

## ABSTRACT

### MANAGING CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING IN ONCOLOGY PATIENTS

By Jennifer H. Allain

Advanced practice nurses (APNs) play a key role in symptom management for cancer patients. Chemotherapy-induced nausea and vomiting (CINV) is one of the most distressing symptoms experienced by cancer patients and often continues to be uncontrolled even with the use of antiemetic medications. Advanced practice nurses can play a role in the integration of natural alternative complementary (NAC) therapies with conventional treatment for symptom management in cancer patients. The purpose of this study was to answer the research questions:

1. Are APNs assessing and treating CINV?
2. Are APNs knowledgeable about NAC therapies for CINV?
3. What specific interventions are APNs using for CINV?
4. Are APNs knowledgeable about acupuncture for CINV?

This study used the theory of comfort proposed by Katharine Kolcaba as a framework to assess the interventions nurse practitioners are using to ensure comfort in oncology patients. For nursing, the theory presents a holistic approach to symptom management.

The researcher used a descriptive design. The researcher used a convenience sample of 108 APNs in Minnesota and Wisconsin. Data were collected through a questionnaire asking about the preferred interventions for CINV, including acupuncture. The APNs' reasons for using the pharmacological and NAC therapy interventions were also explored.

Participants were asked about their interest in acupuncture as an alternative method for managing CINV. Data were analyzed using descriptive statistics and narrative analysis.

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IN ONCOLOGY PATIENTS

by

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## CHAPTER I

### INTRODUCTION

Chemotherapy-induced nausea and vomiting (CINV) remains among the most intolerable reported side effects of cancer treatment. Inadequate symptom management is a significant problem for U.S. health care providers. According to the American Cancer Society surveillance research for 2008, there is an estimated expectation of more than 1.4 million new cases of cancer diagnoses. The inadequate control of nausea and vomiting symptoms reduces a patient's quality of life and functional status and jeopardizes the delivery of optimal treatment. Thus, the management of these symptoms is imperative for oncology providers (Dibble, Israel, Nussey, Casey, & Luce, 2003; Ikeda et al., 2005; Miller & Kearney, 2004).

When treating people with high or moderate emetogenic chemotherapies, "gold standard" antiemetic therapy includes a 5HT-3 receptor antagonist like ondansetron (Zofran) or granisetron (Kytril) and a corticosteroid, such as dexamethasone (Miller & Kearney, 2004; Rubenstein, E., Slucher, B., Rojas, C., & Navari, R., (2006); Schwartzberg, 2007; Tipton et al., 2007). Despite conventional management approaches, evidence supports the fact that cancer patients do not receive relief of CINV, which may lead to discontinuation of chemotherapy treatments (Collins & Thomas, 2004; Dibble et al., 2003; Nystrom, Ridderstrom, & Leffler, 2008; Schwartzberg, 2007; Tipton et al., 2007). Inadequate relief of CINV becomes a very significant problem as it may delay or even hasten potentially life-saving conventional treatment interventions. Any appropriate intervention should be utilized and the APN plays a key role in bridging the gap between conventional treatment and NAC therapies.



Symptom management through the collaboration of these two approaches would lead to more individualized care for cancer patients, increasing compliance. This is significant because APNs can play a key role in symptom management.

Oncology APNs are in an ideal situation to become “symptoms experts” by asking critical questions in practice, identifying evidence-based interventions, applying those interventions in the clinical setting, and assessing the impact of the interventions (Tipton et al., 2007). Managing symptoms includes being knowledgeable about patients’ perceptions and desires about complementary or alternative therapy use.

Inadequate control of CINV has led to the use of NAC to control side effects or offer more control over the disease and treatment process (Barnes, Powell-Griner, McFann, & Nahin, 2004; Coss, McGrath, & Caggiano, 1998; Hyodo et al., 2003; Nahleh, & Tabbara, 2003; Singh, Maskarinec, & Shumay, 2005). Studies have shown 44% to 91% of patients with cancer have utilized NAC therapies for cancer treatment or symptoms management (Barnes et al., 2004; Cassileth & Deng, 2004; Coss et al., 1998; Nahleh & Tabbara, 2003; Yates et al., 2005). The understanding of patient perceptions of NAC should motivate the health care provider to seek information about this treatment modality and counsel its use.

Often cancer patients are using NAC and do not share information about their use with health care providers. Over half of patients surveyed have indicated they do not disclose their use of NAC because practitioners do not ask (Coss et al., 1998; Hyodo et al., 2005; Yates et al., 2005). The APNs’ advanced holistic assessment skills allow them to integrate a uniquely encompassing holistic approach to oncology care. A holistic approach may include NAC.

Health care provider's knowledge and acceptance of alternative therapies is crucial to full disclosure and discussion of these therapies with patients. Studies have indicated that APNs have a good general knowledge of NAC therapies, support and recommend NAC therapy use in their patients, and desire to learn more about NAC therapy (Cassileth & Deng, 2004; Hayes & Alexander, 2000; Nottingham, 2006; Sohn & Loveland, 2002). The knowledge and acceptance APNs have, as well as their holistic approach, places them in a key position to bridge the gap between alternative or complementary therapies and conventional treatments.

### Traditional Chinese Medicine

Traditional Chinese medicine (TCM) focuses on the body as a whole, encompassing physical, emotional, mental, and spiritual aspects as well as the ongoing interaction with the external environment. The physical, emotional, mental, and spiritual aspects are also included in the diagnosis of disharmony in the body and are used to treat the disharmony, similar to the holistic nursing approach. *Yin Yang* is the basis of TCM, with energy and matter as two extremes that are never static but continually changing in balance with each other. All phenomena have a *Yin* and *Yang* aspect (Cassileth & Deng, 2004; Manaka & Urquhart, 1973; Ross, 1994). Five basic elements interact in a creative cycle to form all substances and are identified with a body organ (Manaka & Urquhart, 1973, p. 37). The five basic elements are fire, water, earth, metal and wood. Fire is the most *Yang* and water the most *Yin*. Each of these five elements is assigned to at least one *Yin* and one *Yang* organ. For example, fire is assigned to the *Yin* organ heart as well as the *Yang* organ small intestine (Manaka & Urquhart, 1973).

Traditional Chinese medicine focuses on the framework of functional interactions concerned with the functional aspects of *Zang*, solid organs, and *Fu*, hollow organs, as well as the substances that run through them. The basic substances are *Qi* (Energy), *Xue* (Blood), *Jing* (Essence), *Shen* (Spirit), and *Jin Ye* (Body Fluids) (Ross, 1994). *Mai*, The Pulse or The Vessels, indicates the pulsating and rhythmic movement of the Substances in the vessels and directs the movement of *Qi* and *Xue* in the body.

*Qi* provides the dynamic force moving the substances through the vessels; *Xue* fills the vessels; and *Mai* is the system of vessels and the pulsation (Ross, 1994). Good health is considered a state of energy balance or harmony within the body, and disease as a state of imbalance or disharmony (Manaka & Urquhart, 1973; Ross, 1994). Disharmony is associated with three main disease factors in the body -- external (*Wai Yin*), internal (*Nei Yin*) and disease factors neither internal nor external (*Bu Nei Wai Yin*) (Ross, 1994).

Diagnosis of this disharmony may be done through palpation and assessment of pulse position, depth, quality and quantity; abdominal palpation identifying areas of increased sensitivity, and assessment of the tongue for characteristics of disharmony (Cassileth & Deng, 2004; Manaka & Urquhart, 1973; Ross, 1994). The signs are then classified into six main categories of disharmony: *Yin Yang*, *Eight Principles*, *Disease Factors*, *Substances*, *Jing Luo*, and *Zang Fu* (Ross, 1994).

Acupuncture points are chosen for the particular pattern of disharmony present in the patient. A particular needle sensation and manipulation appropriate for the disharmony pattern is also chosen (Ross, 1994).

Diagnosis in TCM is aimed at the clear perception of different Patterns of Disharmony in the patient's illness, the correct choice of point, and method of point use

(Ross, 1994). There are 365 acupuncture points, according to the *Nei Jing*, situated on 12 meridians that are internally connected to inner organs and externally related to the limbs and joints (Chuang, 1972). Treatment and education of the patient combine to relieve the disharmony.

Acupuncture as a complementary or alternative therapy has been proven effective in managing nausea and vomiting. Studies have shown efficacy in using acupuncture to manage nausea and vomiting in post-operative patients, as well as chemotherapy patients. A statistically significant decrease in nausea and vomiting is shown in studies using the *pericardium 6* (P6) point on the ventral aspect of the wrist (Collins & Thomas, 2004; Dibble et al., 2007; Ezzo, Streitberger, & Schneider, 2006; Josefson & Kreuter, 2003; Kim, Kim, & Kim, 2003; Nystrom et al., 2008).

Since acupuncture works for CINV, are APNs using it? The gap in literature is whether or not APNs are assessing for and managing CINV, as well as what types of treatments they are using to manage CINV in cancer patients.

### Purpose

The purpose of this study was to determine if APNs are assessing for CINV, if they are using NAC, and if they are achieving symptom management with their interventions. The purpose of the study was also to determine what pharmacologic and non-pharmacologic interventions are being used, with some specific questions about acupuncture. The researcher will also seek to determine if APNs incorporate acupuncture into their practice.

### Research Questions

1. Are APNs assessing and treating CINV?
2. Are APNs knowledgeable about NAC therapies for CINV?
3. What specific interventions are APNs using for CINV?
4. Are APNs knowledgeable about acupuncture for CINV?

### Problem Statement

There is inadequate symptom management as well as inadequate assessment of the use of NAC therapies in oncology patients receiving chemotherapy. Advanced practice nurses (APNs) are in a key position to integrate NAC therapies into the mainstream model through a holistic approach to patient care.

### Definitions of Terms

#### *Conceptual Definitions*

*Advanced Practice Nurse:* A registered nurse who has a current license to practice professional nursing in the state; is currently certified by a national certifying body approved by the board as a nurse practitioner, certified nurse-midwife, certified registered nurse anesthetist or clinical nurse specialist; the registered nurse holds a master's degree in nursing or a related health field granted by a college or university accredited by a regional accrediting agency approved by the board of education in the state in which the college or university is located (Wisconsin Department of Regulation and Licensing, 2004).

*Assessment:* An appraisal or evaluation of a patient's condition by a physician or nurse, based on clinical and laboratory data, medical history, and the patient's account of symptoms (Venes, 2001, p. 185).

*Treatment:* Any specific procedure used for the cure or the amelioration of a disease or pathological condition (Venes, 2001, p. 2230).

*Chemotherapy induced nausea and vomiting (CINV):* The subjective, unpleasant, wave-like sensation in the back of the throat, epigastrium, or abdomen that may or may not lead to the urge or need to eject stomach contents through the mouth caused by drug therapy used to treat infections, cancers and other diseases and conditions (Venes, 2001, p. 393, 1432, 2335).

*Knowledgeable:* To have the presence or acquisition of cognitive information related to a specific topic (Venes, 2001, p. 1181).

*Natural alternative complementary therapies:* A group of diverse medical and health care systems, practices and products that are not presently considered to be part of conventional medicine (National Institutes of Health, 2002).

*Interventions:* One or more actions taken in order to modify an effect (Venes, 2001, p. 1128).

*Acupuncture:* A technique for treating painful conditions, producing regional anesthesia, or preventing future disease by passing long thin needles through the skin into specific points on the body (Venes, 2001, p. 38).

### *Operational Definitions*

*Advanced Practice Nurse:* An advanced practice nurse (APN) who is currently a member of the Oncology Nursing Society (ONS) and lives in the Midwest in the United States.

*Assessment:* An oncology APNs' appraisal or evaluation of an oncology patient's symptoms associated with receiving chemotherapy.

*Treatment:* The pharmacologic, nursing or natural alternative complementary therapies used for management of chemotherapy-induced nausea and vomiting in oncology patients receiving chemotherapy.

*Chemotherapy- induced nausea and vomiting (CINV):* An uncomfortable symptom experienced by some oncology patients receiving chemotherapy treatment that can be classified as acute, delayed, or breakthrough.

*Knowledgeable:* A subjective determination made by an oncology APN about the management of CINV.

*Complementary or alternative therapies:* Treatment modalities identified by oncology APNs for the management of CINV in oncology patients receiving chemotherapy that are not part of conventional medicine.

*Interventions:* One or more actions taken by oncology APNs to manage or prevent CINV in oncology patients receiving chemotherapy.

*Acupuncture:* The *pericardium 6* (P6) point on the ventral aspect of the wrist associated with disharmonies of *Xin Bao* the sixth *Zang* or *Yin* organ system in Traditional Chinese Medicine (TCM) (Ross, 1994), and other points that may be used for treatment of CINV.

### Assumptions

The assumptions of this study coincided with the assumptions underlying the theory of comfort, based on the overall assumption that APNs seek to provide comfort for their patients through symptoms management. This may include alternative therapies.

1. Human beings respond to complex stimuli as a whole mentally, physically, and emotionally (Kolcaba, 2003).
2. Comfort is a desirable holistic outcome that is germane to the discipline of nursing and human beings strive to meet or have their basic comfort needs met (Kolcaba, 1994).
3. The nursing obligation is to provide holistic care to assist the patient in achieving comfort.

### Summary

CINV remains one of the most feared symptoms associated with treatment for cancer even with pharmacologic advancements. The purpose of this study was to assess if APNs are routinely asking about CINV in cancer patients and whether they are using pharmacologic or NAC therapies for symptom management. There is a clear gap in the literature as to whether APNs routinely assess patients for CINV or their use of NAC therapy. There is also little information available about APNs using other interventions for CINV, specifically acupuncture.



## CHAPTER II

### THEORETICAL FRAMEWORK AND LITERATURE REVIEW

#### Theoretical Framework

The purpose of this study was to determine whether advanced practice nurses (APNs) assessed for chemotherapy induced nausea and vomiting (CINV) and, if so, the types of pharmacologic and non-pharmacologic methods they were using. In addition, participants offered their reasons for using these methods. Additionally, the study determined whether APNs were using acupuncture as an alternative therapy for CINV, as well as their reasons for or against using this method. The author used the theory of comfort by Kolcaba (1994) as the theoretical framework to determine whether APNs identified alternative or complementary therapies and used them as a holistic approach for CINV in their cancer patients. Kolcaba (2003) provides three assumptions for the theory of comfort:

1. Human beings respond to complex stimuli as wholes mentally, physically and emotionally.
2. The whole response is greater than what would be expected by examining separate responses to separate stimuli and adding together the effects of those responses.
3. Whole persons do not disappear into even larger wholes.

#### *Comfort*

Kolcaba (2003) defines four nursing concepts in the theory of comfort - nursing, patient, environment, and health. Nursing is defined as the intentional assessment of comfort needs of patients, families, or communities. The nursing profession also

designs comfort measures to address comfort needs, including reassessment of the patients', families', or communities' comfort level after implementation of comfort measures. The researcher used these definitions as a base for the study, assuming oncology APNs assess and design for the comfort needs of oncology patients receiving chemotherapy.

Patient is defined as an individual, family, or community in need of health care, including primary, tertiary, or preventative care. In this study, the researcher used the patient definition to assume that oncology patients are in need of one of these forms of health care.

Environment is defined as aspects of patient, family, or community surroundings that affect comfort and can be manipulated to enhance comfort. In this study, environment included pharmacological and natural alternative complementary (NAC), therapies APNs used to manage chemotherapy-induced nausea and vomiting (CINV).

Health is defined as optimum function of a patient, family, or community facilitated by enhanced comfort (Kolcaba, 2003, p. 68). In this study, optimum function was the desired outcome for oncology patients receiving chemotherapy.

### *Comfort Measures*

Comfort entails three types of comfort measures -- technical comfort measures, coaching, and comfort food for the soul (Kolcaba, 2003). Technical comfort measures are designed to maintain homeostasis or manage symptoms like nausea and vomiting. Technical comfort measures included antiemetic treatment to help maintain physiologic functioning and prevent CINV.

Coaching includes comfort measures designed to relieve anxiety, provide reassurance and information, instill hope, listen, and help plan realistically for recovery,

integration, or death, in a culturally sensitive way (Kolcaba, 2003, p. 84). Comfort food for the soul includes comfort measures that are unexpected by the patient, but entail old-fashioned and basic nursing care (Kolcaba, 2003).

In this study, comfort food for the soul included NAC therapies used for management of CINV. Comfort foods discovered in this study include, but are not limited to, ginger, aromatherapy, massage, and acupressure. Kolcaba's (2003, p. 85) theory of comfort also has six propositions:

1. Nurses identify patients' comfort needs that have not been met by existing support systems.
2. Nurses design interventions to address those needs.
3. Intervening variables are taken into account in designing interventions and determining whether they have probability for success.
4. If the intervention is effective and delivered in a caring manner, the immediate outcome of enhanced comfort is attained. Comfort care entails these three components.
5. Patients and nurses agree upon desirable and realistic healthy-seeking behaviors (HSBs).
6. If enhanced, comfort is achieved; patients are strengthened to further engage HSBs, which further enhances comfort.

### Theory Application

The propositions can be applied to this study using the APNs' approaches to CINV in their patients. APNs identify comfort needs by assessing whether patients have

CINV, if patients are using NAC and other therapies, and whether these therapies are relieving their symptoms. Advanced Practice Nursees also support these propositions if they are knowledgeable about NAC and other therapies for their cancer patients, and if they use these therapies to provide symptom relief or comfort for patients. Advanced Practice Nurses' knowledge of access to different types of treatment interventions is also a part of the propositions, for example, knowing if acupuncture is available locally, if the provider is a quality provider, or if the intervention is affordable for the patient. The attainment of comfort allows the patient to practice health seeking behaviors (HSBs), continue chemotherapy treatment, or possibly not continue, and thus maintain comfort. The patient and APN can work together to determine the best approach for that patient to control CINV and maintain comfort whether it be conventional treatment or NAC therapies.

#### Case Study Application

A 56-year-old female patient presents to the clinic with complaints of nausea after her chemotherapy treatment. The chemotherapy side effect, nausea, alters the patient's comfort. The APN identifies this alteration in comfort as a health care need. The APN assesses the symptom subjectively and objectively to determine if the patient needs an intervention to provide comfort. The patient is prescribed an antiemetic, provided a quiet, darkened environment in which to relax, and interventions to prevent nausea in the future are discussed with the patient. Discussion of interventions for the future allows for external health-seeking behavior by the patient.

After the next treatment, the APN reassess the patient's symptoms and the patient continues to complain of nausea, which is not being relieved by the current

treatment interventions. The APN and patient determine another intervention is needed to fully achieve symptom relief and comfort. They decide a more holistic approach may be needed, which will include acupuncture to control her nausea after chemotherapy treatment. The APN finds a local acupuncturist, researches the provider to verify he/she is a quality provider, and ensures it is affordable for the patient, taking into account the possible intervening variables. The patient practices her external health seeking behaviors by following the referral of the APN to an acupuncture provider. The patient returns to the clinic after her next treatment without any complaints of nausea and continues conventional treatment. The APN determines with the patient that comfort has been enhanced and they will continue the current treatment plan.

The theory of comfort guided the nurse practitioner through the assessment and management of CINV. Attainment of comfort for the patient occurred after need and nursing interventions were determined along with the intervening variables. The APN's reassessments of the nursing intervention lead to an alternate approach to provide comfort for the patient. The NAC therapy provided comfort for this patient, which led to the continuation of conventional treatment and HSBs.

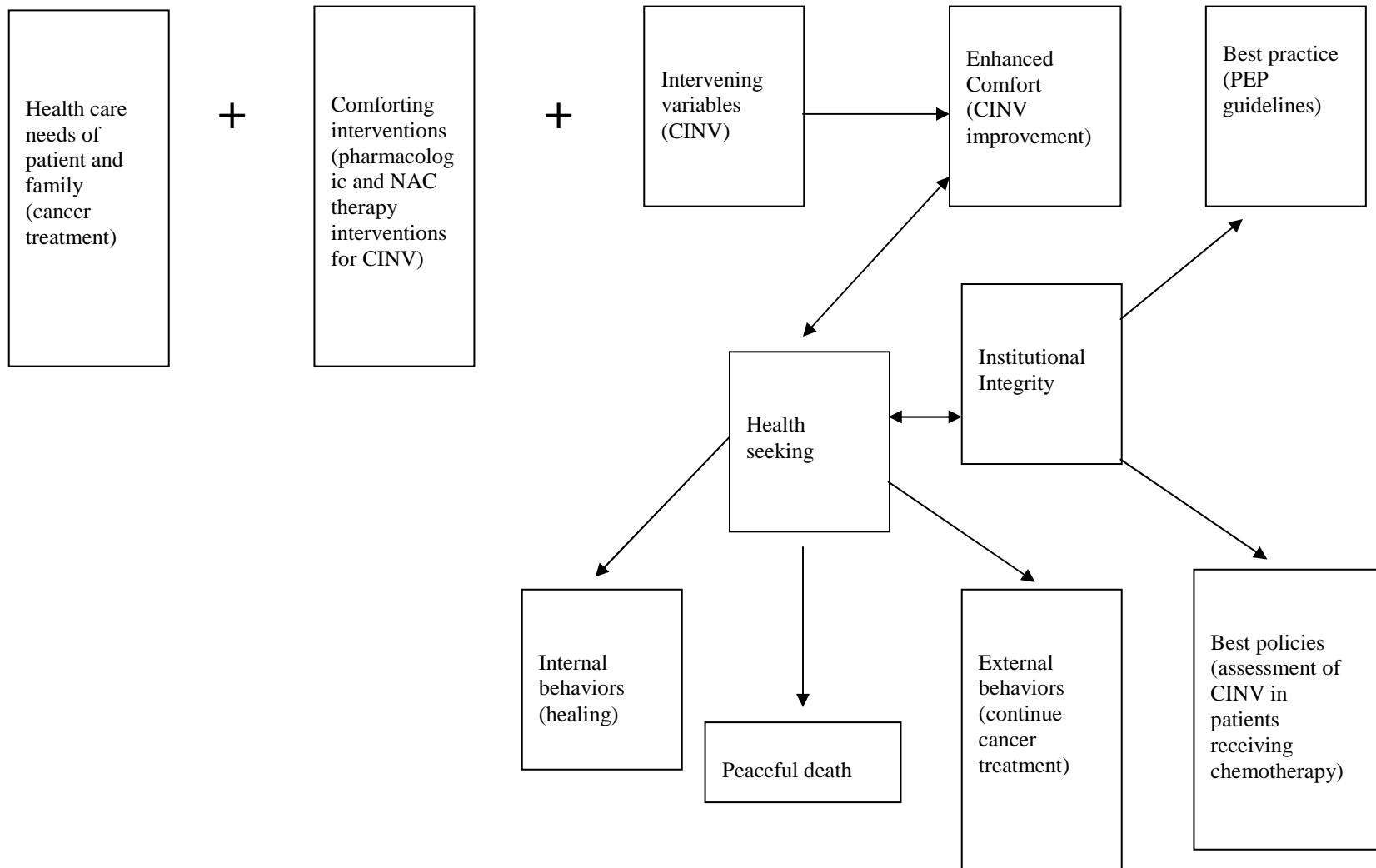


Figure 1. Theoretical framework for chemotherapy-induced nausea and vomiting study (Kolcaba, 2007).

## Review of Literature

### *Nausea*

Nausea is defined as, “an unpleasant subjective sensation that results from stimulation of the medullary vomiting center that may precede or accompany vomiting” (Porth, 2005, p. 885). The chemoreceptor trigger zone (CTZ) located in the brain is thought to mediate the emetic effect of toxins and drugs in blood (Porth, 2005; Schwartzberg, 2007). The CTZ may also be stimulated by factors including fullness in the stomach or intestinal tract, dizziness, sights, smells, thoughts, anxiety, or fear. The neurotransmitters dopamine and serotonin also have been linked to nausea.

Stimulation of the CTZ by chemotherapy drugs is the main causative factor for nausea in people undergoing cancer treatment. Nausea associated with chemotherapy treatment has been further classified into four categories - anticipatory, acute, delayed, and breakthrough.

### *Nausea Classification*

Anticipatory nausea is described as the phenomenon of being nauseated without a physical reason for the event. For example, becoming nauseous on the car ride to the clinic before a chemotherapy treatment or becoming nauseous from the sight of a particular person associated with the chemotherapy treatment.

Acute nausea may occur within the first few minutes after chemotherapy administration or hours after the treatment has been completed, but usually resolves within 24 hours. For example, becoming nauseous during the chemotherapy treatment or even four hours after the treatment is completed.

Delayed nausea occurs 24 hours after the chemotherapy treatment, with a peak 24 to 48 hours after treatment that may last six to seven days after treatment is

completed (Schwartzberg, 2007; Tipton et al., 2007). For example, becoming nauseous the day after chemotherapy treatment up to one week after the treatment is complete would be considered delayed nausea.

Breakthrough nausea occurs despite prophylactic antiemetic treatment (Schwartzberg, 2007; Tipton et al., 2007). For example, becoming nauseous despite receiving an antiemetic medication prior to chemotherapy treatment or after chemotherapy is completed.

### *Pharmacological Interventions*

The “gold standard” for CINV control is recognized as a 5HT-3 receptor antagonist in combination with a corticosteroid (Dibble, et al., 2003; Ikeda et al., 2005; Schwartzberg, 2007; Tipton et al., 2007; Vrabel, 2007). First generation 5HT-3 receptor antagonists like ondansetron (Zofran), dolasetron (Anzemet), and granisetron (Kytril) are the most effective treatments for CINV (Ikeda et al., 2005; Vrabel, 2007). When used in combination with corticosteroids, such as Dexamethasone, 5HT-3 receptor antagonists work more effectively than when used alone (Ikeda et al., 2005; Schwartzberg, 2007; Vrabel, 2007). The newer 5HT-3 receptor antagonists, like palonosetron (Aloxi), also are very effective with a longer duration of action for delayed CINV (Schwartzberg, 2007). Aprepitant (Emend) is a newer antiemetic that works to prevent acute and delayed CINV (Schwartzberg, 2007; Tipton et al., 2007).

Protocols for the most efficient CINV control are well-documented through studies of efficacy; but even with this pharmacologic management, over half of the people receiving chemotherapy still experience CINV (Collins & Thomas, 2004; Miller & Kearney, 2004; Schwartzberg, 2007; Tipton et al., 2007). Tipton (2007) discusses the Putting Evidence into Practice (PEP) Guidelines introduced by the Oncology Nursing



Society (ONS). Recommendations are divided into groups based on the type of CINV experienced and the emetogenicity of the chemotherapy administered. Acute or delayed nausea should be treated with a 5HT-3 receptor antagonist (palonosetron, granisetron, ondansetron, and dolasetron), a corticosteroid (dexamethasone), an NK-1 receptor antagonist (aprepitant), and a benzodiazepine (lorazepam) (Tipton, 2007). This treatment regimen is similar for highly and moderately emetogenic chemotherapy. With a low emetogenic chemotherapy the guidelines recommend either no antiemetic or a corticosteroid (dexamethasone), a phenothiazine (prochlorperazine), substituted benzamide (metoclopramide), and a benzodiazepine (lorazepam). To treat breakthrough or intractable CINV the guidelines recommend, as discussed above, a corticosteroid, 5HT-3 receptor antagonist, phenothiazine, substituted benzamine, butyrophenones, benzodiazepines, cannabinoid, and olanzapine (Tipton, 2007).

A longitudinal descriptive study by Dibble, et al. (2003), using 303 breast cancer patients, during two cycles of chemotherapy ranging from 21 to 28 days, showed delayed chemotherapy-induced nausea and vomiting (CINV) despite use of “gold standard” antiemetic treatment.

The antiemetics, dexamethasone (80%), ondansetron (49%), granisetron (24%), and tropisetron (17%) were those most commonly used; yet more than half of the participants still experienced nausea during both cycles of chemotherapy on days two, three, and four of the cycle (Dibble, 2003).

Participants were asked to complete a patient information demographic questionnaire, a disease and treatment questionnaire, and a daily log with a three-item nausea experience subscale from Rhodes Index of Nausea, Vomiting, and Retching (INVR). These items measured the amount of time (in hours) that women experienced

nausea, the distressed produced by the nausea, and the total number of times per day nausea occurred. Participants recorded daily logs for two cycles of chemotherapy, which was approximately 2 months duration. A delayed nausea scale (DNS) was created by summing the nausea subscale of the INVR for days 2 through 11 of the chemotherapy cycle. The mean delayed nausea score (DNS) during the first data collection period or the first cycle of chemotherapy was 17.1 (SD 16.9, range 0 to 101,  $n = 265$ ), and the mean DNS during the second period or the second cycle of chemotherapy was 18.0 (SD 20.6, range 0 to 111,  $n = 252$ ) (Dibble, 2003). Scores on the DNS could range from 0 to 120.

The strengths of this study include the longitudinal design for complete assessment through two cycles (2 months) of chemotherapy and comparison of emetic control throughout both cycles. The weakness of the study was the homogeneous sample of women with breast cancer, limiting generalizability of the results, also the wide range in scoring.

Ikeda et al. (2005) conducted a Phase II study using 30 patients with advanced or recurrent colorectal cancer receiving combined chemotherapy with Irinotecan (CPT-11) and UFT (a 5-FU prodrug). The participants received intravenous CPT-11 on days 1 and 15 while receiving oral UFT in between. Patients received 8 mg betamethasone and 3 mg granisetron by intravenous (IV) before and 3 mg granisetron IV immediately after CPT-11 administration on days 1 and 15. Patients also received ursodeoxycholic acid, metoclopramide, magnesium oxide, and sodium hydrogen carbonate after every meal on days 1 through 4 and days 15 through 18 as additional prophylaxis.

Participants were observed for a total of 12 days for signs of delayed nausea and vomiting. In cycle one only IV granisetron was administered; however, in cycle two oral

granisetron was administered, as well. Chemotherapy-induced gastrointestinal symptoms were observed in 53.3% of participants after receiving CPT-11.

Administration of oral granisetron, a 5HT-3 receptor antagonist, did not bring about a statistical improvement in loss of appetite and nausea.

The weakness of this study was the use of a homogenous sample limiting the generalizability of the results. The strengths include similarity of the results of CPT-11 gastrointestinal effects with other studies including Koeller et al. (2002) and Tsavaris et al. (2000). Protocols for the most efficient CINV control are well documented through studies of efficacy; but even with this pharmacologic management, over half of the people receiving chemotherapy still experience CINV (Collins & Thomas, 2004; Miller & Kearney, 2004; Schwartzberg, 2007; Tipton et al., 2007).

#### *Natural Alternative Complementary Therapy*

Natural alternative complementary therapy (NAC) has been defined as a broad domain of healing resources encompassing all health systems, modalities and practices with their accompanying theories and beliefs, not in the dominant health system (Coss, et al., 1998; Hyodo et al., 2005; Mansky & Wallerstedt, 2006). Barnes, Powell-Griner, McFann & Nahin (2004) conducted a study using the 2002 U.S. civilian non-institutionalized population, completing 31,044 computer-assisted personal interviews (CAPI) of adults age 18 years and over. Overall, 62% of the population reported using some form of NAC within the last 12 months. 26% percent of people used NAC as a recommendation from a medical professional and 28% felt conventional medical treatments would not help them.

The strength of this study was the large heterogeneous sample allowing generalization of the results. The weakness was the possible limited depth of the study

as computer-assisted personal interviews were used on a very large number of participants.

Cancer patients often search for relief of symptoms caused by conventional cancer treatment such as chemotherapy. Patients have turned to alternative therapies to find relief from these symptoms, which may improve adherence to conventional treatment regimens and provides a sense of control over their disease process (Hyodo, et al., 2005; Nahleh & Tabbara, 2003; Singh, Maskarinec & Shumay, 2005; Yates, et al., 2005). NAC therapies have also been shown to be used in combination with conventional therapies to alleviate side effects of conventional chemotherapy treatment and provide a holistic treatment approach (Barnes et al., 2004; Singh et al., 2005).

Yates et al. (2005) conducted a cross-sectional retrospective study surveying 752 patients 2 weeks after completing chemotherapy and /or radiation therapy to determine what NAC modalities they used during treatment. 91% (n = 686) of the patients used at least one form of NAC while only 57% (n = 388) discussed this use with their oncologist or primary physician. Prayer, relaxation, and exercise were the most commonly used forms of NAC, but imagery, massage, and acupuncture were also utilized by the participants. These numbers suggest that the health care providers need to understand the rate and type of NAC used in patients undergoing chemotherapy, understand the influence of this use on the conventional treatment process, and seek training to properly advise and counsel patients regarding NAC. The weakness of this study lies in the sample demographics. The sample was 94% White and over 50% were older than 60 years. A larger, more ethnically diverse group of varying ages would have increased the generalizability. The strengths of the study include the survey distribution maintaining confidentiality and allowing unbiased answers to the questions.

Similar studies have been undertaken to determine NAC therapy use in other countries. A questionnaire distributed in Japan ( $n = 3,461$ ) found similar results as Yates et al. (2005). The rate of NAC therapy use in cancer patients was significantly higher than non-cancer patients ( $p < .0001$ ). More than half of the patients (57.3%) started NAC therapy without obtaining enough information on it and two thirds of the patients (60.7%) never consulted their physicians about NAC therapy use. The main reason cited for this omission, in 56.1% of the patients, was that their physician did not ask. Most of the patients (84.5%) had not been asked about NAC therapy use by their physician (Hyudo et al., 2005). The large sample size provides strength for the results of this study.

A weakness is that the sample was not ethnically diverse. This may also limit generalization of results and offer bias as the culture in Japan may have a more holistic approach to health.

### *Acupuncture*

Acupuncture has been proven to be effective in the management of post-operative nausea and vomiting (PONV) as well as CINV (Choo et al., 2006; Collins et al., 2004; Ezzo et al., 2006; Josefson & Kreuter, 2003; Kim et al., 2003; Nystrom et al., 2008). The most common acupuncture point used in these studies is the pericardium 6 (P6) point on the ventral aspect of the wrist and the pericardium 6 (PC6) point on the ear. (Choo et al., 2006; Ezzo et al., 2006; Josefson & Kreuter, 2003; Kim et al., 2003; Nystrom et al., 2008; Streitberger, & Schneider, 2006).

An experimental study by Kim et al. (2003) randomly and equally assigned 100 females undergoing a trans-abdominal hysterectomy to a treatment or control group. The treatment group received acupuncture at four ear points: *sympathetic*, *stomach*,

*shinmoon, and occiput*. The control group received no treatment. Patients were sent to the post-anesthesia recovery room and ward. In the ward the patients were watched for 12 hours and any act of vomiting, including dry retching, was regarded as postoperative emesis. The incidence of postoperative emesis was recorded by one of the researchers during the study period. A significant difference was noted between the control group (68%) and the treatment group (30%) in the incidence of vomiting for the first 12 hours after surgery ( $p < 0.01$ ). This study's weakness is in the homogeneous sample. Error of leniency may also have been a weakness as observers may have rated things more positively because they were administering the treatment. Ezzo et al. (2006) supported this finding using a Cochrane review to examine the effectiveness of acupuncture for PONV.

Acupuncture has support for CINV. Nystrom et al. (2008) performed a prospective observational pilot study using 12 palliative care patients suffering from nausea and 4 nausea-free patients as participants to determine whether PC6 acupuncture could complement pharmacological treatment. The participants were asked to rate their intensity of nausea, pain, and constipation on a 0 to 10 point numerical rating scale (NRS), where 0 indicated no nausea or pain and ten indicated the worst nausea or pain imaginable. Constipation was rated on a scale of zero to two, where zero indicated no constipation, one moderate, and two troublesome. Ratings were done prior to insertion of the acupuncture needle. Participants received 10 acupuncture treatments in their home or at the advanced home health care site in Solna Sundbyberg, Sweden (ASIH) two or three times a week, with two follow up assessments the following week. Fifteen of the 16 completed the study, and 11 of those reported nausea despite antiemetic acupuncture treatment. Before acupuncture, a median

nausea intensity of 4.5 (with a range of 1 to 9) was reported using a point numerical rating scale of 0 to 10, with 0 indicating no symptoms and 10 indicating the worst symptoms imaginable. Before the tenth treatment of acupuncture there was a significant decrease in report of nausea intensity ( $p < 0.01$ ) (Nystrom et al., 2008).

Limitations of the study include the small sample size and the homogenous sample of 12 female participants and a wide range of scores for a small sample. The strength was that the investigators were specially trained to administer the acupuncture. The results may have been biased because the investigators also did the assessments of the treatment effect.

Josefson et al. (2003) conducted a similar study with 39 patients undergoing chemotherapy for rheumatic disease using a pretest-posttest design. They found decreases in the severity of nausea at 24 and 48 hours after acupuncture treatment using the PC6 ('*Neiguan*') and /or two acupuncture points in the ear, the '*lung*' and '*liver*' points ( $p < 0.0001$ ). There also was a significant difference after 72 hours ( $p < 0.0106$ ). The mean number of bouts of vomiting was 3.3 at the start of chemotherapy and after 24, 48, and 72 hours without acupuncture compared to 0.6 with acupuncture ( $p < 0.0035$ ).

Josefson et al. (2003) yielded similar results when comparing two occasions of treatment close in time with a significant difference in severity after 24 hours ( $p < 0.0001$ ), after 48 hours ( $p < 0.0003$ ), and after 72 hours ( $p < 0.0254$ ). The number of bouts of vomiting was also significantly reduced ( $p < 0.0007$ ) when patients were treated with acupuncture (Josefson et al., 2003). This study might be biased because the pretest-posttest design predisposes participants to the nausea measurement rating before the acupuncture treatment weakening the results, but a pilot study was conducted

to ensure accuracy. Acupuncture was given by the researchers, which is another weakness in the method of the study.

Electroacupuncture has also shown promising results for treatment of CINV using the PC6 point and the stomach 36 (ST36) point located below the knee. Electrical stimulation was delivered 10 minutes before the start of chemotherapy in 27 patients (Choo et al., 2006). Ten patients (37.0%) had complete response and no vomiting after the second cycle of chemotherapy and 26 (96.3%) developed significantly less acute nausea and vomiting. The patients were consecutively chosen and received their first dose of bolus high and moderately emetogenic chemotherapy. Each patient received the “gold standard” antiemetic regimen, filled out a questionnaire before acupuncture, as well as a vomit diary. An interview was conducted after the chemotherapy to assess the degree of CINV using a Common Toxicity Criteria (CTC) grading scale ranging from zero to four for nausea and vomiting. The scale classifies ratings in relation to the number of vomiting episodes after chemotherapy and the severity of nausea, with zero being none and four requiring hospitalization. The grade on the CTC scale was statistically significant for the group that received electroacupuncture. Improvement ( $p < 0.0001$ ) in nausea symptoms was shown because 50% of patients had a grade three or four the first cycle and only 19% the second cycle after the addition of electroacupuncture ( $p=0.012$ ) (Choo et al., 2006). This study's weakness was the sample received a certain chemotherapy protocol limiting generalizability of results. The participants were all female, receiving their first chemotherapy treatment, and 26 were Chinese. This may have caused bias if they strongly believe in this treatment as part of their culture, thus a placebo group would have strengthened the data as well.



*Advanced Practice Nurses and Complementary or Alternative Therapy*

Studies supporting acupuncture as treatment for CINV led to The National Institutes of Health (NIH) supporting the use of acupuncture for chemotherapy-induced nausea (Dibble et al., 2003, & NIH, 1997). This national endorsement supports the importance of acupuncture as a NAC therapy and APNs need knowledge in this area.

Many patients feel that knowledge of NAC therapies is essential for health care providers to have and that access to it should be part of standard cancer treatment (Coss et al., 1998). With the holistic nursing approach to patient care, discussion about NAC therapies could be made part of the routine assessment. Discussion could allow for more informed decisions regarding potentially beneficial and harmful NAC therapy approaches (Nahleh & Tabbara, 2003).

Studies support that nurse practitioners are given a brief overview of NAC therapies in their advanced education process, but not enough to help support patient choices or provide evidence for use (Hayes & Alexander, 2000; Nottingham, 2006; Sohn & Loveland, 2002). Studies have indicated the importance of having knowledge of alternative therapy and the importance of this knowledge to clinical practice. Nottingham (2006) stated nurse practitioners should be aware of the current literature regarding NAC modalities and should be ready to defend its use.

Sohn & Loveland (2002) used a cross-sectional, descriptive design with 200 nurse practitioners (NPs) registered with the board of nursing in Missouri and 200 in Oregon. Participants were selected using a table of random numbers. A self-administered questionnaire was used to determine the NPs' knowledge about NAC therapies. Of these, 151 (37.7%) returned the surveys. The NP knowledge about NAC therapies was measured on a 5-point Likert scale. They were most knowledgeable

about massage therapy, chiropractic care, meditation, therapeutic touch, and nutritional therapy. Some of the NPs (54%) reported receiving training in therapies outside of their NP program. Three out of every five NPs expressed interest in learning more about NAC therapies with interest in herbal therapy (60.1%), nutritional therapy (44.9%), acupuncture/acupressure (38.9%), and massage therapy (36.2%). The results indicated that 83% (n=122) had recommended the use of NAC to their patients.

Comparative analysis between Oregon and Missouri participants indicated that differences exist in community availability of NAC therapy and knowledge base of NAC therapy. Only 20.1% of Oregon NPs and 28.0% of Missouri NPs learned about therapies in formal NP educational programs (Sohn & Loveland, 2002). This study has weakness due to the homogeneous sample. The sample had 140 females and 144 participants were White, which limits generalizability. The strength of the study is in the randomly selected sample and the self administered questionnaire allowing unbiased responses.

The Connecticut Nurse Practitioner Group, Inc. (CNPGI) surveyed 284 members using the Office of Alternative Medicine's (OAM) list of alternative therapies. This list was used to enhance content validity of the surveys (Hayes, 2000). Completed surveys were returned by 202 (73%) CNPGI NPs who identified themselves as knowledgeable about alternative therapies in general. Almost two thirds (n=132; 65%) indicated they had referred patients or recommended the use of alternative therapies specifically. Forty-three (21.3%) recommended acupuncture. The reasons noted for these referrals were grouped into categories: pain, stress, general health, mental health, and specific conditions like cancer. Although the referral and recommendation rate is high, only 38.6% (n=78) sometimes asked about use and 31.2% (n=63) rarely asked about use.

Of the 186 who answered questions about their physician colleagues' openness to this approach, 33.2% (n=67) described them as open and 25% as not open. When discussing readiness to learn more about these therapies, 24.8% were extremely interested and 39.6% were quite interested. Interest specifically in acupuncture was 28.2% (Hayes et al., 2000). A weakness for this study is the homogenous group of nurse practitioners possibly causing a biased response and limiting generalizability. Also, most of the women were of European-American descent limiting ethnic diversity in the group. A majority of the practitioners worked in an urban setting possibly biasing the results. The strength is in the large sample size from three different states and the use of the OAM's list of alternative methods for content validity.

### Summary

The literature supports a need for adequate control of chemotherapy-induced nausea and vomiting (CINV) in cancer patients in order to provide continuity of conventional treatment regimens and promote overall comfort. The numerous pharmacologic approaches seem to continually fall short of expectations for control of this common symptom. Studies have supported patients' desires for the bridge between conventional medicine and complementary therapies. APNs have an interest in complementary therapies and practice a holistic patient approach to bridge this gap. Bridging this gap would provide better care for the patient and contribute to the progression of conventional therapy.

The author presented the theory of comfort (Kolcaba, 1994) as the theoretical framework for this study. The theory of comfort provides an application for a holistic approach towards symptom management in oncology patients by APNs. A holistic

approach to cancer patient care would include assessment of symptoms associated with chemotherapy side effects and treatment of these symptoms.

A gap exists in the literature surrounding the APNs' assessment of complementary and alternative therapy use, as well as the preferred interventions for CINV used by APNs, including their use of acupuncture. Identification of this vital information will allow for correlations between the interventions used and their reasons for using these interventions.

## CHAPTER III

### METHODOLOGY

#### Research Design

The purpose of this study was to determine if providers are assessing for CINV as well as NAC use and if they are achieving symptom management with their interventions. The purpose was also to determine what pharmacologic and NAC interventions are being used, with a concentration on acupuncture. The researcher wanted to determine the APNs' desires to incorporate acupuncture into their conventional practice. Information for this study was gathered using a descriptive design. This design allowed for identification of the preferred interventions for CINV and the reasons for choosing the interventions as well as knowledge about complementary or alternative therapy.

The participants for the study were APNs in Minnesota and Wisconsin who were members of the Oncology Nursing Society (ONS). Selection bias may have been a threat to the internal validity of this study. The generalizability of the result may have been limited because the sample was very homogenous. The sample was APNs from only two states in the Midwest, United States, so generalization of these results to all APNs currently practicing in oncology across the United States is not possible.

#### Population, Sample and Setting

The target population was APNs working with cancer patients receiving chemotherapy who have CINV. The researcher obtained a convenience sample of APNs in Minnesota and Wisconsin who were members of the ONS. A mailing list order

form was obtained by e-mailing ONS and inquiring about a list of APNs who practice in oncology in the states of Wisconsin and Minnesota.

A Perquisite List Rental Request was mailed to ONS with the required fees. The researcher obtained a list of ONS members who fit the inclusion criteria for the study. The list included members of the ONS in Minnesota and Wisconsin who had provided their preferred address to the ONS for mailing purposes. Inclusion criteria for the study was that the participants were registered APNs in Minnesota and Wisconsin who were members of the ONS.

#### Data Collection Instrument

The researcher developed a questionnaire with demographic questions, questions about pharmacologic interventions, the reasons for using these interventions, and knowledge of guidelines. The researcher had to develop a questionnaire because there was not an available tool suitable for the study. The questionnaire also inquired about the non-pharmacologic interventions used, including acupuncture and the reasons for using these interventions (Appendix A). The researcher also asked whether the participants had a desire to learn more about acupuncture as a treatment for CINV. Participants were asked if they had received any formal education about acupuncture or if they wished to receive this education. They were also asked about their knowledge level in relation to acupuncture for CINV. The questionnaire allowed for unbiased, honest responses to the questions and ensured confidentiality because the participants filled them out in the privacy of their own homes. Response bias was possible as the participants were limited to members of the ONS.

### Data Collection Procedures

The researcher obtained IRB approval. Approximately 100 questionnaires were distributed by mail to the participants' preferred addresses with self-addressed stamped envelopes (SASE) to return the completed questionnaire. The questionnaires were accompanied by an information sheet (Appendix B) describing the specifics of the study so that participants could make an informed decision on whether to complete the survey. Two lists of names on mailing labels were purchased to allow for a second mailing if needed. Participants had the option to refuse to participate in the study by returning their questionnaire after checking the box, "I would not like to participate in this study" on the information sheet. The list of names and addresses was shredded after data collection was complete.

Data were analyzed using descriptive statistics. Categories were formed using the National Center for Complementary and Alternative Medicine (NCCAM) system for categorizing complementary and alternative therapies and the narrative answers were divided into the appropriate categories for analysis. Narrative answers were then tallied in a spreadsheet document and analyzed using descriptive statistics.

### Summary

The descriptive design used for this study offered optimal data collection and material for analysis to answer the research questions:

1. Are APNs assessing and treating CINV?
2. Are APNs knowledgeable about complementary or alternative therapies for CINV?

3. What specific interventions are APNs using for CINV?
4. Are APNs knowledgeable about acupuncture for CINV?

A sample of 108 APNs who are members of the ONS was used. A questionnaire (Appendix A) was administered via mail with a SASE. The returned questionnaires were analyzed using descriptive statistics and narrative analysis to answer the research questions.



## CHAPTER IV

### FINDINGS AND DISCUSSION

Questionnaires were distributed via postal service accompanied by a SASE. Data collection began in November 2008, and continued through December 2008. A total of 108 questionnaires were distributed to APNs in Minnesota and Wisconsin who were listed as members of the ONS. Of these 108 questionnaires, 33% (n=36) were returned of which 23% (n=25) met criteria. The remaining 10% (n=11) were not used (10 did not wish to participate in the study and one no longer worked with oncology patients receiving chemotherapy). The data received in the valid questionnaires were analyzed using descriptive statistics and narrative analysis with tabulation of open-ended question responses.

#### Demographic Data

Descriptive analysis of the demographic data showed 100% (n=25) of the respondents were female. The age of respondents ranged from 26 to 59 years old, mean 43 (SD=10). Table I shows the remaining demographic characteristics.

Table 1

#### *Demographics*

Practice Type in Years	Range	Mean	SD
Nursing	3 – 34	21.9	12.6
Oncology Nursing	2 – 34	11.0	12.9
Advanced Practice Nursing	0.5 – 33	8.9	7.2
Advanced Practice Oncology	0.3 – 20	4.7	4.1

The highest degrees achieved were Masters of Science in Nursing (MSN) (92%, n=23) and Doctorate in Nursing (DNP) (8%, n=2). A majority of the participants were advanced practice nurse prescribers (APNPs) (28%, n= 7). The different certification specialties cited by the participants included: APNP, clinical nurse specialist (CNS), family nurse practitioner (FNP), adult nurse practitioner (ANP), and gerontologic nurse practitioner (GNP). Note that some of the participants had two specialties. Table 2 shows the certification specialties.

Table 2

*Certification Specialties*

Certification Specialty	Total Number	Percentage
APNP	7	28
CNS	3	12
FNP	8	32
ANP	10	40
GNP	2	8

Types of cancer diagnoses primarily seen included: breast cancer (n=10), acute lymphoblastic leukemia (ALL) (n=6), other leukemias (n=3), colon or rectal cancer (n=10), lung cancer (n=11), non-Hodgkin's lymphoma (NHL) or Hodgkin's lymphoma (HL) (n=7), head and neck cancer (n=4), melanoma (n=3), reproductive cancers including; ovarian, cervical, uterine and prostate (n=3), brain cancer (n=1), renal cell carcinoma (n=3), pancreatic cancer (n=2), myeloma (n=2), solid tumors (n=2), bladder cancer (n=1), and sarcoma (n=1).

### *Nausea Assessment and Treatment*

Of the 25 participants, 100% (n=25) routinely ask their oncology patients about nausea. The percentage of patients receiving chemotherapy who reported nausea ranged from 15% to 90% with a mean of 62.3% (SD=19.1); however, two respondents did not answer this question. When asked about the implementation of *Putting Evidence into Practice* (PEP) guidelines provided by the Oncology Nursing Society (ONS), 66.7% (n=16) responded yes, while 33.3% (n=9) responded no, with one respondent who did not answer this question. The PEP guidelines are evidence-based practice (EBP) guidelines available from the ONS to guide treatment of CINV.

Sixty-eight percent of the respondents (n=17) routinely ask their oncology patients receiving chemotherapy about complementary or alternative therapies while 32% (n=8) do not routinely ask their oncology patients. Participants cited one to three reasons for not routinely asking oncology patients receiving chemotherapy about complementary or alternative therapies. Reasons for not routinely asking included: following the physician's practice, patients are routinely asked on the first visit, patients do not have an open personality to these therapies, patients are referred to an alternate physician, and practitioners do not have enough knowledge about these therapies to routinely ask about them.

### *Knowledge of Therapies*

Sixteen participants listed the different learning techniques they used to improve their knowledge of NAC therapies, specifically acupuncture. Most of the participants who responded to this question (28%, n=11) used reading to learn about NAC therapy. Thirteen percent (n=5) of the participants responded they learned about NAC from the Oncology Nursing Society (ONS). Participants also learned through experience (7%,

n=3) and research (7%, n=3). Five percent (n=2) of the participants learned about NAC from lectures. The remaining 13% (n= 5) who responded to this question either have not learned about NAC (n=1), learned about NAC in graduate school (n=1), from physicians (n=1), from the National Comprehensive Cancer Network (NCCN) (n=1), or from a colleague (n=1). Thirty-six percent (n=9) of the participants did not answer this question.

#### *Complementary and Alternative Therapy Use Reported by Patients*

Participants were asked to list the types of complementary or alternative therapies their patients who receive chemotherapy use. These results were classified into categories consistent with the National Center for Complementary and Alternative Medicine (NCCAM) system of categorizing NAC.

The NCCAM categorizes NAC as alternative medical systems (homeopathy, Ayurveda, naturopathic medicine, Chinese medicine etc.), mind-body interventions (cognitive-behavioral therapy, patient support groups, prayer, mental healing, meditation, art, and dance therapy etc.), biologically based therapies (dietary supplements, herbal products, shark cartilage etc.), manipulative and body-based methods (chiropractic, osteopathy, massage etc.), and energy therapies divided into two types, bio-field therapies (Reiki, qigong, therapeutic touch), as well as bioelectromagnetic-based therapies (magnets, etc.) (Jones, 2005).

The responses of the participants (n=23) were categorized using this classification system. A majority of the participants responded that patients used mind-body interventions 26% (n=20), followed by biologically based therapies (25%, n=19), and then alternative medical systems (24%, n=18). The most common alternative medical systems responses were acupuncture (n=11) and acupressure (n=5). Few of the participants (12%, n=9) responded that patients used manipulative and body-based

methods. Only 4% (n=3) responded that patients used energy therapies, which were bio-field therapies. One participant did not respond to the question and one answered that patients used none of the CAM therapies.

### *Complementary and Alternative Therapy*

#### *for Chemotherapy-Induced Nausea and Vomiting (CINV)*

Natural alternative complementary therapies used by participants for patients with acute, delayed, and intractable chemotherapy-induced nausea and vomiting (CINV) were quantified for analysis into the same categories used by the NCCAM. Mind-body interventions and alternative medical systems were the most commonly used NAC interventions.

None of the participants used energy therapies for any type of CINV. Of the alternative medical systems, acupuncture was the most commonly used (n=4) for acute CINV, for delayed CINV (n=3), and for intractable (n=1). Participants often used NAC interventions from a few different categories. Percentages were calculated using the total number of responses opposed to the total number of participants responding to the question. Three of the participants did not answer the question asking about the type of NAC used for acute CINV, seven did not respond to the same question about delayed CINV, and nine did not respond to the same question about intractable CINV. A large number of the participants did not use NAC therapy for CINV. Table 3 shows the different NAC therapies used for acute, delayed, and intractable nausea.

Table 3

*Percentage of NAC Used for Types of CINV*

NAC Therapy	Acute (n=42)		Delayed (n=37)		Intractable (n=31)	
	Number	Percentage	Number	Percentage	Number	Percentage
Alternative Medical Systems	9	21	10	27	7	22
Mind-Body Interventions	18	43	11	29	0	0
Biologically-Based	6	14	3	8	2	6
Manipulative and Body Based	2	4	2	5	2	6
Energy Therapies	0	0	0	0	0	0
None	6	14	9	24	5	20

*Reasons for Using NAC Therapy over Other Interventions*

Participants were asked to answer a question about why they use the particular NAC interventions above other interventions for acute, delayed, and intractable CINV. Most of the participants who responded used NAC therapy for acute CINV (N=16) because the therapy works (27%, n=8). Many of the participants 36% (n=9) did not provide a reason for using the above NAC interventions. Other reasons listed for using the above interventions over other interventions included, interventions help in combination with pharmacologic interventions (n=2), patient tolerance (n=2), with only one participant citing evidence-based practice. Two participants cited cost and insurance coverage as their reasons for choosing the particular intervention. One

participant did not know a lot about alternative therapies and one used an intervention because a colleague had good results. One participant cited the intervention was calming and one responded alternative therapies take longer to work and patients need immediate relief.

Participants were again asked what their reasons were for using NAC therapies, but this time, for delayed CINV. The results of those who responded (n=13) showed patient preference (n=4) and they work (n=3) as the most common reasons cited for using the above interventions over other interventions. Many (46%, n=12) of the participants did not answer the above question. Two participants felt the NAC therapy was more helpful; one participant used NAC therapy because it was evidence-based and one participant used an NAC therapy due to the calming effect on patients.

Participants were also asked their reasons for using NAC therapies for intractable CINV. A majority of the participants did not respond to the question (n=18).

The participants who did provide an answer either responded they use NAC therapies for intractable CINV for the same reasons they use it for acute and delayed CINV. A few participants cited not having much knowledge about alternative therapies (n=1), patient preference for the therapy (n=1), and calming (n=1)

#### *Pharmacologic Interventions for Acute CINV*

Participants were also asked which pharmacologic interventions they preferred to use for acute, delayed, and intractable CINV. All of the participants (n=25) responded, and most of the participants used a 5HT3 antagonists with or without a corticosteroid for acute, delayed, and intractable CINV. Benzodiazepines, histamine blocking agents, and proton pump inhibitors (PPI) were the next most commonly used pharmacologic interventions for all types of CINV. A few of the participants used hospitalization with

intravenous fluids (IVF) and antiemetics to treat intractable and delayed CINV. Another interesting finding was that only a small amount of participants used NK-1 receptor antagonists. One participant used The National Comprehensive Cancer Network (NCCN) guidelines, which are similar to the PEP guidelines. One participant answered they had not seen intractable CINV in many years and one would evaluate the cause. Table 4 shows the different pharmacologic interventions for acute, delayed, and intractable CINV. The percentages were calculated using the total number of responses to the questions because most of the participants listed three or more interventions.

*Reasons for Using Pharmacologic Interventions over Other Interventions*

Participants were asked why the interventions shown in Table 4 were used over other interventions for acute, delayed, and intractable CINV.



Table 4

*Percentage Pharmacologic Interventions Used for Types of CINV*

Medication	n=83 Acute % (n)	n=70 Delayed % (n)	n=72 Intractable % (n)
5HT-3	96 (n=24)	64 (n=16)	44 (n=11)
Corticosteroid	64 (n=16)	48 (n=12)	32 (n=8)
5HT-3 & Steroid	60 (n=15)	14 (n=10)	20 (n=5)
Benzodiazepine	40 (n=15)	48 (n=12)	12 (n=9)
Antipsychotic	13 (n=11)	14 (n=10)	6 (n=5)
NK-1	7 (n=6)	8 (n=6)	2 (n=2)
PPI/Histamine	3 (n=3)	1 (n=1)	12 (n=9)
IVF	4 (n=4)	4 (n=3)	11 (n=8)
Reglan	1 (n=1)	7 (n=5)	5 (n=4)
Laxative	1 (n=1)	0	0
NCCN	1 (n=1)	0	0
What works for patient	0	1 (n=1)	0
Scheduled med.	0	1 (n=1)	2 (n=2)
Marinol	0	0	4 (n=3)
Scopolamine	0	0	1 (n=1)

Many of the participants (33%, n=10) use pharmacologic interventions for acute CINV because they work or the interventions are research-based (21%, n=7).

Participants responded that pharmacologic interventions were preferable for acute CINV because they work quickly (15%, n=5). The remainder of the participants used pharmacologic intervention for acute CIV because they had a contract with a particular drug company (n=2), followed physician practice (n=2), used interventions covered by insurance (n=1) or at a lower cost (n=1), and used the intervention as a patient specific intervention (n=1).

Participants were again asked what their reasons were for using pharmacologic interventions over other interventions, but this time for delayed CINV. Reasons for using pharmacologic interventions included evidence-based practice (31%, n=9), they work (27%, n=8), patient preference for pharmacologic intervention (6%, n=2), as well as cost or insurance coverage (6%, n=2). Physician preference (n=1), experience (n=1), and long lasting (n=1) were also cited reasons for using the above interventions over other interventions. Seventeen percent (n=5) of the participants did not answer the above question.

Participants were asked what their reasons were for choosing pharmacologic interventions over other interventions for intractable CINV. Reasons for using pharmacologic interventions for intractable CINV included they work well (44%, n=11), trial and error (8%, n=2), evidence-based practice (12%, n=3), and patient preference (n=1). Thirty-two percent (n=8) did not respond to the above question.

#### *Acupuncture Use for CINV*

A majority (88%, n=22) of the participants stated they would recommend acupuncture for their patients experiencing CINV, while 12% (n=3) would not. Only 12% (n=3) of the participants provided a reason for not recommending this therapy, citing the intervention is too expensive (n=1), it is not available (n=1), or there is a risk for infection

(n=1). The remainder of the participants ( 92%, n=23) did not respond to the question asking their reasons for not recommending acupuncture for their patients receiving chemotherapy experiencing CINV. A majority of the participants would like to learn more about acupuncture (75%, n=18), while 25% (n=6) would not, but only 12% (n=3) of the participants gave reasoning for not wanting to learn more. Three participants stated that they send people to other providers for acupuncture (n=2) or acupuncture is not available (n=1).

#### *Additional Participant Comments*

Participants were asked to provide comments about CINV. One participant responded, "CINV can be controlled by medication in a majority of patients, few use acupuncture with minimal relief of symptoms; Emend is more effective." Another participant responded, "The guidelines are clearly written, which should take most of the guesswork out." One of the participants responded, "I have not had much luck with alternative therapies."

#### *Summary*

Data collection began in November 2008 and continued through December 2008. A total of 108 questionnaires were distributed to APNs in Minnesota and Wisconsin who were listed as members of the ONS.

Of these 108 questionnaires, 33% (n=36) were returned of which 23% (n=25) met criteria. The data received in the valid questionnaires were analyzed using descriptive statistics and narrative analysis with tabulation of open-ended question responses. Results showed many APNs are using NAC therapies for CINV, but yet do not have formal education on the different types of NAC therapies and indications for

use of the therapies. Many of the participants wanted to learn more about NAC therapies, specifically acupuncture, for management of CINV. All of the participants routinely ask their patients receiving chemotherapy about CINV, but the percentages of patients experiencing this symptom vary greatly between participants. Alternative medical systems and mind-body interventions were most commonly used by participants in this study for acute and delayed CINV. Natural alternative complementary therapies were used very rarely for intractable CINV. Reasons for using pharmacologic interventions over NAC therapies were associated with cost and efficacy, as well as speed in which symptoms were controlled.

Overall, a majority of the participants followed the PEP or NCCN guidelines for CINV. These guidelines were not mentioned specifically by the participants; however, responses in this study were very similar to the pharmacologic recommendations in the guidelines. One participant specifically named the NCCN guidelines, but a majority of the participants responded in accordance with the guidelines for CINV management or prophylaxis.

## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Introduction

Data were collected through questionnaires and analyzed using descriptive statistics. Valid questionnaires (n=25) were analyzed using the descriptive statistics with tabulations of open ended responses. Open-ended responses of complementary and alternative therapy interventions were categorized using the National Center for Complementary and Alternative Medicine (NCCAM) categorization system. Participant responses to pharmacological interventions for acute, delayed, and intractable chemotherapy-induced nausea and vomiting (CINV) were tabulated as well.

The purpose of this study was to answer the research questions:

1. Are APNs assessing and CINV?
2. Are APNs knowledgeable about NAC therapies for CINV?
3. What specific interventions are APNs using for CINV?
4. Are APNs knowledgeable about acupuncture for CINV?

#### Implications for Nursing Practice

Many patients feel knowledge of NAC therapies is essential for health care providers and that access to it should be part of standard cancer treatment (Coss et al., 1998). According to this study, APNs have a knowledge base of the different NAC therapies; only one of the participants had never learned about NAC. Eighty-eight percent (n=22) of participants reported using some form of NAC therapies for acute

CINV, while 80% (n=20) reported using some form of NAC therapies for delayed CINV, and 64% (n=16) reported using some form of NAC for intractable CINV.

However, none of the participants used energy based therapies for CINV and 54% of the participants did not use NAC therapy at all for acute, delayed, or intractable CINV. Knowledge of NAC exists, but a clear understanding of the indications for NAC may be lacking. The lack of understanding may be caused by the limited formal educational opportunities available for APNs to attain understanding of NAC therapies and the indications for use of the different types.

#### Natural Alternative Complementary Educations for APNs

Studies support that nurse practitioners are given a brief overview of NAC therapies in their advanced education process, but not enough to help support patient choices or provide evidence for use (Hayes & Alexander, 2000; Nottingham, 2006; Sohn & Loveland, 2002). Seventy-five percent of the participants wished to learn more about acupuncture.

Sohn and Loveland (2002) found 54% of nurse practitioners surveyed in Oregon and Missouri reported receiving training in therapies outside their graduate schooling. Only one of the participants in the current study learned about NAC therapies, including acupuncture, in graduate school, and one through lectures on the topic. Twenty-eight percent of the participants used reading to learn more about NAC therapies, 13% used the ONS, 7% used research, and 7% used experience. These data demonstrate a problem with NAC therapy education availability in a formal educational setting. If APNs are going to be the leaders in holistic patient care, they need formal education on therapies that have the holistic approach as a central philosophy.

Health care and the economy are moving in opposite directions today. As the cost of conventional health care increases, the economy is getting worse. Rising costs of health care and limited availability of caregivers is causing a decline in the availability of health care resources for people who are underprivileged. This trend is also starting to affect middle-class populations as the unemployment rates continue to rise and health insurance becomes more difficult to obtain. Private insurance is becoming more costly and fewer employers are providing health insurance coverage for employees with the rising costs of health care.

Advanced practice nurses with knowledge of holistic NAC therapies for symptom management could be leaders in a cost-effective approach to holistic health care for patients. Therefore, APNs need to have a thorough understanding of the implications for different types of NAC therapy. More formal educational opportunities for APNs are essential to helping them understand NAC therapies and use them properly. This can be done by adding NAC therapy educational components to the nursing curriculum in graduate and undergraduate programs. The NAC courses could be available as an elective course for students interested in learning NAC therapy approaches and indications for use. According to the data in this study, three fourths (75%, n=18) of the participants would like to learn more about NAC therapies. Therefore, hypothetically, there would be many students interested in NAC therapy courses as part of a nursing curriculum.

### Pharmacologic and NAC Understanding

Advanced practice nurses have a thorough understanding of pharmacologic interventions for symptom management in their patients receiving chemotherapy. The study participants provided an extensive list of interventions.

Advanced practice nurses also reported they used some of the pharmacologic interventions over others because they were covered by insurance, the practitioner or facility they work for had a contract with the drug company, and the intervention was affordable for the patient. All of these reasons have an underlying monetary theme, which would be expected as the economy worsens and patients continue to lose employment. Chemotherapy is already a very costly treatment for people with cancer and when the cost of additional pharmacologic intervention is added in this equation, the cost can be quite high. By using NAC therapies, APNs offer, in most cases, a cost effective and holistic approach to symptom management for cancer patients receiving chemotherapy. With a true focus on community and population health, the APN should be ready to learn new therapies and approaches to symptom management.

Natural alternative complementary therapies have been shown to be used in combination with conventional therapies to alleviate side effects of conventional chemotherapy treatment and provide a holistic treatment approach (Barnes et al., 2004; Singh et al., 2005). Hyodo et al. (2005) found more than half (57.3%) of cancer patients in Japan started NAC therapy without obtaining enough information and two-thirds (60.7%) of the patients who completed the survey never consulted their physicians.

This is in part related to the omission of the question about the use of NAC therapy by the provider. Hayes et al. (2000) found only 38.6% (n=78) of nurse practitioners sometimes asked about NAC use and 31.2% (n=63) rarely asked about



use. In this current study, 68% of participants routinely ask their oncology patients receiving chemotherapy about use of NAC.

However, it is imperative that APNs be properly educated about NAC therapies to counsel their patients on proper use, as well as possible adverse reactions. Advanced practice nurses' knowledge of different NAC therapies is also essential for proper management of cancer treatment; therefore, more education needs to be available.

Cancer patients receiving chemotherapy are using different types of NAC therapy for symptom control. Twenty-six percent ( $n=20$ ) of participants said that mind-body interventions were used by cancer patients in the current study. Twenty-two percent ( $n=17$ ) of participants said alternative medical systems were used by cancer patients with the most common therapies being acupuncture ( $n=11$ ) and acupressure ( $n=5$ ). Few participants (12%,  $n=9$ ) said that patients used manipulative and body-based methods. Therefore, education can be structured to focus more on the alternative medical systems, such as acupuncture, to increase practitioners' knowledge. An increase in knowledge will allow APNs to provide guidance for patients when they are choosing an intervention to help manage their symptoms.

#### Lack of Symptom Alleviation

Participants reported that 15% to 90% (mean 62.3%,  $SD=19.1$ ) of patients receiving chemotherapy in the current study reported nausea. The fact that cancer patients are choosing NAC therapies for symptom management is a strong indicator that there is not proper management of CINV in cancer patients. If so many cancer patients receiving chemotherapy are experiencing nausea despite the use of "gold standard"

antiemetic therapy, other options for symptom management need consideration, as well as ensuring that APNs are following the guidelines in place for symptom management.

#### Guidelines Utilization and Evidence-Based Practice (EBP)

Approximately 66% of participants utilized the PEP guidelines provided by the Oncology Nursing Society (ONS). This is an unacceptable number for the advanced nursing profession. Following guidelines available for symptom management should be a requirement for all APNs. As the nursing profession moves toward having the doctorate of nursing practice (DNP) as the final degree for nursing professionals, a strong knowledge and use of EBP is essential. Proper education of professionals about the availability and importance of EBP is crucial, as is encouraging the use of EBP for patient care. Proper education can be accomplished by offering educational opportunities for nursing professionals through seminars or continuing education units focusing on EBP. Encouraging the use of EBP for patient care can be accomplished by providing incentives for using EBP. Some incentives could include recognition for excellence in patient care or monetary incentives to encourage EBP use.

#### Recommendations for Future Studies

Analysis of the data showed 100% (n=25) of the participants were female. The majority of nurses in the profession are female with only a small percent being male. In the future a larger study population may return a more diverse population with some male participants. More male participants may provide more diverse responses to the questionnaire. A more heterogeneous sample would increase the generalizability of the data to the nursing population in the Midwest U.S. as well.

Sixty percent (n=15) of participants had only 1 year or less of advanced practice nursing experience, which also may have biased or even limited the results. Future studies using APNs with more experience may provide different responses.

Also, sample size was small and future studies may benefit from using a larger sample size or a larger geographical area for the study population. Further studies could investigate a larger geographic area to determine if there is a difference in the use of NAC therapies or EBP associated with geographic locations.

Response rate decreased significantly later in the questionnaire, so future studies would benefit from devising a shorter questionnaire with limited responses or using an existing tool. Numerous responses were given for NAC and pharmacologic interventions making it difficult to interpret all the data. Using a list of possible responses for participants to choose from determined through literature review of EBP interventions would provide more accurate data for analysis. There may be an increase in the number of returned questionnaires if the questionnaire was shorter and less tedious to complete for busy practitioners, and yet remained reliable.

Over one-half of APNs were utilizing EBP. Future studies could determine if there are barriers to APNs using EBP, and if so, what are the barriers. There is a significantly high percentage of cancer patients receiving chemotherapy who experience CINV even in the limited geographic area of the current study. Is this high report of CINV due to a different perception of the symptom by patients, causing them to report CINV when in fact they are experiencing some other adverse reaction to chemotherapy? Future research could compare patients' perceptions of CINV with practitioners' perceptions of CINV to determine if there is a difference in the perception of CINV. Research could also focus on understanding the patients' perception of CINV, offering

practitioners a better understanding of their symptoms, which may improve management of CINV. Patients could also be asked what they found helpful or unhelpful in the whole chemotherapy experience. A better understanding of the patients' perception would allow for more holistic, patient-centered care, which is an integral piece of the philosophy nursing practice.

APPENDIX A  
Data Collection Tool

### Chemotherapy Induced Nausea Management Questionnaire

*Please answer the following questions for oncology patients receiving chemotherapy.*

1. Do you routinely ask your oncology patients receiving chemotherapy about nausea?  

Yes      No
2. If yes, approximately what percentages of your oncology patients receiving chemotherapy report this symptom?
3. Have you implemented the *Putting Evidence into Practice* guidelines developed by the Oncology Nursing Society for chemotherapy-induced nausea and vomiting (CINV)?  

Yes      No
4. Do you routinely ask your oncology patients receiving chemotherapy about the use of complementary or alternative therapies?  

Yes      No

  - 4.1.1 If no, what are your reasons for not asking about the use of complementary or alternative therapy in your oncology patients?
5. What types of complementary or alternative therapies do your oncology patients receiving chemotherapy use?
6. What are your **pharmacological interventions** for acute CINV?  
  - 6.1.1. Why do you use the above pharmacological interventions over other interventions?
7. What are your **alternative or complementary therapy interventions** for acute CINV?  
  - 7.1.1. Why do you use the above alternative or complementary therapies over other interventions?
8. What are your **pharmacological interventions** for delayed CINV?

8.1.1. Why do you use the above pharmacological interventions over other interventions?

**9.** What are your **alternative or complementary therapy interventions** for **delayed CINV**?

9.1.1. Why do you use the above alternative or complementary interventions over other interventions?

**10.** What are your **pharmacologic interventions** for **intractable CINV**?

10.1.1. Why do you use the above pharmacological interventions over other interventions?

**11.** What are your **alternative or complementary therapy interventions** for **intractable CINV**?

11.1.1. Why do you use the above alternative or complementary therapies over other interventions?

**12.** How did you learn about alternative or complementary therapy interventions for CINV and what interventions did you learn?

**13.** Would you consider using or recommending acupuncture for CINV?      **Yes**      **No**

13.1.1 If no, please indicate your reason(s) for not using or recommending this intervention:

**14.** Would you like to learn more about using acupuncture as an intervention for CINV?      **Yes**      **No**

14.1.1 If no, please indicate your reason(s):

- 15.** Are there any other comments you would like to make about CINV or interventions for CINV?

*Please answer the demographic questions below.*

- 16.** Gender:

16.1. Male

16.2. Female

- 17.** Highest educational degree achieved and the year you graduated with this degree:

- 18.** List any additional degrees/certifications/training you have achieved:

- 19.** What is your certification specialty in the clinic? (*circle all that apply*)

19.1. APNP

19.2. CNS (specialty area)\_\_\_\_\_

19.3. FNP

19.4. ANP

19.5. Other:\_\_\_\_\_

- 20.** Age:

- 21.** Number of years you have been practicing in nursing:\_\_\_\_\_

21.1. In oncology nursing:\_\_\_\_\_

21.2. In advanced practice nursing:\_\_\_\_\_

21.3. In advanced practice oncology nursing:\_\_\_\_\_

- 22.** What type(s) of cancer diagnoses do you primarily see?

*The questionnaire is complete. Thank you very much for your time and consideration.*



APPENDIX B  
Information Sheet

## Information Sheet

### Managing Chemotherapy-Induced Nausea and Vomiting in Oncology Patients

Jennifer Allain, a University of Wisconsin Oshkosh Nurse Practitioner Student, is conducting a study to determine what types of interventions advanced practice nurses (APN) use for chemotherapy-induced nausea and vomiting (CINV) in cancer patients receiving chemotherapy. Participation will assist in determining if practitioners are assessing for CINV and what types of interventions are being used. The data may provide information for improved symptom management in cancer patients receiving chemotherapy who experience nausea.

Please fill out this brief questionnaire, which should take approximately 15 to 20 minutes.

Although the researcher could study this question by personal interviews with a few APNs, the questionnaire allows the participant time to fill out when it is convenient for you in the comfort of your own home and provides more information.

The researcher does not anticipate that the study will present any medical or social risk to you, other than the inconvenience of extra time required for you to answer the questionnaire. Participation in this study may not benefit you directly. The questionnaire is completely voluntary.

The information gathered will be recorded in anonymous form and will not be released in a way that could identify you. Data will be reported in aggregate form.

If you do not wish to participate in this study please check the box below labeled, *I do not wish to participate in this study*, and return this information in the self addressed, stamped envelope provided.

If you have any questions, please contact:

Jennifer Allain  
P.O. Box 183  
Hilbert, WI 54129

If you have any complaints about your treatment as a participant in this study, please call or write:

Chair, Institutional Review Board  
For Protection of Human Participants  
c/o Grants Office  
UW Oshkosh  
Oshkosh, WI 54901  
920/424-1415

Although the chairperson may ask for your name, all complaints are kept in confidence.

This research project has been approved by the University of Wisconsin Oshkosh IRB for Protection of Human Participants for a 1-year period, valid until October 2009.

Please check the line below if you **do not** wish to participate in this study and return this form with your questionnaire in the envelope provided. This will ensure that you are not mailed a second questionnaire.

\_\_\_\_\_ I **do not** wish to participate in the study.

## BIBLIOGRAPHY

- Barnes, P. M., Powell-Griner, E., McFann, K., & Nahin, R. L. (2004). Complementary and alternative medicine use among adults: United States, 2002. In *Advance data: from vital and health statistics* (NIH Publication No. 343, 1-20). Washington, DC: U.S. Department of Health and Human Services.
- Cassileth, B., & Deng, G. (2004). Complementary and alternative therapies for cancer. *The Oncologist*, 9, 80-89.
- Choo, S., Kong, K., Lim, W., Gao, F., Chua, K., & Leong, S. (2006). Electroacupuncture for refractory acute emesis caused by chemotherapy. *The Journal of Alternative and Complementary Medicine*, 12(10), 963-969.
- Chuang, Y. (1972). *Chinese Acupuncture*. Oriental Society: Hanover.
- Collins, K. B., & Thomas, D. J. (2004). Acupuncture and acupressure for the management of chemotherapy-induced nausea and vomiting. *Journal of the American Academy of Nurse Practitioners*, 16(2), 76-80.
- Coss, R. A., McGrath, P., & Caggiano, V. (1998). Alternative care: Patient choices for adjunct therapies within a cancer center. *Cancer Practice*, 6(3), 176-181.
- Dibble, S., Israel, J., Nussey, B., Casey, K., & Luce, J. (2003). Delayed chemotherapy-induced nausea in women treated for breast cancer. *Oncology Nursing Forum*, 30(2), 40-47.
- Ezzo, J., Streitberger, K., & Schneider, A. (2006). Cochrane systemic reviews examine P6 acupuncture-point stimulation for nausea and vomiting. *The Journal of Alternative and Complementary Medicine*, 12(5), 489-495.

- Hayes, K. M., & Alexander, I. M. (2000). Alternative therapies and nurse practitioners: Knowledge, professional experience, and personal use. *Holistic Nursing Practice*, 14(3), 49-58.
- Hyodo, I., Amano, N., Eguchi, K., Narabayashi, M., Imanishi, J., Hirai, M., et al. (2005). Nationwide survey on complementary and alternative medicine in cancer patients in Japan. *Journal of Clinical Oncology*, 23(12), 2645-2654.
- Ikeda, M., Yasui, M., Fukunaga, H., Seshimo, I., Takayama, O., Ikenaga, M., et al. (2005). Clinical usefulness of oral granisetron hydrochloride for alleviation of delayed nausea and vomiting induced by CPT-11. *European Journal of Cancer Care*, 14, 435-439.
- Jones, C. (2005). The spectrum of therapeutic influences and integrative health care: Classifying health care practices by mode of therapeutic action. *The Journal of Alternative and Complementary Medicine*, 11(5), 937-944.
- Josefson, A., & Kreuter, M. (2003). Acupuncture to reduce nausea during chemotherapy treatment of rheumatic disease. *Rheumatology*, 42, 1149-1154.
- Kim, Y., Kim, C., & Kim, K. (2003). Clinical observations on a postoperative vomiting treated by auricular acupuncture. *The American Journal of Chinese Medicine*, 31(3), 475-480.
- Koehn, M. L. (2000). Alternative and complementary therapies for labor and birth: An application of Kolcaba's theory of holistic comfort. *Holistic Nursing Practice*, 15(1), 66-77.
- Koeller, J.M., Aapro, M.S., Gralla, R.J., Grunberg, S.M., Hesketh, P.J., Kris, M.G., & Clark-Snow, R.A. (2002). Antiemetic guidelines: Creating a more practical treatment approach. *Supportive Care in Cancer*, 10, 519-522.

- Kolcaba, K. (2001). Evolution of the mid range theory of comfort for outcomes research. *Nursing Outlook*, 49(2), 86-92.
- Kolcaba, K. (2003). *Comfort Theory and Practice: A Vision for Holistic Health Care and Research*. Springer Publishing Company: New York.
- Kolcaba, K. (2007). The website devoted to the concept of comfort in nursing. Retrieved March, 24, 2009, from <http://www.thecomfortline.com>.
- Kolcaba, K. Y. (1994). A theory of holistic comfort for nursing. *Journal of Advanced Nursing*, 19, 1178-1184.
- Manaka, Y., & Urquhart, I. (1973). *The Layman's Guide to Acupuncture*. Weatherhill: New York.
- Manske, P. J., & Wallerstedt, D. B. (2006). Complementary medicine in palliative care and cancer symptom management. *The Cancer Journal*, 12(5), 425-431.
- Miller, M., & Kearney, N. (2004). Chemotherapy-related nausea and vomiting-past reflections, present practice and future management. *European Journal of Cancer Care*, 13, 71-81.
- Nahleh, Z., & Tabbara, I. A. (2003). Complementary and alternative medicine in breast cancer patients. *Palliative and Supportive Care*, 1, 267-273.
- NCCAM. (2002). *What is complementary and alternative medicine (CAM)?* (Publication No. D156). NCCAM, National Institutes of Health. Bethesda: Maryland.
- NIH Consensus Statement: *Acupuncture*. Retrieved November 7, 2008 from <http://consensus.nih.gov/1997/1997Acupuncture107html.htm>.
- Nottingham, E. N. (2006). Complementary and alternative medicine. *Holistic Nurse Practitioner*, 20(5), 242-246.

- Nystrom, E., Ridderstrom, G., & Leffler, A. (2008). Manual acupuncture as an adjunctive treatment of nausea in patients with cancer in palliative care – A prospective, observational pilot study. *Acupuncture in Medicine*, 26(1), 27-32.
- Porth, C. (2005). *Pathophysiology concepts of altered health states* (7<sup>th</sup> ed). Philadelphia: Lippincott Williams & Wilkins.
- Ross, J. (1994). *Zang Fu The Organ Systems of Traditional Chinese Medicine* (2<sup>nd</sup> ed). Churchill Livingstone: Edinburgh.
- Rubenstein, E., Slucher, B., Rojas, C., & Navari, R. (2006). New approaches to chemotherapy-induced nausea and vomiting: from neuropharmacology to clinical investigations. *Cancer Journal*, 12(5), 341-347.
- Schwartzberg, L. S. (2007). Chemotherapy-induced nausea and vomiting: Which antiemetic for which therapy? *Oncology*, 21(8). Retrieved July 16, 2008, from <http://www.cancernetwork.com/cme/article/10165/59558>.
- Singh, H., Maskarinec, G., & Shumay, D. M. (2005). Understanding the motivation for conventional and complementary/alternative medicine use among men with prostate cancer. *Integrative Cancer Therapies*, 4(2), 187-194.
- Sohn, P. M., & Loveland, C. A. (2002). Nurse practitioner knowledge of complementary alternative health care: Foundation for practice. *Journal of Advanced Nursing*, 39(1), 9-16.
- Tipton, J. M., McDaniel, R. W., Barbour, L., Johnston, M. P., Kayne, M., LeRoy, P., et al. (2007). Putting evidence into practice: Evidence-based interventions to prevent, manage, and treat chemotherapy-induced nausea and vomiting. *Clinical Journal of Oncology Nursing*, 11(1), 69-78.

- Tsavaris, N., Kosmas, C., Mylonakis, N., Bacoyiannis, C., Kalergis, G., Vadiaka, M. et al. (2000). Parameters that influence the outcome of nausea and emesis in cisplatin based chemotherapy. *Anticancer Research*, 20, 4777-4783.
- Venes, D. (Ed.). (2001). *Taber's cyclopedic medical dictionary* ( 20<sup>th</sup> ed.). F.A. Davis Company: Philadelphia.
- Vrabel, M. (2007). Is ondansetron more effective than granisetron for chemotherapy-induced nausea and vomiting? A review of comparative trials. *Clinical Journal of Oncology Nursing*, 11(6), 809-813.
- Yates, J. S., Mustian, K. M., Morrow, G. R., Gillies, L. J., Padmanaban, D., Atkins, J. N., et al. (2005). Prevalence of complementary and alternative medicine use in cancer patients during treatment. *Support Cancer Care*, 13, 806-811.