to overweight female breast cancer survivors taking an aromatase inhibitor.

**Methods:** Patients were placed on a calorie-controlled meal plan provided by Meals-to-Heal for six months. Basal metabolic rate (BMR) was determined through bioelectrical impedance analysis (BIA). Calorie allotments were determined by subtracting 250 calories from the BMR to promote  $\leq 10\%$  weight loss over six months. Participants consumed at least 1,200 calories daily to prevent micronutrient deficiencies. Every three months, weight and BIA were assessed during a consult with a dietitian. Sex hormones were checked at baseline and six and 12 months.

**Results:** Eight of the 10 women who enrolled completed the three month evaluation. Four patients completed the six month evaluation, and three completed the end of study visit at 12 months. The average BMI and weight decreased by 0.8 kg/m<sup>2</sup> and 5.7 lb after three months, 1.3 kg/m<sup>2</sup> and 13 lb after six months, and 0.6 kg/m<sup>2</sup> and 3.3 lb after 12 months. During the first six months, insulin and C-reactive protein (CRP) levels increased by an average of 4 uIU/mL and 12.2 mg/L respectively. Leptin levels decreased by 7.7 ng/mL. After 12 months, insulin

decreased by 1.7 uIU/mL, CRP decreased by 1.6 mg/L. Leptin increased by 1 ng/mL.

**Conclusion:** Despite complimentary meals, 60% of participants enrolled for less than six months. Subjects cited financial concerns, travel, and overall inability to comply with study requirements as rationale for withdrawing. The current study model is not feasible for this center. Future design may benefit from including a more local population and scheduling more frequent visits with the dietitian to encourage compliance.

**Abstract 113 – POSTER SESSION:  
PATIENT REPORTED EXPERIENCE  
COMBINING COMPLEMENTARY AND  
ALTERNATIVE MEDICINE (CAM) WITH  
CONVENTIONAL ONCOLOGY  
TREATMENT (COT).**

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**Background:** CAM encompasses a group of interventions not generally considered to be part of COT. Our objective is to describe the characteristics, factors and patient reported experiences associated with the use of CAM by patients (pts) receiving COT.

**Methods:** An IRB approved questionnaire was offered to pts receiving COT at a single institution cancer center over a 2 mo interval. **Results:** 198/215 (92%) of questionnaires were analyzed. Utilization of CAM before the diagnosis (dx) of cancer was seen in 21/198(11%) pts. Following a cancer dx, 114/198(58%) reported the use of CAM. Dietary supplements were the most commonly used 57/108(52%); 41/108(38%) used massage and other mind-body techniques; while 10/108(9%) used multiple types of CAM. The source of information was the oncologist in 42/138(30%), TV in 26/138(19%) and friends/family in 23/138(17%). Analysis demonstrated no significant difference by gender, age or level of education; however Hispanic ethnicity was a statistically significant variable (p=0.027) in reported QoL improvement. 141/198(71%) reported a desire to discuss CAM integration into COT, however only 95/198(48%) did so. After discussion with

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their oncologist, 30/45(66%) reported receiving additional information about CAM, 11/45(24%) reported that CAM use was acceptable but did not receive additional information and 4/45(9%) were discouraged from CAM use.

**Conclusions:** Routine CAM use is not uncommon, but is 4 times more frequent after a dx of cancer. The majority of pts do not address CAM with their oncologist, despite a reported interest in doing so. About 1/3 of oncologists were reported not to provide additional information or actually discouraged CAM. This study identifies that potential barriers exist for the effective integration of CAM with COT.

**Abstract 115 – POSTER SESSION:  
Integrative Complementary Alternative  
Medicine program at Children’s Hospital  
of Orange County – Serving Pediatric  
Oncology Patients**

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**Introduction:** Traditional Chinese Medicine (TCM) practices were introduced as standard of care to Oncology patients at CHOC Children’s in Orange County California in 2003. Complete Inpatient privileges were granted to a TCM Licensed practitioner, who rounds with the Intensivist and Hospitalist to identify the patients. Treatments offered include acupuncture, acupressure, and massage, Reiki Therapy, Guided Imagery and Aromatherapy. A physician driven consult model was developed and the TCM practitioner became part of the patients medical care team. TCM services are offered on all weekdays to complement standard of care practices with the goal of improving Quality of Life (QoL). All hospital inpatients are eligible for TCM services.

**Objective:** The objective of this presentation is to describe the development and implementation of TCM services at a pediatric hospital. We also intend to describe the characteristics of pediatric patients such as age, gender, and the type of cancer, who received TCM at CHOC. Data presented is

based on a retrospective analysis of patient charts.

**Results:** A wide variety of pediatric cancer patients received TCM services for symptoms such as pain, headache, GVHD itching pain swelling, nausea, vomiting, anxiety, fear, grief, immunosuppression, GI issues, and any issues that affected QoL. Consults have increased yearly starting at 20 oncology consults in 2003 to 130 oncology consults in 2014. Patients and the total number of consults recorded in 2014 were 268. Patients included those who presented with blood cancer (ALL, AML, CML, CLL, Lymphomas, Myelomas) as well as those with solid tumors (e.g., Adrenocortical tumors, Colorectal carcinoma, Osteosarcoma, Wilm’s tumor, etc.).

**Conclusion:** Our experience indicates that there is a strong need and interest among patients for such services at an Inpatient Children’s hospital that serves oncology patients.

**Abstract 116 – POSTER SESSION:  
TOLERABILITY OF THE HERBAL  
SUPPLEMENT CURCUMIN IN PATIENT  
RECEIVING CONCURRENT  
CAPECITIBINE THERAPY**

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**Background:** Palmar-plantar erythrodysesthesia (PPE) is a characteristic dermatological manifestation of the antineoplastic agent capecitabine, with 54-60% patients developing grade one or two PPE, and 11-17% of patients developing grade three PPE. Curcumin, an extract of *Curcuma longa*, is frequently used in integrative oncology settings. There are no published case reports of side-effects due to simultaneous use of capecitabine and curcumin in an oncology patient population. Here we discuss one case of possible PPE exacerbation due to use of curcumin.

**Methods:** One case was identified where a patient developed PPE in conjunction with capecitabine after addition of curcumin. The medical chart was reviewed in detail for this report.

**Results:** A fifty-four year-old female had been taking capecitabine (1,500mg bid) for

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six months when she stopped to have a surgical procedure unrelated to her oncology diagnosis. Six weeks after resuming capecitabine the patient noted dry palms, but denied PPE. She began curcumin four weeks after starting capecitabine, after which she presented with multiple blisters on her toes bilaterally. The only change in her regimen was the addition of curcumin, which was subsequently discontinued. Capecitabine was temporarily held, with resolution of blisters. Capecitabine was resumed with a 500mg.dose-reduction. She did not report recurrence of PPE and continued on dose-reduced capecitabine until progression of disease.

**Conclusions:** To our knowledge, this is the first report of a potential interaction between capecitabine and curcumin. A retrospective effort was initiated to determine if this case is an outlier, or if additional precautions should be taken. The results of that retrospective analysis may lead to further prospective studies.

**Abstract 117 – POSTER SESSION:  
Improvement in quality's life for serious  
neurological disease**

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<sup>1</sup>Neurosurgeon, <sup>2</sup> General Surgeon, São Paulo, SP,  
Brazil

**Background:** Serious neurological disease are pathologies that commits cognitive and motor system irreversibly. Find solutions to improve a better way to live is very important to provide dignity a lot of people affected by this event.

**Methods:** This study present a synthesis of the author's work, medical neurologist, about dealing with patients with severe neurological disabilities.

**Results:** Performing treatment adjustments based on blood's type and metabolism type associated with digestive tract detoxification,through micronutrient's oligotherapy and frequencial therapy, it is possible propitiate quality and healthy life to cronic pacien

**Conclusions:** It's possible improve life's quality of patients and consequently keep them happy and safe at home

**Abstract 119– POSTER SESSION: 3  
Steps 4 Health: Patient/Advocate  
Perspective**

Ann Fonfa<sup>1</sup>, Linda McDonald<sup>2</sup>, Annie Appleseed  
Project

**Background:** For the past twenty years Annie Appleseed Project provided information on complementary therapies from the patient perspective.

**Methods:** This is a how-to program designed to be used as 'pre-habilitation' - upon diagnosis. A time, oncologists have told us, when newly diagnosed folks ask WHAT they can do?

3 Steps 4 Health can be done during treatment. The preponderance of evidence supports these steps. We created a simple 3 step program that anyone with cancer, at any stage, can incorporate into their own healthful protocol. Since it involves no tools and can be used at the level that an individual is at the time they start, it is appropriate for all.

The program can be used in a clinical trial. One or more arm(s) could be randomized to follow the simple steps, outcomes could show the value. Or anyone within a trial can get themselves healthier.

**Results:** Step 1: Eat one more fruit and one more vegetable every day. This is helpful since studies show few Americans are getting enough fruits or vegetables. NCI considers 'Five a Day', a minimum. We want to get people started on the correct path simply and easily.

Step 2: Take a walk around the room, facility or neighborhood depending on ability and health status. Exercise has been shown by many studies to help anyone with cancer, undergoing treatment or in recovery. We are not asking folks to become athletes, we are involving them in a plan to improve their health.

Step 3: 7 deep breaths before treatment, in a stressful situation or at bedtime. This step is important to reduce stress and encourage relaxation.

**Conclusion:** Every step moves people forward into better health. We believe taking these first steps will lead to healthful behaviors, better ability to handle conventional cancer treatments, and easier recovery.

**Abstract 120 – POSTER SESSION:  
Aromatherapy for Symptom Control**

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**among Patients with Cancer Undergoing  
Palliative Care**

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**Background:** Aromatherapy is the use of essential oils distilled from plants (flowers, fruits or trees) as therapy to improve physical, emotional, and spiritual well-being. In this study, we aimed to evaluate the feasibility and preliminary impact of an aromatherapy experience among a group of oncology patients in an in-patient palliative care program.

**Methods:** Hospitalized oncology patients seen by the palliative care service at an academic medical center were asked to complete the Edmonton Symptom Assessment Scale (ESAS) to measure Pain, Anxiety, Nausea, and Overall Wellbeing, using the 1-10 scale (10 meaning worse symptoms). Patients were deemed eligible if they experienced any of the measured symptoms. The aromatherapy intervention consisted of a lavender hand massage provided by a nurse using unscented white lotion and 1 drop of lavender essential oil, with or without the use of 2-3 drops of peppermint oil for inhalation if the patient reported nausea. The patient was asked to re-evaluate their symptoms immediately post aromatherapy experience, using the ESAS. We performed a series of paired t tests to compare the mean baseline score and end of intervention score for each symptom, including any patient with that symptom at baseline.

**Results:** We enrolled 30 patients in the study, mean age 50.7 years, range 23 to 73 years; 23 (76.7%) were female 7 (23.3%) were male. No adverse events were noted, and no patient experienced worsened symptoms with the intervention. The aromatherapy intervention led to a statistically significant improvement in all measured symptoms (see Table).

**Conclusion:** Aromatherapy is feasible to be offered to palliative care oncology patients by a nurse and led to a improvement in a wide range of symptoms.

Future research is needed to evaluate the potential to scale up this intervention and its impact on a larger patient population.

Table

	Baseline	Post	p value
Pain	4.4 (2.2)	2.9 (2.6)	0.0002
Nausea	3.3 (2.1)	1.4 (1.3)	0.0009
Anxiety	3.9 (2.7)	1.8 (2.3)	0.0001
Well-being	4.8 (2.6)	2.9 (2.4)	<0.0001

**Abstract 122 – POSTER SESSION:  
Physiological and Psycho-Social Effects  
of Reiki Administration During at  
Adjuvant Radiation for Early Breast  
Cancer: A Pilot Study**

**Background:** There is limited information on anxiolytic effects of Reiki administration during adjuvant radiation therapy for early breast cancer. We examined feasibility of administering Reiki; physiological, pain score, and psychosocial responses following Reiki/Placebo(sham) in breast cancer patients receiving 7weeks of external beam radiation therapy.

**Methods:** Following IRB approval, randomization was to Reiki/Placebo (Sham) groups. Reiki was administered weekly by trained practitioner and placebo by nurse; physiological measurements, pain assessment, State-Trait Anxiety Inventory (STAI) and Hospital Anxiety and Depression Scale (HADS) were noted. Between-treatment and within-treatment comparisons of outcomes were made by the two-sample t-test/Wilcoxon rank-sum test, paired t-test/Wilcoxon signed-rank test, respectively.

**Results:** Forty patients offered, 26 (18 Reiki/8 Placebo) enrolled. Mean pain score and temperature tended to be lower in Reiki group (compared to placebo) at most time points (with near-significance at some time points); pain, P=0.07 at week 4; temperature, P≤0.05 at weeks 2 and 7). Mean STAI score was lower in Reiki group at all-time points, nonsignificant trends. Systolic/diastolic blood pressure was lower at most time points in the Reiki group, with nonsignificant trends. In Reiki

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group, mean HADS score and pulse were lower at week 7 vs. baseline ( $P=0.002$  and  $P=0.20$ , respectively). In placebo, mean HADS score, pulse and systolic blood pressure tended to be lower at week 7 vs. baseline ( $P=0.25$ ,  $P=0.15$ , and  $P=0.13$ , respectively).

**Conclusions:** Administration of weekly Reiki was feasible as an adjunct to daily breast radiation therapy. Reiki did not reveal clear evidence of efficacy, however some benefits were noted (as compared to placebo) for pain, temperature, and anxiety. Future studies should include larger groups of patients to further explore the observed findings.

**Abstract 124 – POSTER SESSION: A  
RETROSPECTIVE ANALYSIS OF THE  
INFLUENCE OF SERUM 25-  
HYDROXYVITAMIN D LEVELS ON TIME  
TO PROGRESSION AND OVERALL  
SURVIVAL OF PATIENTS WITH  
PANCREATIC CANCER**

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Mark Lewis, MPH<sup>1</sup>; Nhu Huynh, RD, LDN, CSO  
CNSC<sup>2</sup>; Jeffrey B. Hoag, MD, MS, FCCP<sup>3</sup>

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Nutrition, <sup>3</sup>Pulmonary and Critical Care

**Background:** Vitamin D deficiency is implicated in neoplastic processes in multiple organs, including the pancreas. While animal and human data have established a relationship between serum vitamin D (25(OH)D) and development of pancreatic cancer, few studies have examined the effects of 25(OH)D on time to progression (TTP) and overall survival (OS) in this patient population.

**Methods:** A retrospective analysis of 1,222 patients with pancreatic cancer was conducted using the Cox Proportional Hazard model, while controlling for the effects of ethnicity, number of prior treatment regimens, and body mass index (BMI) on 25(OH)D. Baseline serum concentration (BSC) of 25(OH)D was divided into quartiles defined as deficient ( $<20$  ng/mL), insufficient (20-39 ng/mL), sufficient (40-59 ng/mL), and optimal ( $\geq 60$  ng/ml). Analysis of TTP and OS compared 25(OH)D quartiles based on the use of Kaplan-Meier survival curves and the Log Rank test. Statistical significance was

declared if the two-sided p-value was  $\leq 0.05$ .

**Results:** For the 1,017 subjects included in our analysis, the median 25(OH)D level was 26ng/mL (range 4 to 178) and 78% had suboptimal BSC 25(OH)D. Ethnicity was associated with BSC per quartile of 25(OH)D ( $p<0.0001$ ). There was a statistically insignificant ( $p=0.07$ ) trend between BMI and vitamin D deficiency (16%) and insufficiency (24%). BSC 25(OH)D was not associated with TTP ( $p=0.3262$ ) or OS ( $p=0.7116$ ).

**Conclusion:** Suboptimal vitamin D levels occurred in 78% of patients with pancreatic cancer, and were more common in black patients than in white. There was a trend towards association between BMI and vitamin D deficiency or insufficiency. This analysis did not identify a significant association between baseline 25(OH)D and OS or TTP in patients with pancreatic cancer.

**Abstract 128 – POSTER SESSION:  
COGNITIVE BEHAVIORAL STRESS  
MANAGEMENT IN THE SURVIVORSHIP  
CLINIC: IS AN EMPIRICALLY  
VALIDATED INTERVENTION FOR  
BREAST CANCER SURVIVORS  
EFFECTIVE WITH MIXED GROUPS OF  
CANCER SURVIVORS? A PILOT STUDY**

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**Background:** Numerous studies have shown that cognitive behavioral stress management (CBSM) is effective at reducing distress and improving cancer-relevant biological outcomes among breast cancer survivors. However, CBSM and similar interventions are not routinely offered in integrated oncology survivorship clinics. Little is known about the effects of CBSM among heterogeneous (diagnosis, stage, time since diagnosis) post-treatment cancer survivors in a survivorship clinic.

**Methods:** Cancer survivors ( $n = 25$ , age 31-59, 90% female) attending a survivorship clinic were referred to CBSM by their care team. Participants attended 10 weekly CBSM groups, were given homework assignments, and asked to practice

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relaxation at home using recordings of the relaxation exercises taught in the groups. In a pre-post clinical trial design, brief surveys measuring depression, perceived stress, cancer worry, and quality of life were administered before and immediately after the 10 groups.

**Results:** Attendance was good; on average participants attended (84%) of the workshops. Only 3 participants dropped out after starting the workshops. CBSM participation was associated with reports of reduced depression (CESD;  $t(20)= 2.7$ ,  $p=.013$ ), perceived stress (PSS;  $t(19)= 2.9$ ,  $p<.009$ ), and cancer worry (CWS;  $t(21)= 2.6$ ,  $p=.017$ ). In addition, participation in CBSM was associated with increases in both reported quality of life ( $t(22)=2.6$ ,  $p=.016$ ) and satisfaction with quality of life ( $t(21)=2.4$ ,  $p=.024$ ).

**Conclusions:** Empirically validated CBSM is effective with heterogeneous groups of cancer survivors referred from a survivorship clinic. However, these findings need to be corroborated by a larger, randomized controlled trial.

**Abstract 129 – POSTER SESSION: AN  
INNOVATIVE MEDICAL PLURALISM  
TOWARDS CANCER CARE?  
ARCHEOLOGY OF THE EMERGENCE OF  
INTEGRATIVE ONCOLOGY IN THE U.S.**

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Research funded by the French National Cancer  
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Hautes Etudes en Sciences Sociales (EHESS)* and  
the *Ecoles des Hautes Etudes en Santé Publique  
(EHESP)*

My on-going research study focuses on the construction of a new medical pluralism towards cancer care in the U.S. Thanks to the study of different institutions in the U.S.,<sup>1</sup> I analyze the manners how integrative oncology is the product of a co-construction by a plurality of different institutional and individual agents. With both micrological and macrological outputs, the study of those

institutions questions the emergence of integrative oncology as a negotiated order structured by the history of specific societal and political movements and by the history of those institutions themselves, by putting medical research on cancer complementary and alternative medicine (CAM) on the public health policy agenda, by conducting, shaping and reshaping medical research on such cancer CAM and finally by the implementation of the translational effects of such research, from the bench to the bedside. This emergence of integrative oncology drastically contrasts with other national health systems, such as the monopolistic medical arena in France, allowing the comparison between different modalities of integration.

The methodology of this research is mixed, both by the nature of the sources and by the tools it engages with. Sources include archives, semi-directive interviews and participant observations. Tools include the Reihnert method (Alceste/Iramuteq) in the analysis of textual corpuses and an inductive and comprehensive socio-anthropological ethnography.

Departing from the analysis of medical pluralism in the U.S., this presentation proposes an original historical and socio-anthropological perspective on the emergence of integrative oncology at the institutional level. I show how this emergence of integrative oncology is the result of multiple societal and political movements both outside and within the healthcare and medical research arena, and how different but specific socio-historical waves and paradigmatic shifts contributed to the creation of a niche within which integrative oncology could emerge and is still emerging.

Institutions involved in this research study actively seize upon those social, political and historical changes by promoting and implementing medical research on integrative oncology.

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<sup>1</sup> The research data are handled anonymously for each participant, for each institution to which

they are affiliated and for each person or entity they mentioned during data collection so that data is never directly linked to individual identity.

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**Abstract 132 – POSTER SESSION: A  
botanical extract with broad anti-viral  
and oncolytic activity**

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Extracts of the plant *Sarracenia purpurea* have historically been reported to be effective in the treatment of smallpox. We have shown that these extracts have broad antiviral activity inhibiting the replication of poxviruses, papovavirus SV-40, and various herpes viruses. Many of these, or related viruses, including Human Papilloma virus and Epstein-Barr virus, are associated with various human carcinomas. Treatment of HPV-transformed human cervical carcinoma SiHa cells with *Sarracenia* inhibited accumulation of HPV oncoproteins E6 and E7, increased expression of cellular p53, arrested SiHa cell growth at low doses and induced SiHa cell death at higher doses. This extract also inhibited EBNA-1 protein expression and induced cell death in EBV-transformed cells. Thus, *Sarracenia* extracts contain broad anti-viral activity with the potential to induce oncolytic activity in viral-transformed cells.

**Abstract 134 – POSTER SESSION: A  
MODEL OF INTEGRATIVE THERAPIES  
IN ONCOLOGY/HEMATOLOGY CARE AT  
A TERTIARY HOSPITAL: BRAZILIAN  
CASE**

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**Background:** A large percentage of patients with cancer use Integrative Medicine (IM) in the course of their treatment. Studies show that sessions of some Integrative Therapies (IT) in Hospital, during treatment resulted in a reduction in pain and anxiety. The purpose of our work is to present the Integrative Therapy model offered to oncology/hematology inpatients.

**Main Concepts:** Integrative medicine reaffirms the importance of the relationship between practitioner and patient, focuses on the whole person, is informed by evidence, and makes use of all appropriate therapeutic and lifestyle approaches, healthcare and

disciplines to achieve optimal health and healing. Mindfulness is defined as non-judgmental awareness of the present moment. The relaxation response (RR) is the counterpart of the stress response.

**Description:** The IT sessions are conducted individually in patient's room and include four modalities: body awareness, touch, breathing exercises and gentle movements (based in yoga exercises). The choice is made jointly (therapist – patient) considering the needs of patients. These modalities have two bases: elicit the relaxation response and bring a state of mindfulness. The sessions average 25 minutes in duration. The HIAE employs a total of 4 IT practitioners board certified in a Post Graduation course of integrative medicine. They are trained in IM principles, all the modalities, the provision of services based on individual patient needs and effective collaborating with other medical professionals.

**Significance:** During the years 2013 and 2014, 2557 and 2029 IT sessions were made respectively.

**Abstract 135 – POSTER SESSION:  
PREVALENCE ESTIMATES OF  
MINDFULNESS PRACTICES BY AGE  
GROUP AND SMOKING STATUS**

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**Background:** The Centers for Disease Control and Prevention show the highest adult smoking rates are for individuals 18-24 years (18.7%), 25-44 (20.1%), and 45-64 (19.9%). Mindfulness-based behavioral smoking cessation strategies have shown promise in reducing tobacco use behaviors. Individuals open to practicing mindfulness-based activities who smoke may be open to a smoking cessation strategy incorporating these behaviors. We examine mindfulness practices by age group and smoking status while reporting corresponding prevalence rates.

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**Methods:** The National Health Interview Survey (NHIS) is a national annual survey of US adults 18+ representing non-institutionalized civilians. We pooled data from the 2002, 2007, and 2012 Complementary and Alternative Medicine Supplement examining smoking prevalence rates and age, with mindfulness practices in the previous 12 months (n=88,962). Respondents self-report their meditation, yoga, or tai chi with the item, "During the past 12 months, did you practice...?" We report prevalence estimates and corresponding confidence intervals (CI) for each age group (18-24, 25-45, 46+) by mindfulness practice and smoking status (never, former, current/some days, current/every day).

**Results:** Never smokers for each age category were more likely to participate in meditation, yoga, or tai chi in the previous 12 months (between 46.0%-69.9%). For adults 25-45 and 46+, former smokers were more likely to participate in a mindfulness practice (19.5%-38.4%) than current smokers. However, adults 18-24 who smoked every day were more likely to practice meditation (19.4%;CI:15.38-23.40), yoga (10.9%;CI:7.82-14.00), or tai chi (18.2%;CI:8.13-28.22). Intermittent smokers reported participating in meditation (13.7%;CI:9.78-17.55) or yoga (9.5%;CI:6.62-12.42), but not tai chi. The lowest mindfulness prevalence rates were for former smokers in this age category.

**Conclusions:** Young adult smokers are more likely to participate in some form of mindfulness practice, hence it may be we can leverage the principles of self-care used in meditation/yoga to encourage young adults to quit smoking via a mindfulness behavioral intervention.

**Abstract 136 – POSTER SESSION:  
INTEGRATIVE MEDICINE THERAPIES  
FOR PAIN:  
AN EFFECTIVENESS STUDY AMONG  
CANCER INPATIENTS**

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<sup>1</sup>Penny George Institute for Health and Healing, Allina Health and <sup>2</sup>Medical Industry Leadership Institute, Carlson School of Management, University of Minnesota, Minneapolis, MN.

**Background:** The purpose of this study is to evaluate the effectiveness of IM interventions when provided as an adjunct

to standard medical care, compared to standard medical care alone, on self-reported pain in hospitalized oncology patients.

**Methods:** Retrospective, observational data obtained from electronic health records (EHR) identified oncology inpatients at a large Midwestern hospital who were admitted between July 16, 2012 and December 14, 2015. The primary outcome was change in patient-reported pain. For all patients, nurses routinely assessed pain using a numeric rating scale (0-10). For those who received IM interventions, pain was also assessed before and after IM intervention by IM practitioners, using the same 0-10 rating scale.

**Results:** For patients with multiple hospital admissions and/or multiple IM therapy sessions during an admission, we selected the most recent hospital admission and the first therapy session during that admission. This resulted in identifying 12,974 unique oncology-related patients and admissions in the EHR. Of the 12,974 patients, 8,011 (62%) received an IM service and, of these, 2,662 (33%) had pain documented as the primary focus of the IM service. Of the 2,662 patients, 1,914 (74%) had pre- and post-IM pain scores. Change in pain outcomes between those who received IM services and those who did not are currently under investigation and will be presented at the scientific meeting.

**Conclusions:** This investigation is one of the first comparative effectiveness studies of IM therapy provided as an adjunct to standard medical care compared to standard care alone on self-reported pain among oncology inpatients in a real-world setting.

**Abstract 137 – POSTER SESSION: THE  
IMPACT OF LIGHT THERAPY ON  
DIURNAL CORTISOL RHYTHMS IN  
CANCER SURVIVORS WITH FATIGUE**

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**Background:** Fatigue is a common and distressing symptom that can last for months or years in up to one-third of survivors. Despite its prevalence, the nature and mechanisms are poorly understood and the available treatments may not provide relief. Light therapy may target the potential dysregulation in cortisol rhythms experienced by some survivors with fatigue. The aim was to: 1) evaluate the impact of a light therapy intervention on diurnal cortisol slopes in cancer survivors with fatigue; 2) examine the association between changes in fatigue and cortisol slopes.

**Methods:** This was a 5-week blinded randomized controlled trial. Subjects were recruited from Calgary and included men and women who met criteria for fatigue and had completed cancer treatment. Participants were provided with one of two types of Litebook treatment devices that produced either bright white light (treatment) or dim red light (active control).

The devices were used daily for 30 minutes upon waking for one month. Participants provided four saliva samples a day for a period of three days both at baseline and during the final week of light use.

**Results:** A total of 30 participants were randomly assigned to receive either white (n=13) or red light (n=17). Analyses revealed an increase in the steepness of cortisol slopes from baseline to post-intervention for both groups,  $F(1,28)=6.61$ ,  $p=.02$ , and a decrease in fatigue scores over time for both groups,  $F(1,28)=38.35$ ,  $p<.000$ . No group or interaction effects were detected. Cortisol slopes and fatigue scores were not associated,  $r(30)=.04$ ,  $p=.43$ .

**Conclusions:** Analysis of the preliminary data suggested that both groups showed improvements on both fatigue scores and cortisol slopes; however the sample size was too small and there was insufficient power to reach conclusions about treatment efficacy. Data from a second cohort is being collected to examine these outcomes on a larger scale.