

Considering the True Meaning of Complementary Medicine:

**Using Traditional Chinese Medicine (TCM)
to help address side effects of
cancer chemotherapy treatments**

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Introduction of self:

Hello. Thank you for having me here today. My name is Colleen Gibson and I am a licensed acupuncturist, graduate of the Oregon College of Oriental Medicine (OCOM). I am here today to speak on behalf of what I see as the true meaning of complementary medicine. It is a priority of mine, in my profession, to support the momentum growing towards a healthcare system that values ALL of our available choices. A system that does not seek to pit one type of medicine against another, but supports patient education and choice, and the use of a variety of approaches in order to optimally manage the health needs of the individual. In my ideal paradigm of health care, one discipline of medicine is used to fill in the gaps of another and visa versa, creating a more complete model, instead of one discipline trying to be it all. Used only as a slide to emphasize my point, “The ultimate system of medicine and healthcare is to be found by being open minded and building bridges between the different disciplines. We need to restore faith in the power of ourselves as human beings to heal, and to be healed”, Dr. Sagar, MD and author of Restored Harmony: An evidence-based approach for integrating Traditional Chinese Medicine into complementary cancer care. Thus, one of the best ways I can think to support this concept is through public education and giving presentations. Today I want to speak specifically to cancer treatment, and using conventional Western Medicine in conjunction with Traditional Chinese Medicine (TCM) to optimize outcomes and support quality of life for those struggling with symptoms and side effects.

My own experiences with cancer have come through the loss of family members, supporting friends and treating patients. These experiences have been painful and difficult, yet inspiring, and serve to remind me of how grateful I am to be trained in a healing medicine that can provide a great service to those struggling with cancer. I remember sitting with my uncle, frail and in pain, diagnosed with late stage esophageal cancer, and wondering if there wasn't something more we could do for him. My understanding now is that yes, there are a variety of pain relieving options that can often be used simultaneously including: acupuncture, low-dose narcotics, massage and anti-inflammatory nutritional choices, to name a few. A friend and co-instructor of mine at the Outward Bound Wilderness School amazed me when instructing a mountaineering course together, he took time to climb to a high point and make a cell phone call to one of his cancer support group clients. This young man, with no insurance and a diagnosis of non-hodgkins lymphoma, surprised all who knew him by raising thousands of dollars to pay for a multitude of therapies, both conventional and complementary, that have lead him now to a “cancer free” status. He now has his own business as a life coach, educating and empowering his clients about the fact that they have choices when it comes to addressing their health.

As a student intern at OCOM I had the opportunity to work on a Complementary and Alternative Medicine (CAM) shift up at Oregon Health Sciences University (OHSU). This experience was invaluable and inspiring as I was able to take part in the delivery of a medicine that I love in tandem with a medicine I respect, and to see the patients truly benefit from the best of both worlds. I treated a woman who was undergoing chemotherapy for breast cancer. It was through this firsthand experience that I felt most compelled by the power of using conventional and traditional medicines simultaneously. Initially this patient underwent a full mastectomy and was scheduled for 4 rounds of

chemotherapy. With weekly acupuncture treatments she was able to stay on track with her chemotherapy regime, and stated that her treatment related pain, nausea and fatigue were significantly reduced. Four months post therapy she began to resume her career again. Thus, I believe the issue is not about proving which choices are better, but about educating people so that health care teams, along with their patients, can offer the best possible choices for each individual. That is the theme of my presentation today, so let's begin.

Cancer Statistics in the U.S. - morbidity, epidemiology, mortality:

To start we must review some of the facts – morbidity and epidemiology of cancer in the United States. Morbidity refers to the prevalence or rate of occurrence of a disease. 2007 statistics, referenced from the American Cancer Society (ACS), state that cancer is the 2nd cause of death for all people in the U.S.; second only to heart disease. For 2007 it is estimated that 1,444,920 new cases of cancer will be diagnosed, 72,000 more than the estimates made just 2 years ago. Broken down by gender, these estimates predict that 766,860 men and 678,060 women will receive a diagnosis of some form of cancer within this next year. A startling number that does not even include the additional 1 million+ cases of basal or squamous cell carcinomas or any of the cancers found to be insitu or non-invasive. On top of that, these statistics are stated as representing only 86% of the U.S. population. (ACS, 2007) It is a health concern of great significance, likely to impact each of us over our lifetimes, and one that deserves all of the best care options we have to offer.

Epidemiology is the practice of identifying risk factors of disease, studying factors that affect the health and illness of different populations, and determining optimal treatment approaches to clinical practice. In the U.S., age is the leading risk factor for any cancer, with 77% of all cancers diagnosed in persons 55 years and older. Breaking this down, there is a lifetime vs. relative risk to consider. Lifetime risk is the likelihood of a person developing or dying of cancer over the course of their life. In the U.S., the risk for women is slightly greater than 1 in 3, and for men, slightly less than 1 in 2. Relative risk looks at the strength of the relationship between specific risk factors and particular types of cancer. Some of the most commonly agreed upon risk factors for all peoples include poor nutritional choices, toxic exposures both inhaled (smoking, air pollution, harsh cleaners) or consumed (alcohol, chewing tobacco, pesticide/hormone use in our foods), physical inactivity and unprotected sun exposure. (ACS, 2007) Racial and ethnic differences also play a role in relative risk, as seen through incidence rates. African Americans, both men and women, show a higher incidence than all other racial or ethnic populations, of developing and/or dying from most cancer types except breast cancer. Hispanics, Asian Americans and Pacific Islanders have a lower incidence for all cancers except those associates with infection, such as cervical, liver and stomach cancers. Native Americans also show a lower incidence for most cancers except those related to the kidneys. The disparities among these populations are believed to have a strong correlation to reduced access to medical insurance and thus early detection and appropriate treatment and care services. According to a National Institutes of Health (NIH) survey from 2004, 17% of Americans younger than 65 had no insurance coverage, and 27% of those 65 years and older had only Medicare. This is concerning considering that 77% of all cancers are diagnosed in those older than 55, which already comprises

30% of the U.S. population. Additional obstacles include economic class, cultural and language barriers, stereotyping and racial bias. There are some cultural differences, however, that can prove protective. Marrying younger often implies women having children at a younger age which lowers breast cancer risk, and cultures with strongly plant-based diets, such as those in the Mediterranean, show lower relative risk overall. (ACS, 2007)

The top three most common sites of cancer diagnosis in the U.S. for non-minority men and women respectively are as follows:

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|---------------------------------|----------------------------|
| (1) Prostate (218,890) 29% | Breast (178,480) 26% |
| (2) Lung/Bronchus (114,760) 15% | Lung/Bronchus (98,620) 15% |
| (3) Colon/Rectal (79,130) 10% | Colon/Rectal (74,630) 11% |

What this illustrates is that the organs of the genito-reproductive, respiratory and digestive systems tend to be most vulnerable in the American culture. Why is this? On a physical level it has been found that both prostate and breast cancer have a strong connection to family/genetic history. Prostate cancer is more likely in men with high saturated fat diets and breast cancer risks increase with greater alcohol consumption, being overweight and prolonged lifetime exposure to endogenous and exogenous estrogens. Lung and bronchial cancers, fairly obviously, have everything to do with exposure to inhaled particulates. In a culture still dominated by the tobacco industry and fossil fuel burning (air pollution), it is no wonder this cancer ranks as number two. Colon and rectal cancer, the third most common cancer for both genders, has risk factors related to genetics, but also nutritional choices that are low in fruits, vegetables and fiber, and high in over-processed, sugar and bad fat foods. (ACS, 2007)

Another risk factor, not frequently recognized, is the impact our daily emotions have on our health over time. Here is an example of where TCM can do a beautiful job of providing theory to help bridge an epidemiological gap. “It [TCM] provides a model that represents emotional expression through Organ systems, and provides a bridge between emotional characteristics and physical health or sickness.” (Sagar, 2001) In TCM, the genito-reproductive organs are energetically connected to the kidneys. The kidneys relate to the emotion of fear. I think most people in this room would agree that, in this country, a significant amount of marketing and news delivery is done within a context of fear. The accumulation of these emotions, within the body, over time, will eventually manifest as disharmony and “dis-ease”. The lungs relate to grief and recognition of self worth, while the large intestine or colon relates both literally AND emotionally to simply letting go. Beyond the genetic component of the commonly diagnosed cancers, it seems remiss to not bring awareness to the factors that can take a more silent toll on our bodies – emotions.

Early detection and prevention contribute significantly to overall survival rates. Cancers that can be detected by screening or are considered preventable account for at least 50% of all new cancer cases, and the 5-year survival rate for these cancers is about 86%. More specifically, prostate, breast and colon/rectal cancers can be decreased or prevented with regular screenings: PSA (prostate specific antigen) and DRE (digital rectal exam) annually, starting at age 50; SBE (self breast exam) monthly, starting at age 20; mammogram regularly, starting at age 40; and FOBT (fecal occult blood test) annually, starting at age 50 with a colonoscopy every 10 years; as well as informed nutrition/exercise choices (ACS, 2007). Lung/bronchial cancer can be decreased or

prevented by changing habits (acupuncture has had great success in helping people quit smoking)-cite and making choices to reduce exposure. Stress reduction, the intangible factor, can also decrease risk for almost all types of cancer.

The perception, anticipation or experience of stress interplays intimately with the human endocrine/hormone system. Stress can induce the release of hormones from the hypothalamus-pituitary-adrenocortical system (HPAC) and also from the sympathetic-adrenal-medullary system (SAM). In turn these hormones, for example cortisol, can affect a cascading response that has been known for many years to suppress immune function and cause inflammation. The initial fight or flight response of the SAM system has its place, but it is the prolonged experience of stress that engages the HPAC system and slowly undermines the natural balances of the body (Boik, 1995). When the immune system is down, surveillance of unnatural cell growth is compromised, defenses are understaffed and cancer cells can opportunistically take advantage. Said another way, patients with cancer who lived beyond their prognosis are often found to have less emotional stress and closer personal relationships.

Lastly is mortality, the measure of the number of deaths within a certain population. In the U.S., the expected mortality rate for 2007 is 559,650; this is more than 1,500 per day. On the other hand, the 5-year survival rate for all cancer types and all races, from 1996-2002, was 66%. This was up from 50% in the years 1975-1977. All reasons for this are not clearly known, but it is likely a reflection of advancements in early detection and specificity in treatment. Although the depth of my knowledge and skills lie within the realm of TCM, I am also keenly aware and grateful for the profound role that conventional biomedical plays in the detection, treatment and ultimate survival of so many people dealing with cancer.

Western Conventional Medicine – etiology, pathology, treatment & outcomes

In conventional Western medicine, cancer is defined as a class of diseases characterized by uncontrolled division of cells, damage to cellular DNA and the potential to spread to other parts of the body. It is this ability to spread that differentiates a malignant cancer from a benign mass or neoplasia. As cells rapidly proliferate a mass or tumor is often formed. This tumor can then invade surrounding tissues/organs or simply compress them so they can no longer function properly. This invasion is one way that a cancerous cell can spread. It can also occur by metastasis, which is implantation at a distant site via the blood stream or lymph system. If undetected or left untreated, malignant tumors will disrupt function between organ systems and ultimately result in death. (Kumar, et al, 2003)

Etiology is the study of causation. It is a basic premise of conventional medical treatment strategies to dissect a disease, identify specific agents or triggers that can cause damage, and then remove, alter or eradicate the culprit. When looking at cancer specifically, it is often the agents that cause damage to cellular DNA that are targeted. Revisiting the concept of lifetime risk, it is age and the accumulation of lifestyle exposures that stand out as the primary factors for all peoples and all cancer types. Despite well-intentioned attempts, the accumulation of exposures is one risk factor that none of us can completely avoid. Internal risk factors as a category include the following: genetic predisposition for such cancers as colorectal, prostate and breast cancer. Breast cancer specifically has two genes that have been identified as indicative of increased risk. Long-term exposure to

hormones, such as endogenous estrogen and cortisol, can increase risk of breast cancer and lower immunity respectively. Autoimmune diseases (HIV, rheumatoid arthritis, lupus) are also key players in immune system overload, making the internal environment for cancer growth more favorable. Free radicals are the result of chemical metabolism within the body. They are unstable molecules that promote inflammation and are linked to rancid and bad fats, high red meat consumption, high-heat cooking and oxidation (exposure to light and air). Choosing fresh, organic, phyto-nutrient rich foods (i.e. lots of organic fruits, vegetables and wild-caught fish) is one of the best ways we all can offset the inevitable damage our bodies endure on a daily basis.

External risk factors are the final and most avoidable category. Chemical exposure to tobacco can be mitigated with habit change and conscious choices around where one socializes. Asbestos and pesticides are thankfully becoming less of an occupational hazard although much of our food had not yet escaped the conventional means of mass production – genetic modification and insecticide use. Again, choosing wisely and thoroughly washing food is important. Viruses such as hepatitis, Epstein-Barr (EBV) and Human Papaloma (HPV) have all been found to have links to long-term weakening of the immune system, and as with HPV and cervical cancer, site specific vulnerability. Radiation exposure to such everyday conveniences as microwaves and cellular devices are held in common belief to be of reasonable concern. I suppose this illustrates the point that we all must choose our battles – I personally am not willing to give up my cell phone just yet. Lastly, quantity of exercise and nutritional choices are contributing factors that can positively or negatively influence one's relative risk. (ACS, 2007)

Despite many people's best efforts in the name of prevention, cancer is still the number two fatal disease in this country. This demands that we continue to strive to make our treatment protocols the most comprehensive and the best that they can be. Conventionally, surgery is often the primary form of cancer treatment. Depending on the type and location of the cancer and the timing of diagnosis, surgery can often completely remove and thus potentially cure cancer. When surgery is not adequate alone, radiation or radiotherapy may be used to reduce tumor size before surgery, destroy remaining cells after surgery or as the main therapy. Radiation is the use of an ionizing beam to destabilize the cancer cells, essentially rendering them into free radicals. This is somewhat ironic seeing as how free radicals are also a cause of cancer development. The idea, however, is that by reducing or eliminating the taxing nature of the cancer, the body can then rebuild and balance itself. Advancements in recent years have also allowed for more local targeting of cancer tissue, consequently decreasing damage to other tissues of the body and minimizing additional negative effects of treatment. Hormone therapy is another option that involves the manipulation of the endocrine or HPAC system through exogenous administration of hormones such as steroids. The mechanism is to alter gene expression and thus limit cell growth or induce apoptosis. Bone marrow transplants are also possible forms of treatment, used primarily with leukemia types of cancer. (NCI, 2004; ACS, 2007)

Chemotherapy is the fifth and final form of treatment I will discuss, and the primary focus of this presentation. Chemotherapy's first successful documented use was in 1940, inspired by the warfare use of nitrogen mustard gas and its toxic effects on the lymphatic system (Nygren, 2001). Today it is a very common form of adjuvant therapy, meaning it is most often used in conjunction with one of the above. A paper from a Swedish

University Hospital reporting on patients with gastric adenocarcinoma, found adjuvant use of chemotherapy in North America to significantly improve overall survival and proposed that “chemotherapy is better than best supportive care only” (Foukakis, et al, 2007). A systematic overview of randomized control trials, based on 233 trials, 9 meta-analyses and a total of 155,243 patients, using adjuvant polychemotherapy for breast cancer found strong scientific support for an absolute mortality reduction in patients younger than 50 years (Bergh, et al, 2001). Another systematic overview of chemotherapy use on a variety of major tumor types, involving 16 hospitals and 1590 patients in Sweden, found chemotherapy to play a well-documented role in both curative and palliative treatment of patients with cancer (Glimelius, et al, 2001). Lastly, a meta-analysis of 5 randomized control trials for adjuvant use of chemotherapy found treatment to significantly increase the prognosis of patients suffering from pancreatic adenocarcinoma (Michalski, et al, 2007). This is just a small sampling of the larger body of evidence demonstrating the significant and beneficial role chemotherapy plays in improving prognosis for patients dealing with cancer.

Used clinically, chemotherapy is a class of cytotoxic, or cell damaging drugs, delivered intravenously, often in combinations of 2 or more, in order to overcome tumor cell resistance (Olsen, 2006). It is most often used as an adjuvant form of therapy, meaning that it is used after the primary tumor has been controlled with one of the above-mentioned treatments. In general, these drugs target rapidly dividing cells in the body whether cancerous or not. In doing so, healthy tissues of the body such as skin, hair, nails, digestive tract, bone marrow, are also compromised. This is why patients will commonly experience the side effects of hair loss, dry skin, nausea and vomiting and weakened immune systems.

There are 3 common types of cytotoxic drugs used. 1) Alkylators: which cross-link cell DNA so they cannot uncoil and thus can no longer divide. This group is among the more commonly administered, treating breast, lung, testicular and colon cancers. This drug is also commonly known to be toxic to hematologic cells, thus having the predictable side effect of bone marrow suppression. 2) Topoisomerase Inhibitors: simply damage the DNA of all cells. This group is also used for a variety of cancer sites including lung, breast and colon, carrying with it common side effects such as stomatitis (dry mouth), ulcers and nausea/vomiting. 3) Antimetabolites: inhibit production of cellular components crucial to DNA synthesis. This group is largely a breast cancer drug and is likely to produce any one of the many chemotherapy side effects, with photosensitivity, and pulmonary or hepatic toxicity being added to the ones already listed above. Via these mechanisms, many forms of cancer diagnosed in the U.S. including: breast, colorectal, some types of lung cancer, gastric, bladder, ovarian, etc., are believed to have significant survival rate improvement, if not complete cure, with the application of chemotherapy. (Nygren, 2001; Olsen, 2006)

To complete this picture we must also look at what comes along with using chemotherapy to treat cancer. In 2006 the NIH estimated the overall costs for cancer (which includes all aspects of treatment) in the U.S. to be \$206.3 billion. \$78.2 billion of which was due to direct medical treatment, and \$17.9 billion for lost productivity due to illness (ACS, 2007). When receiving chemotherapy, there are side effects that inevitably come with it – high medical bills, negative physical reactions (nausea and vomiting, hair loss, pain and hot flashes to name a few), lost work time and wages, and often, an overall

perceived sense of a lowered quality of life, during and just after treatment. It is in these areas that, once again, we can look to expand and *complement* the standard protocols of treatment, in order to provide the best quality of care possible.

Review of Conventional Western Medical Studies – supporting the need to consider greater inclusion of complementary treatments

Three of the most common and debilitating side effects of patients being treated for cancer are fatigue, nausea/vomiting and pain. Fatigue is commonly ranked as the number one complaint for people undergoing chemotherapy. In a national survey of 379 patients with cancer released by the Fatigue Coalition in 1998, it was found that fatigue impacted respondent's lives more than any other side effect by a considerable margin. The impact was felt physically in their ability to do daily activities, emotionally in being able to foster and maintain relationships and economically through lost work time for both themselves and their caregivers. Fatigue is commonly ranked as the number one complaint for two main reasons. First, improvements in controlling other side effects have allowed fatigue to stand out more clearly. Secondly, it is thought that fatigue has simply been under-recognized and under treated. Physiologically, fatigue often results from chemotherapy induced bone marrow suppression and subsequent anemia (a condition in which red blood cells or the hemoglobin that carries oxygen is deficient in some way). In this survey, 32% of the respondents had been diagnosed with anemia while only 9% had been treated with either medications or transfusions to address the problem. With fatigue usually lasting the longest of all chemotherapy side effects, it clearly demands more of our medical attention. (Cancer Research UK, 2006; Consulting Group, 1998)

The side effect of nausea/vomiting plays a major role in disrupting the ability of patients to lead their normal daily lives. When patients are nauseous or vomiting their appetites suffer. Weight loss and diminished nutrition put extra stress on an already strained body, slowing the healing process and potentially disrupting the treatment regime. When patients feel physically bad, treatment compliance will usually suffer as well. Conventional medicine has made strides in addressing the side effects of chemotherapy. For example, a double-blind study published in the New England Journal of Medicine found the pharmaceutical Palifermin to be quite effective in treating oral mucositis (dry mouth), a challenging symptom with few effective treatments. (Spielverger, et al, 2004) Yet conventional medicine can't always go it alone. A randomized control trial (RCT) involving 120 outpatients, conducted in 2002 by the Department of Anesthesiology and Pain Management at the University of Texas Southwestern Medical Center, looked at the use of the pharmaceutical Zofran alone and in conjunction with an acupoint stimulation device called ReliefBand for patients coming out of surgery. At 24 hours post-surgery, a significant difference was found in nausea/vomiting reduction, ability to resume a normal diet, lower incidence for need of "rescue" or fast acting antiemetics and patient satisfaction in the group using the combined treatment (White, et al, 2002). Still, antiemetic drugs are expensive, with Zofran costing upwards of \$130 per IV dose. They can also have undesirable side effects of their own or may simply be less than adequately effective. A systematic review of 7 RCT's, 12 uncontrolled studies or case series and 2 reviews, conducted by the Palliative Care Department of the Royal Prince Alfred Hospital in Australia, found there to be little to no evidence for the efficacy of some

commonly used antiemetics (haloperidol, cyclizine and methotrimeprazine) in patients with far-advanced cancer (Glare, et al, 2004). Although conventional medicine has made great strides in the treatment of nausea and vomiting, there is still room to make improvements and consider additional care alternatives.

Lastly, but not to be underestimated, is cancer related pain; a significant complaint of 75% of all people dealing with cancer. Pain can occur for many reasons: the malignancy itself, procedures done to diagnose, stage or treat the cancer, toxicity of treatments or breakthrough pain (when medications can't consistently cover the pain). (Caimi, 2006) Most commonly these pains are mediated with opioids, non-opioid analgesics, non-steroidal anti-inflammatory drugs (NSAID's) or steroids, and once again these medications often come with their own set of side effects. Opioids can cause drowsiness, constipation and respiratory depression, they run the risk of building a tolerance and needing progressively higher doses, and then setting the stage for potential breakthrough pain episodes. NSAID's inhibit prostaglandin production, which can lead to the risk of ulcers, or GI bleeding, and high doses of acetaminophen can be toxic to the liver. (ACS, 2007)

Pain is not only a physical experience, it carries with it a strong psychological component as well. A study involving 304 patients with cancer conducted at the Wayne State University College of Nursing 2007, looked at the relationships between pain level, beliefs about pain, symptom distress, perceived control over pain and functional status. One significant finding was a positive correlation between pain level and a decreased sense of perceived control over the pain management. Conclusions of this study proposed interventions that increase knowledge and decrease barriers to pain control as having great potential for improving perceptions of pain control for patients. (Vallerand, et al, 2007) "Current evidence suggests that being empowered with knowledge and being part of the decision-making process results in an improved health outcome, whereas passivity and perceived lack of control may be detrimental to health." (Sagar, 2001) Knowing that there are choices, ways in which patients can *complement* their cancer treatment regime, not only supports the patient in their healing process, but also lessens the pressure on different aspects of the medical team to feel the need to manage it all. Through education and greater understanding, the gap between disciplines can be bridged and a more comprehensive healthcare system can continue to evolve.

Traditional Chinese Medicine (TCM) – history, theory, treatment approach & outcomes

Traditional Chinese Medicine has a history that dates back at least 2500 years, but what is even more compelling is the nature of its development. TCM is a medicine that has built upon itself. It has stayed true to its roots and original written theories, such as Yin / Yang Theory, while also embracing new ideas and developments that have come with changing environments and advances. The old is not discarded in light of the new, but added in to contribute to a more complete body of knowledge. References to oncology, such as the presence of tumors "liu" or stone-like masses and doctors who specialized in "swelling sores" are also noted dating back to the earliest recorded book on Chinese Medicine, the *Huang Di Nei Jing* (The Yellow Emperor's Internal Classic), (Peiwen, 2003). With this long history it seems almost irresponsible not to consider TCM as a component in modern cancer care.

TCM did not arrive in the United States, however, until 1971 when the journalist, James Reston, working for the New York Times, was forced by an acute appendicitis attack to seek medical help while on assignment in China. His positive experience with post-operative pain management at the TCM hospital lead him to write an article that ultimately ushered Chinese Medicine into our current medical culture. Today, acupuncture and TCM are of relative common use throughout the states, and are most often categorized as a form of Complementary & Alternative Medicine (CAM).

The use of CAM therapies in the United States, despite personal attitudes and variability in insurance coverage, is significant. The Eisenberg study, a national survey published in the Journal of the American Medical Association in 1998, found that 47%

of Americans seek CAM providers each year. Of these, an estimated 15 million adults took both prescription drugs and herbal prescriptions or vitamin supplements concurrently (Eisenberg, 1998). More specifically, the NIH reported in 2006 that up to 54% of cancer patients were seeking CAM therapies to help boost their immune systems, relieve pain and support tolerance for treatment or to offset the side effects of it. Their conclusion was that most CAM therapies for the treatment of cancer were found to be safe when performed by a practitioner experienced in the treatment of cancer patients (Mansky, 2006). In a study conducted in Europe it was found that 30% of cancer patients did not inform their oncologist of their CAM utilization (Simon, 2007). Acknowledging and understanding these trends is critical for medical providers. With an attitude of open mindedness and an intention to build bridges between disciplines, through quality research and education, we allow our patients the opportunity to be forthright about what they are choosing and to be most compliant with their specific treatment regimes.

Let's look now at some of the basic principles of how TCM works. The underlying logic of all Chinese medicine is the assumption that a part can only be understood in its relation to the whole. All components of life, health and disease can be viewed as being either Yin or Yang. Yin and Yang are complementary opposites which allow for balance and harmony within the whole. (Kaptchuck, 2000) A simplified example in the realm of health and disease may be - a red and hot rash on the skin seen as heat or yang would indicate the need for a yin or cooling therapy to release the heat and restore balance.

Yin and Yang are considered 1 of 4 fundamental relative pairs in TCM diagnosis. Additionally, a practitioner will look for signs of more heat or more cold (fever vs. chills), more excess or more deficiency (severe and sharp vs. dull and achy pain) and whether symptoms present as acute and relatively superficial or chronic and more deeply manifested within the body (a common cold vs. an autoimmune disease). With these distinctions made, the appropriate treatment can better be determined.

Five natural elements are also used to establish relationships within the body. The sequence that follows is one of support or promotion: water gives life to wood, wood can be used to start fire, fire burns to ash, hardens and becomes earth, earth compresses and forms metal, metal can mold to support and direct water. This cycle can also be designed to outline a relationship of checks and balances as well. The primary organs of the body are assigned an elemental association giving them relation to one another and establishing parameters of harmonious function within the system.

The primary substances within the system are Qi (energy), body fluids, blood, and essence. Qi is the impetus behind the movement and functioning of all aspects of the

human body. It moves the blood and causes the heart to beat. Optimally, Qi is abundant and free flowing. As the driving force it directs fluids and blood, through the irrigation pathways or meridians and vessels, to tissues and organs of the body to moisten, nourish and support their functioning. If Qi becomes deficient or stagnant, whether in a meridian or organ, fatigue or pain will result. Over time, deficient or stagnant Qi will effect the movement of blood and fluids. Stagnant blood and stagnant fluids can accumulate, leading to obstructions, organ dysfunction or tumors and can, in part, begin to explain the basis of the development of many diseases including cancer. (Dharmananda, 2001)

One of the more compelling aspects of TCM is that this free flow of Qi is not just related to the amount of exercise we get or the good food we eat, but it also relates to the emotions we experience on a daily basis. In this way TCM offers medical practitioners a model that connects emotional expression to organ systems, and provides a link between emotional tendencies and physical health or illness (Sagar, 2001). An example of this would be the emotions of anger or depression. Both of these expressions are related to the liver. The liver is charged with storing blood and regulating the smooth flow of Qi. If these emotions predominate in one's life, blood and Qi are negatively affected, eventually resulting in an undesirable physical manifestation. Other organ/emotion associations include: the spleen associated with anxiety, worry and excessive care taking; the kidney associated with fear and moving through it; the lung associated with inspiration, grief, and letting go; and the heart associated with extreme joy and mania. Which of these emotions predominate in your life? And consequently, which organ systems may you be inadvertently overtaxing? With this perspective, one not found in conventional medicine, we are offered an additional unique and valuable tool for the prevention and/or treatment of cancer.

These concepts are applied to the body partly through acknowledgement of an energetic network of pathways called channels or meridians. The now fairly definitive mapping of these channels originated through the compilation of meditation experiences of herbalists and Qi Gong masters, and patternistic tender points or propagation of sensations found clinically on thousands of patients over time. There are 12 primary channels that cover the body's surface, running superficially to connect with the skin and muscles, as well as deep, connecting with the organs. This organ connection is also what gives the channel its name (i.e. the Liver channel). Places along the channel that allow access to affect change are called "acupoints". This network of channels and acupoints provide the foundation for applying Chinese Medicine in clinical practice.

Another unique aspect of TCM is the individualized approach, clinically referred to as condition or symptom differentiation. The basic premise is that two people may present with similar chief complaints, but based on specific physical aspects of their presentation, lifestyle habits, underlying constitutional factors and emotional predispositions their diagnoses may be quite different. Thus the same disease or condition may warrant two very different treatment plans. A good example is that of a migraine or headache. When diagnosing a headache it makes a difference whether the pain is sharp or pounding, a relative excess, or dull and achy, a relative deficiency. The response of a symptom to palliative treatment, such as feeling better or worse with hot or cold application, is indicative of a relative temperature excess, and the symptoms' location has a connection to the organ or channel involved. With chemotherapy, fatigue that is accompanied by night sweats and a dry throat may indicate kidney yin deficiency,

requiring a different approach than fatigue that involves diarrhea and easy bruising, indicating a deficiency of the spleen. These types of differentiations, when used in conjunction with conventional treatment, have the potential to increase therapeutic gain, reduce toxic side effects and improve quality of life for patients undergoing chemotherapy.

To assist in making the diagnosis, an observational assessment of the tongue and palpation of the radial pulse is also made. The tongue is densely innervated with nerves and blood vessels and has a rapid rate of epithelial cell turnover. As a result, changes in the autonomic nervous system such as fluids, pH, nutrition and respiration can be readily observed through variations in the color and texture of the tongue body and thickness and moisture of the coat (Sagar, 2001). The autonomic nervous system also governs the relationship between the sympathetic (fight) and parasympathetic (relax) states of the body, regulated through heart beat, blood vessel tone, metabolism, hormones and immune function. Through palpation of the radial pulse, organ systems and relative excesses and deficiencies can be evaluated and monitored, non-invasively.

At its roots, TCM is a medicine that was developed not only by careful examination of the body, but also through diligent observation of the environment. Explanations of health and disease were often recorded as metaphors relating to patterns found in the natural world. In honor of this I offer this more poetic description to summarize how TCM works.

Traditional Chinese Medicine is based on a network of energetic pathways that run throughout the body like rivers. These rivers carry Qi which propels the blood in the vessels and together they irrigate and nourish the tissues and organs. When obstructions occur within the river, due to a slowing of the flow and debris piling up (deficiency and stagnation), or pollution being added and accumulating (heat, toxins, phlegm), irregularities, pain and dis-ease will begin to manifest. The goal of Chinese Medicine is to recognize that the river system will not always run perfectly clean and smooth, but through supporting a relative and dynamic balance, harmony and health can prevail.

To balance this perspective, let's also take a look at some of the ways conventional science has attempted to explain how acupuncture and Chinese Medicine work. One of the first and more well known studies testing the existence of the acupoint was, *Electrophysiological Correlates of Acupuncture Points and Meridians*, by Becker et.al. 1976. This study attempted to prove that acupuncture points exist as real, measurable entities with predictable electrical characteristics. Indeed, for many of the commonly used points (50% of all points tested) along the "Large Intestine" and "Pericardium" channels, it was found, with a reproducible pattern, that these acupoints showed a lower resistance and higher conductance than non-point areas of the skin. In addition, field plots of asymmetric concentric circles were found indicating the existence of discrete electrical structures, and that also implied a channel-related direction of energetic flow. (Becker, et.al. 1976) So, if these points exist, how do they elicit an effect upon the body?

The use of magnetic resonance imaging (MRI) is one way that science is attempting to understand this. A literature review published in *Advanced Access Publication*, August 2005, found that predictable areas of the brain, for example visual and auditory cerebral areas, could be activated or deactivated when specific acupuncture points were stimulated (Lewith, et al, 2005). This is a true example of trying to explain the "mind-body

connection". Another foundational study published in 1976 demonstrated the connection between the brain's response to pain and acupuncture-induced analgesia. By showing that acupuncture-induced analgesia could be blocked by the injection of naloxone, an opioid receptor antagonist, this study gave credence to the idea that acupuncture stimulates sensory nerves, which activate the pituitary and release endorphins to reduce pain pathway transmissions (Pomeranz, et al, 1976). Via this mechanism of either stimulating or suppressing the activity of the peripheral nervous system's sensory nerves it is thought that acupuncture can also modulate neurotransmitters, cytokines and neuropeptides. By affecting these chemical messengers, rebalance between the sympathetic (yang) and parasympathetic (yin) nervous systems can be established, supporting the body's overall ability to maintain health (Wong, et al, 2001).

Now let's look at TCM specifically in relation to understanding and treating cancer. TCM views cancer as "a systemic disease from the start, and the terrain is considered to be as important as the tumor itself. It is believed that if one can strengthen and rebalance the body-mind network, the normal pattern will be restored and this will help to resolve the cancer." (Wong, et al, 2001). Restated, TCM gives equal importance to support of the rest of the body systems as it does to elimination of the cancer. Thus, while it is clear that conventional Western medicine is better at controlling and directly attacking cancer tumors, equal credence should also be given to TCM's ability to support immunity and offset inevitable tolls on the body that occur throughout the treatment process (Peiwen, 2003).

Starting with prevention, many of the same risk factors as mentioned before are recognized: external toxic exposures, lack of exercise and being overweight, and poor nutritional choices. In addition, TCM will also emphasize the compounding effects of long-term stress and the impact of negative emotions on the internal environment. Together, these factors determine the relative strength or susceptibility of each person's constitution, terrain or river network, and plays a role in whether cancer may develop or not.

As mentioned earlier, the same symptom in two people does not equate to the same causation. Cancer is no different. Of course location is one significant difference, but its progression will also be impacted by the current internal environment of the individual. Consequently, patterns of disharmony will also be somewhat unique. Most people, when faced with a diagnosis of cancer, will likely seek some form of conventional Western care. Therefore, what I will highlight now are some of the common disharmony patterns that are seen with cancer which are then exacerbated when pursuing chemotherapy treatment.

In TCM, cancer is seen as some combination of an overall deficiency of Qi, stagnation of Qi and blood, a build up of heat toxins, and the formation of phlegm (a pathological congealing of body fluids) (Peiwen, 2003). Just like in the river metaphor, when areas of the river become stagnant and devoid of their natural nutrients, overgrowths and infestations can occur. With chemotherapy, overgrowing cancer cells are eliminated, but internal disharmonies can also be made worse. Let's look at this more closely.

Qi can be further depleted by consumption by out-of-control cancer cell growth or by the fact that treatment is causing nausea and vomiting and the patient cannot sufficiently nourish themselves. When Qi is deficient, common symptoms will be fatigue, poor appetite, weight loss and foggy thinking. Deficiency of Qi also provokes further

stagnation because there is less motive force propelling movement in the body. Stagnant Qi effects the emotions (commonly manifesting as depression), causes diffuse achy pain and is a precursor to the stagnation of blood, which amplifies pain to the level of sharp and stabbing. Blood, which is also considered an aspect of the greater category of Yin, can be damaged by the toxic-heat nature of the cytotoxic agents used in chemotherapy (a relative excess), or severely compromised by the fact that the rapidly dividing blood cells of the bone marrow are also targeted by the chemo (a relative deficiency). Heat excess in the blood can cause bleeding or skin problems, whereas deficiencies of the blood can result in hot flashes, night sweats, dry skin and mouth, hair loss, anemia/fatigue and peripheral neuropathies. Lastly, body fluids can also get burned up by heat from treatment, becoming sticky and phlegm-like. This can block meridians and cause Qi to flow in abnormal directions. The most common example of this is once again, the nausea and vomiting that so commonly plagues chemotherapy patients. (Dharmananda, 2001; Peiwen, 2003) As treatments progress, changes in symptom manifestation may also change. This is a normal response of the body trying to manage this necessary assault. TCM acknowledges this and offers a variety of approaches to address and support these changes.

As licensed acupuncturists in the state of Oregon we are not considered primary care providers, however, our education includes both Eastern and Western medical training and our scope of practice offers a broad spectrum of treatment choices to use in conjunction with conventional treatment. The modality people are likely most familiar with is the use of acupuncture needles. These needles are single-use and stainless steel, usually ranging from 32-40 gauge, which is about the thickness of 1 or 2 human hairs. Needles are inserted into the skin at the “acupoints” located along the channels crisscrossing over the entire body. Each “acupoint” is numbered and each of the channels are named for the organs that they are connected to (i.e. the Liver channel). Every “acupoint” has certain actions associated with it that often affects the organ or channel that it is on (i.e. Stomach 34) and can be used to either reduce symptoms or stimulate an organ system’s function.

Another tool often used are Chinese herbs. Therapeutically they are used in combination with one another, called a formula. With this approach, the benefits of single herbs can be enhanced, while the side effects or toxicity of a single herb can also be offset by another herb within the same formula. “In effect, multiple low dose pharmaceutical agents are being administered synergistically. This is in complete contrast to our Western model that focuses on a high dose effect of a single pharmaceutical agent.” (Sagar, 2001). Understanding this methodological difference can help explain why the inappropriate use of some single Chinese herbs as well as many conventional pharmaceuticals can have such significant and sometimes even fatal side effects.

Although I will not spend much time during this presentation on the use of Chinese herbal medicine in conjunction with chemotherapy, I do want to provide a few references. There are a growing number of studies being published on the compatibility and effectiveness of Chinese herbal medicine being used before, during and/or after chemotherapy to support immune function, moderate pain, alleviate fatigue and reduce incidence and/or severity of nausea and vomiting. (see Appendix A) Of special note here is the reference to Dr. John Chen, a recognized authority in Western Pharmacology and

Chinese herbal medicine and more specifically in the realm of herb-drug interactions. I have completed a workshop with Dr. Chen to expand my own knowledge and awareness of herb-drug interactions and found him to be very thorough and science-based in his presentation, yet also approachable. He is a great resource for both medical practitioners and patients alike.

Other TCM modalities to consider when supporting oneself or one's patients through chemotherapy include: moxibustion, electro-stimulation, massage (shiatsu or tuina), Qi Gong and nutrition. Moxibustion is a compressed form of the plant mugwort that is used to warm and stimulate Qi and blood movement in local areas of the body. Electro-stimulation is the use of a low amp current machine, connected to the needles, to provide continuous stimulation and promote a stronger analgesic effect, especially in cases of pain management. Massage includes shiatsu, which is performed with the patient fully clothed and accessing the energy meridians through acupressure. Tuina is more akin to traditional Swedish or deep tissue massage with an awareness and appreciation for the energetic pathways of the body. QiGong is a gentle form of Chinese martial arts. There are numerous styles and forms that one can learn, both standing and seated, to help reduce anxiety, minimize pain and alleviate fatigue (Menefee, 2005). Lastly, there are Chinese nutritional guidelines, which can be quite different from what most people might expect. When considering good nutrition in Chinese culture the flavors, temperature and energetic qualities of the foods are most important. For example, to relieve heat and toxicity from chemotherapy treatment it may be recommended to eat cool or bitter foods such as daikon radish and bitter melon (Lai, 2005).

Another component when considering using TCM as part of your healthcare regime is simply knowing what to expect and how to approach treatment. Traditionally, in China, a course of treatment would consist of ten consecutive days, allowing for the cumulative effect to build and often concluding with very positive results or at least a very clear picture of what is working and what is not. Today, in the U.S., there are a variety of styles and formats in which one can receive treatment. Individual or private appointments are usually 1x/week, can last about an hour to an hour and a half, and include an extensive health history, which is expanded upon with each follow-up appointment. Another style, of growing popularity, is the group treatment. In this format patients are treated in comfortable chairs, in a large room with other people. The intake is often shorter and the price is usually less, allowing for more frequent visits. Each format has its own pros and cons, with the best choice usually depending on personal preferences and type of condition. Either way, the tongue and pulse are often assessed as well as palpation of symptomatic areas and/or the abdomen to further identify patterns of disharmony. During treatment an average of 1-20 needles may be used, with a general retention time of 20-45 minutes. Finally, patient "homework" may be prescribed such as taking herbal formulas, nutritional considerations, exercises or stretches, recommendations for sleep, rest or water consumption, and possibly referral for other forms of treatment or diagnostics. Overall prognosis, or course of treatment will vary depending on the length of time the condition has existed, frequency of treatments, compliance, and individual constitution and complexity of the case. Although immediate results are not unheard of, it is often recommended that patients come for 4-8 visits to assure good results and to determine best course of continued treatment if necessary.

Finally, let us also consider the side effects one might expect to encounter when utilizing TCM. An article entitled, *A cumulative review of the range and incidence of significant adverse events associated with acupuncture*, concluded that “the risk of serious events occurring in association with acupuncture is very low, below that of many common medical treatments” (White, 2004). The most significant concern when using acupuncture needles is the extremely rare possibility of puncturing the lung and causing a pneumothorax. More commonly, a patient may experience lingering tenderness or bruising at the site of a needle insertion. Heat therapies, such as moxa, may result in a heat blister or burn, but rarely do if applied properly. Finally, there is the use of herbs and herbal formulas. As mentioned earlier, it is the synergy created by combining single whole herbs together that offset many potential side effects. However, herbal effects are potent and prescriptions should only be given by board certified professionals. Potential side effects could include: digestive upset, sleep disturbance or mild exacerbation of symptoms, among others. These potential reactions are managed with frequent monitoring and relatively low-dose introduction of a new formula.

Review of TCM Studies – Evidence for expanding the use of Complementary Medicine

The history, theory and clinical use of traditional Chinese medicine has been presented to provide a foundation for understanding the true value of incorporating this ancient yet timeless medicine into the modern approaches of treating cancer. Let’s take a look now at how conventional science has tested and affirmed the supportive and healing efficacy of TCM. Returning to 3 of the more common side effects experienced by patients receiving chemotherapy, fatigue is believed to be one of the longest lasting and most under treated symptoms of chemotherapy. At the Mayo Clinic College of Medicine a partially blinded, controlled, randomized clinical trial was conducted, involving 50 patients with fibromyalgia to determine acupuncture’s ability to relieve symptomology. Although not specific to cancer, this study does consider a condition that also predominates with fatigue symptoms, clinically found to be difficult to treat. In this study, patients received treatments every 2-4 days over a 2-3 week period for a total of 6 treatments. Symptoms were measured with a questionnaire immediately after treatment and at 1 and 7 month intervals post-treatment. Results found acupuncture to be well tolerated and to have minimal adverse side effects. Most impressive however, was that beyond improvements in physical pain, participants reported having significantly less fatigue and anxiety, especially during the follow-up period (Martin, et al, 2007). Nausea/vomiting is a symptom experienced by most patients of chemotherapy, significantly interrupting their ability to perform daily functions and return to work. A study published in the *Journal of the American Medical Association (JAMA)* 2000, looked at the use of electroacupuncture to control chemotherapy-induced emesis. This randomized controlled trial included 104 women, mean age 46 years, with high risk breast cancer. Participants were divided into 3 groups, receiving acupuncture, sham acupuncture or no acupuncture, one time per day for 5 days. All 3 groups were undergoing high-dose chemotherapy and receiving antiemetic medication. The outcome found the adjunct electroacupuncture group to have the most effective results. Acupuncture patients experienced an average of 5 emesis episodes per day vs. 10-15 episodes per day for the other 2 groups, although effects did not last much beyond the treatment period (Shen, et al, 2000).

The last symptom, pain, can be described as one of the most debilitating side effects of cancer and cancer treatment for many patients. Pain can effect one's emotional well being. It often requires additional medications, which can come with their own set of side effects, and can take an added toll on an already fatigued body through the stress of anticipating future pain. To address this pain, a randomized, blinded, controlled trial was conducted with 90 patients, comparing the use of auricular (ear) acupuncture at points found to have an electrodermal signal, to two placebo groups using points with no signal found. Patients received either ear needle implants at active points, ear needle implants at inactive points or ear seeds at inactive points, while also maintaining a stable dosing of analgesic medication. Recording their pain levels and if/when implants fell out, patients returned one month later for follow-up. This same protocol was repeated a second time. At 2 months after the start of treatment, the acupuncture group reported a 36% reduction in the experience of pain, with the placebo groups reporting little to no significant change (Alimi, et al, 2003). Additionally, the strength of the acupoint electrical signal decreased as the pain experience improved. Another study looking at the acupuncture for the treatment of non-cancer related back pain is also presented here simply to highlight the significant role acupuncture can play in the relief of pain of all kinds. This study compared two groups: one using their usual care as directed by their physicians (NSAID's, muscle relaxants, paracetamol and back exercises) with the other using usual care, as well as receiving electroacupuncture biweekly for 5 weeks. The results, obtained through questionnaires, found the acupuncture group to report significantly less pain at the end of the study, with relief lasting for up to 4 weeks after treatment. Additionally, the acupuncture group reported having less medication-related side effects when compared to the control group (Meng, et al, 2003).

There are 2 additional studies, not conducted in the RCT style, but still worthy of noting. The first is a small study conducted at the Oregon Health Sciences University in 2005 which looked at hot flashes in men receiving hormone therapy for prostate cancer. At the beginning the hot flashes were noted as being a source of irritability, fatigue and insomnia. Participants received 14 acupuncture treatments over 10 weeks. In the end, 6 of the 10 men had a 50% or greater reduction in hot flash frequency and intensity and also reported an overall improvement in quality of life. One of the researchers is quoted as saying, "Our study indicates acupuncture may offer less toxic, effective relief for cancer patients who suffer from hot flashes." Researchers also intend to evaluate blood and urine samples to measure neurotransmitters present in the blood and CNS before, during and after acupuncture (MacKnight, 2005). Once again, here is evidence of acupuncture's mind-body connection and influence on the chemical messengers of our bodies.

The second study looked at acupuncture and its effect on the immune system specifically in patients being treated with chemotherapy. This study, consisting of a total of 36 patients, used electroacupuncture at two specific points, Stomach 36 (St36) and Pericardium 6 (Pc6) along with relevant chemotherapeutic drugs to raise white blood cell (WBC) count. Participants received 20 acupuncture treatments during the time that they were also receiving chemotherapy. CD3 and CD4 levels were evaluated before the start of chemotherapy and after a 1 month course of treatment. Although leukocyte levels (specifically T-cells and NK cells) did not recover to before treatment levels, they were higher than in the control groups not receiving acupuncture. As an auxiliary therapy, this

study suggests that acupuncture could effectively lessen the impact that chemotherapy can impose on a patient's immune system, which in turn can support compliance with scheduled treatment regimes and overall patient quality of life. (Shaozong & Yiefang, 2001)

This is just a small sampling of the research that has been done to evaluate the efficacy and safety of acupuncture in treating symptoms that are common for many people, even beyond those receiving chemotherapy. Fatigue, pain and poor immune function specifically, are complaints I hear from nearly every patient I see. What also stood out to me in reviewing these studies was the impact frequency of treatment played in the outcomes. Acupuncture is a cumulative medicine. The effects of treatment build up over time in the body, resulting in stronger and longer lasting results. Severity and length of time the condition has existed will, of course, impact outcomes as well. This is of significant importance when considering the overall efficacy of this medicine and how it can best be clinically delivered. Acupuncture is not a guarantee, nor a cure-all, but it is clearly an effective, non-competitive and reasonably cost-effective complement to the conventional Western care of all patients, and especially for those dealing with cancer.

To conclude, I want to share a brief testimonial from a cancer survivor patient that I have worked with.

"Acupuncture was an overall lifesaver for me during my chemotherapy treatments for breast cancer. As my treatments progressed I experienced a variety of side effects, including hot flashes, fatigue, digestion discomfort and nausea. My weekly acupuncture treatments helped minimize the discomforts of my side effects and boosted my energy. Although I completed chemotherapy treatments six months ago, I have weekly acupuncture treatments to assist my body in recovery from chemotherapy and aid in side effect issues, (joint/muscle pain, brain fuzziness, fatigue), now from the drug Femara". Moira, 56

Acupuncture is a hands-on medicine. I believe everyone in this room would agree that positive touch is a crucial element of healing, in and of itself, that is frequently missing at many doctor's visits these days. Acupuncture cannot be performed without coming in contact with and checking in with each patient's body. The evidence presented today, which illustrates TCM's ability to decrease side effects of other treatments, reduce pain and the need for additional medications, and to support a patient's quality of life and ability to be compliant with other treatments, makes a strong case for the viability and necessity of using TCM/acupuncture as part of a standard practice of care. By including acupuncture as a *choice* in one's treatment options, mental health is also addressed, and quality of life is often enhanced. Insurance is also beginning to cover acupuncture more often, but still to a limited degree. Thus out-of-pocket costs prevent many patients from being able to access this medicine. Lower cost group style acupuncture is providing one answer to this dilemma, but patients still need to ask for it so that the demand is clearly heard, requiring the system to eventually change. Finally, by having the potential to shorten overall treatment and recovery time, thereby reducing medical costs for both the patient and the overall healthcare system, this medicine offers a step in the right direction for the long-term sustainability of a functional healthcare system in this country. For a patient to feel part of the process, to feel heard and well taken care of, and to know that all possible treatment options are being considered... this is good health care and this promotes true healing.

Thank you for your time and for having me here to speak with you today. I hope

I've educated you about something new and inspired you to really consider what it means to embrace the use of Complementary and Alternative Medicine. I will be happy to take questions.

Appendix A

Studies:

Zang Yize, et. al. (1998). *The Role of Chinese Materia Medica in Increasing the Effectiveness and Reducing the Toxicity of Chemotherapy in the Treatment of Malignant Tumors*, Shandong Journal of Traditional Chinese Medicine, 17,11: 488-9.

This study gives evidence for using Chinese herbs in combination with radiation and chemotherapy to enhance the immune system by promoting phagocytosis, protecting bone marrow, promoting hematopoiesis, and preventing leucopenia and thrombocytopenia. (from orange book)

Taixiang, W. et. al. (2005). *Chinese medicinal herbs for chemotherapy side effects in colorectal cancer patients*, Cochrane Database System Review, January 25 (1): CD004540.

This study found the use of the Chinese herb Huang Qi (astragalus) to stimulate immunocompetent cells and decrease side effects of chemotherapy. It is stated that some studies included were of low quality, however, it also emphasizes that no evidence of harm arising from the use of Chinese herbs was found.

McCulloch, M., et.al. (2006). *Astragalus-based Chinese herbs and platinum-based chemotherapy for advanced non-small-cell lung cancer: a meta-analysis of randomized trials*. Journal of Clinical Oncology, January 20;24(3):419-30.

This study concluded that astragalus-based (huang qi) Chinese formulas may increase effectiveness of platinum-based chemotherapy.

Books:

Boik, J. (1995). *Cancer and Natural Medicine: A textbook of Basic Science and clinical research*. Oregon Medical Press, Princeton, MN.

This book offers a comprehensive look at conventional, naturopathic and TCM perspective on managing cancer treatment, including extensive research references.

Lotus Institute of Integrative Medicine/Chen, J. (2002). *Clinical Manual of Oriental Medicine: an integrative approach*. Lotus Institute of Integrative Medicine, Rowland Heights, CA.

highlight formulas include: C/R Support, CA Support, Bu Zhong Yi Qi Tang, Shi Quan Da Bu Tang.

This book is geared more toward the practitioner of TCM, but can serve as a good resource for patients and oncologists when considering the inclusion of TCM medicinals in cancer treatment protocols.

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Appendix B

Meng, C.F., Wang, D., Ngeow, J., Lao, L., Pererson, M., Paget, S. (2003). Acupuncture for chronic low back pain in older patients: A randomized controlled trial. *Rheumatology* 42 1508-1516.

- 1) Yes
- 2) Yes
- 3) Yes
- 4) Yes
- 5) Yes
- 6) Yes
- 7) Yes
- 8) The
- 9) N/A
- 10) Yes

Shen, J., Wenger, N., Glaspy, J., Hays, R.D., Albert, P.S., Choi, C. (2000). Electroacupuncture for control of myeloablative chemotherapy-induced emesis: A randomized controlled trial. *The Journal of the American Medical Association* 284. 2755-2761.

- 1) Yes
- 2) Yes
- 3) Yes
- 4) Yes
- 5) Yes
- 6) Yes
- 7) Yes
- 8) Yes
- 9) Yes
- 10) Yes

White, P.F., Issioui, T., Hu, J., Jones, S.B., Coleman, J.E., Waddle, J.P., et al. (2002). Comparative efficacy of acustimulation (RelifBand) versus ondansetron (Zofran) in combination with droperidol for preventing nausea and vomiting. *Anesthesiology* 97, 1075-1081.

- 1) N/A
- 2) Yes
- 3) Yes
- 4) Yes
- 5) N/A
- 6) Yes
- 7) Yes
- 8) No
- 9) N/A
- 10) Yes

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