

AD \_\_\_\_\_

Award Number: DAMD17-03-1-0298

TITLE: Improving Symptoms Control, QOL, and Quality of Care for  
Women with Breast Cancer: Developing a Research Program on  
Neurological Effects via Doctoral Education

PRINCIPAL INVESTIGATOR: Marie Bakitas  
Tim A. Ahles, Ph.D.

CONTRACTING ORGANIZATION: Dartmouth College  
Hanover, New Hampshire 03755-1404

REPORT DATE: May 2004

TYPE OF REPORT: Annual Summary

PREPARED FOR: U.S. Army Medical Research and Materiel Command  
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;  
Distribution Unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

20040903 113

# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 074-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503

|   |   |  |   |  |
|---|---|--|---|--|
| <b>1. AGENCY USE ONLY</b><br>(Leave blank)  |   | <b>2. REPORT DATE</b><br>May 2004                              | <b>3. REPORT TYPE AND DATES COVERED</b><br>Annual Summary (15 Apr 2003 - 14 Apr 2004) |  |
| <b>4. TITLE AND SUBTITLE</b><br>Improving Symptoms Control, QOL, and Quality of Care for Women with Breast Cancer: Developing a Research Program on Neurological Effects via Doctoral Education   |   |  | <b>5. FUNDING NUMBERS</b><br>DAMD17-03-1-0298   |  |
| <b>6. AUTHOR(S)</b><br>Marie Bakitas<br>Tim A. Ahles, Ph.D.   |   |  |   |  |
| <b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b><br>Dartmouth College<br>Hanover, New Hampshire 03755-1404<br><br><i>E-Mail:</i> marie.whedon@hitchcock.org  |   |  | <b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>                                       |  |
| <b>9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b><br>U.S. Army Medical Research and Materiel Command<br>Fort Detrick, Maryland 21702-5012  |   |  | <b>10. SPONSORING / MONITORING AGENCY REPORT NUMBER</b>                               |  |
| <b>11. SUPPLEMENTARY NOTES</b>  |   |  |   |  |
| <b>12a. DISTRIBUTION / AVAILABILITY STATEMENT</b><br>Approved for Public Release; Distribution Unlimited  |   |  | <b>12b. DISTRIBUTION CODE</b>   |  |
| <b>13. ABSTRACT (Maximum 200 Words)</b><br>The purpose of this traineeship is to develop the academic, clinical, and research skills of an expert advanced practice nurse within the context of a mentor's (Tim A. Ahles, Ph.D.) funded program of research of the (central nervous system [CNS]) Cognitive Effects of Chemotherapy. The scope of the program is to support Ms. Bakitas' doctoral education with an ultimate career goal of becoming a Clinical Breast Cancer Research Scientist. In conjunction with the doctoral program, through a mentored research experience Ms. Bakitas is expanding an established research program on CNS effects of breast cancer treatment by developing a parallel focus on the peripheral nervous system effects of chemotherapy, (Chemotherapy-Induced Peripheral Neuropathy [CIPN]), on quality of life. The major achievements of the trainee at the midterm, are successful accomplishment of the planned training activities/tasks originally outlined for the first year, with an additional achievement of developing (as a co-investigator), a funded grant on chemotherapy induced peripheral neuropathy. The significance of these achievements is that the training is providing the initial foundation for developing a clinical nurse expert towards a program of breast cancer researcher. |   |  |   |  |
| <b>14. SUBJECT TERMS</b><br>Cancer control, outcomes research, quality of life, symptom management, neurological effects, doctoral education  |   |  | <b>15. NUMBER OF PAGES</b><br>30  |  |
|   |   |  | <b>16. PRICE CODE</b>   |  |
| <b>17. SECURITY CLASSIFICATION OF REPORT</b><br>Unclassified  | <b>18. SECURITY CLASSIFICATION OF THIS PAGE</b><br>Unclassified | <b>19. SECURITY CLASSIFICATION OF ABSTRACT</b><br>Unclassified | <b>20. LIMITATION OF ABSTRACT</b><br>Unlimited  |  |

**Table of Contents**

**Cover.....i**

**SF 298.....ii**

**Table of Contents.....iii**

**Introduction.....1**

**Body.....1**

**Key Research Accomplishments.....4**

**Reportable Outcomes.....4**

**Conclusions.....4**

**References.....4**

**Appendices.....6**

- A. Statement of Work**
- B. Transcript**
- C. Conceptual Model of Trajectory of Neurological Effects**
- D. Conceptual Model of CIPN Effects on QOL**
- E. Funded Study Abstract**
- F. Literature Reviewed for Conceptual Model and Dissertation Proposal**

## **Introduction**

This training grant proposed an interdisciplinary, mentored, clinical research experience on the understudied area of neurological effects of breast cancer treatment through a doctoral training program. The traineeship is based at two campuses: the Dartmouth Medical School/Norris Cotton Cancer Center, Lebanon, NH and Yale University, New Haven, CT. The trainee's research mentor, Tim Ahles, PhD, Director of Psycho-oncology Research, Norris Cotton Cancer Center supervises the trainee's clinical research skill development at Dartmouth and Doctoral Program Dean, Ruth McCorkle, PhD and Professor and dissertation chair, Tish Knobf, RN, PhD supervise the academic and research components at Yale University. The purpose of this traineeship is to develop, the academic, clinical, and research skills within the context of a doctoral nursing program and funded program of research of the (central nervous system) Cognitive Effects of Chemotherapy, to support Ms. Bakitas in the long term career goal of developing as a Clinical Breast Cancer Research Scientist. Through this traineeship Ms. Bakitas is expanding the Center for Psycho-oncology Program's focus on Central Nervous System/Cognitive Effects, by developing an independent, but parallel focus on the peripheral nervous system effects of chemotherapy (Chemotherapy-Induced Peripheral Neuropathy [CIPN]) on quality of life.

## **Body**

This section is organized according to the original Statement of Work (Appendix A) Achievements are reviewed and summarized for each of the original three tasks. Please note that original timeline was developed with an anticipated start date of Month 1= January 03. As funding was not actually available until April 03, there is occasional slight variation in the actual date of accomplishment; however all activities are on schedule within the 2 year grant period.

### **Task 1. Develop research skills and abilities, including measurement, data analysis, and conceptual model development in breast cancer research through mentorship and doctoral education. (Months 1-18)**

The trainee has successfully completed all of the proposed tasks according to the timeline. Research skill development activities have included research supervision by traineeship mentor Tim Ahles, PhD (at Dartmouth) and Yale University Research Advisor Kathleen Knafel, PhD, activities within Dr. Knafel's NIH-projects have included development of skill in qualitative and quantitative research techniques including (interviewing skills, questionnaire expert content review, qualitative data analysis for new instrument development, and study submission for Human Subjects Review (3 successfully reviewed applications). All required doctoral core courses have been completed at an Honors or High Pass level of achievement (See Appendix B-Transcript). In addition to core courses, all cognates have been completed. Cognates have focused on advanced research methods (survey, (Dartmouth) qualitative, and quantitative (Yale-School of Public Health), and cancer pharmacology. Furthermore, as planned, the trainee audited two Dartmouth Medical School neurology-focused modules: Introduction to

Neuroscience, and the Neurology section of The Scientific Basis of Medicine (SBM) Course. This coursework has provided solid pathophysiology background for the program of study. At the end of the first year, the trainee passed the Yale required Preliminary (Competency) Exam. All of the above has prepared the trainee to undertake development of the dissertation proposal.

**Task 2. Collect pilot data on peripheral neurological (PN) effects in conjunction with serial neuropsychological and quality of life measures in women enrolled in a longitudinal study of cognitive effects of breast cancer treatment. (Months 1-18)**

The trainee proposed a series of steps to develop the foundational theoretical, instrumental, and clinical skills to perform appropriate assessment of chemotherapy-induced peripheral neuropathy (CIPN). A major finding from the empirical literature review (Please refer to task 3 and see Appendix F) and consultation with neurological experts demonstrated a lack of consensus or gold standard in physical assessment (Cavaletti et al., 2003; Postma & Heimans, 2000; Postma et al., 1999; Postma et al., 1998) and self-reported CIPN and quality of life (Almadrones, McGuire, Walczak, Florio, & Tian, 2004, in press; Blazeby, Sprangers, Cull, Groenvold, & Bottomley, 2001; Calhoun et al., 2003; Cella, Peterman, Hudgens, Webster, & Socinski, 2003). Hence, work items relating to neuropathy assessment have been modified in the following way: the trainee has joined a multidisciplinary project team composed of Dartmouth consultants (Cohen/Fadul/Smith) to develop a pilot project to develop and validate a simplified clinical "reduced" Total Neuropathy Score (TNS)" (Cavaletti et al., 2003; Chaudhry, Chaudhry, Crawford, Simmons-O'Brien, & Griffin, 2003). for use in subsequent CIPN investigations. The project (to be submitted for Hitchcock Foundation funding) intends to establish inter-rater reliability between nurse practitioners (ARNPs) (Bakitas and Smith) and project neurologists using a "reduced / clinical TNS", and then determining concordance between physical exam and sural and peroneal nerve testing. These neurological measures and examination skills will then also be used in "train the trainer" workshops to be presented by the trainee to other DHMC ARNPs as part of a newly funded Oncology Nursing Society grant (See Task 3).

Under the supervision of Dr. Ahles, and (at Yale) Professors Jane Dixon, PhD, and Tish Knobf, PhD, the trainee has conducted an extensive review of literature on CIPN self report QOL instruments. Available instruments are newly developed with only minimal patient-based perspective for item development. Preliminary psychometric properties appear adequate. Based on these finding the trainee has accomplished the following:

- 1) The Functional Assessment for Cancer Therapy-TAXANE (FACT-TAXANE) has been added as the CIPN measure to the battery of assessments of Dr. Ahles Cognitive Effects of Chemotherapy study as planned. Current N=150 breast and lymphoma patients. The FACT-TAXANE has also been incorporated into a newly funded study (Andrew Saykin, PhD-PI and Tim Ahles, PhD-co-PI) entitled "Neuromechanisms of Chemotherapy-Induced Cognitive Disorders". Eleven of one hundred women with breast cancer have already been recruited to this three year companion study. CIPN data will be available for the trainee from both of these studies for future analysis of correlations between PNS and CNS effects of breast cancer treatment; and

2) Evaluation of the patient experience of CIPN and assessment of its impact on QOL, an understudied area and research priority (Oncology Nursing Society, 2003) has become the focus of the trainee's dissertation proposal. Dr. Knobf has agreed to serve as the dissertation chair (along with Ahles, Dixon, and readers McCorkle, and Knafl). This proposal is scheduled for defense in September 2004.

In conjunction with Dr. Ahles the trainee has had an observational experience in Neuropsychological Assessment; no further work is planned on this area given the focus on peripheral assessment.

**Task 3. Identify gaps in knowledge, research hypotheses, and feasible methods to study and develop interventions as a basis for a doctoral dissertation and future program of research (Months 6-24)**

The trainee has been extremely productive in this area. As described an ongoing literature review, established through Dartmouth Medical School Librarian Support, is ongoing, but focused as an independent study in Spring/Summer 2003 on Neurological Effects-See Bibliography Appendix F). Based on the literature the trainee developed two preliminary conceptual models of neurological effects of breast cancer treatment. Appendix C illustrates the trajectory, and Appendix D illustrates the QOL effects specific to CIPN. These models are currently being reviewed and critiqued by consultants (Fadul/Cohen/DeLeo). These models and the review are undergoing further refinement as the basis for the dissertation proposal. An in-depth qualitative exploratory study of the patient's experience of CIPN and its QOL impact is planned. This investigation will contribute to understanding and likely measurement/ instrument refinement and /or development.

The literature synthesis also served as the basis of refinement of Neuropathy Assessment, Referral, and Treatment algorithms. As CO-PI, the trainee assisted PI Smith to submit a clinical research proposal to the Oncology Nursing Foundation to test the integration of these algorithms into clinical practice and evaluate nurse and patient outcomes in summer 2003. Although a good priority score was obtained the proposal was not funded on the first submission. However, reviewer input was incorporated and on resubmission we have just learned that the proposal is now funded (See Appendix E-Study Abstract). The trainee's effort will be contributed as it strengthens and builds upon the current traineeship. No additional salary support is provided through this ONS small grant.

Literature synthesis has also resulted in preparation of a joint lecture, "Neuropathic Pain: From Bench to Bedside" co-taught by Joyce DeLeo, PhD on March 04 at Dartmouth Hitchcock Medical Center.

The trainee will attend three conferences in the coming year that will contribute to knowledge, research networking and dissertation proposal development: 1). July 19-24-University of North Carolina-"Instrument Development"; 2). International Association for the Study of Pain (IASP) Special Interest Group on Pain Conference "Mechanisms and Treatment of Neuropathic Pain" November 4-6, 2004; and 3). the 8<sup>th</sup> National Conference on Cancer Nursing Research, February 3-5, 2005. Abstracts regarding the conceptual models will be submitted to the latter two organizations for consideration for poster/paper presentations.

**Key Research Accomplishments:**

- Completed doctoral coursework
- Passed Preliminary Examination
- Identified Dissertation Committee and Initiated dissertation proposal
- Developed as Co-PI a successfully funded research project on CIPN
- Synthesis and Presentation of CIPN literature for podium, abstract, and dissertation proposal

**Reportable Outcomes:**

All portions of Tasks 1, 2, & 3 due for completion by midterm have been accomplished. In addition, the trainee's contribution as co-investigator to a CIPN clinical research grant has been funded, which will strengthen the program of research and research skills. Two conceptual models developed in preparation for the dissertation proposal will serve as the conceptual model for the study, but will also contribute to the study of neurological effects of breast cancer treatment. Scientific abstracts describing these models are being prepared for submission to scientific meetings.

**Conclusions**

The trainee has made significant progress in acquiring the foundational knowledge and research skills to develop an independent doctoral dissertation in an understudied area of breast cancer research, namely chemotherapy-induced peripheral neuropathy. Via the doctoral dissertation the trainee plans to examine the measurement and patient experience of CIPN and its impact on quality of life and treatment decision-making. This research will contribute to an understanding of this non-life-threatening but dose-limiting effect that can significantly interfere with quality of life. Furthermore, through this mentored, research training program, the trainee has made significant progress in developing a future career in clinical breast cancer research.

**References:**

- Almadrones, L., McGuire, D. B., Walczak, J. R., Florio, C. M., & Tian, C. (2004, in press). Psychometric evaluation of two scales assessing functional status and peripheral neuropathy associated with chemotherapy for ovarian cancer: A Gynecologic Oncology Group study. *Oncology Nursing Forum*.
- Blazeby, J., Sprangers, M., Cull, A., Groenvold, M., & Bottomley, A. (2001). *EORTC Quality of Life Group Guidelines for Developing Questionnaire Modules, 3rd edition*. Brussels: EORTC.
- Calhoun, E. A., Welshman, E. E., Chang, C.-H., Lurain, J. R., Fishman, D. A., Hunt, T. L., et al. (2003). Psychometric evaluation of the Functional Assessment of Cancer

- Therapy/Gynecologic Oncology Group-Neurotoxicity (FACT/GOG-Ntx) Questionnaire for Patients Receiving Systemic Chemotherapy. *International Journal of Gynecologic Oncology*, 13, 1-8.
- Cavaletti, G., Bogliun G., Marzorati L., Zincone A., Piatti M., Colombo N., et al. (2003). Grading of chemotherapy-induced peripheral neurotoxicity using the Total Neuropathy Scale. *Neurology*, 61(9), 1297-1300.
- Cella, D., Peterman, A., Hudgens, S., Webster, K., & Socinski, M. A. (2003). Measuring the side effects of taxane therapy in oncology: The Functional Assessment of Cancer Therapy-Taxane (FACT-Taxane). *Cancer*, 98(4), 822-831.
- Chaudhry, V., Chaudhry, M., Crawford, T., Simmons-O'Brien, E., & Griffin, J. (2003). Toxic neuropathy in patients with pre-existing neuropathy. *Neurology*, 60, 337-340.
- Oncology Nursing Society. (2003). *Oncology Nursing Society: Research Agenda 2003-2005*. Pittsburgh, PA: Oncology Nursing Society.
- Postma, T. J., & Heimans, J. J. (2000). Grading of chemotherapy-induced peripheral neuropathy. *Annals of Oncology*, 11, 509-513.
- Postma, T. J., Heimans, J. J., Aaronson, N. K., Grant, R., Huddart, R., Maher, J., et al. (1999). The impact of chemotherapy induced peripheral neuropathy on quality of life [Proceedings]. *Journal of Neurology, Neurosurgery, and Psychiatry*, 67(6), 838-839.
- Postma, T. J., Heimans, J. J., Muller, M. J., Ossenkoppele, G. J., Vermorken, J. B., & Aaronson, N. K. (1998). Pitfalls in grading severity of chemotherapy-induced peripheral neuropathy. *Annals of Oncology*, 9, 739-744.

## **Appendices**

A. Statement of Work

B. Transcript

C. Conceptual Model of Trajectory of Neurological Effects

D. Conceptual Model of CIPN Effects on QOL

E. Abstract of Funded Study

F. Literature Reviewed for Models and Dissertation Proposal

APPENDIX A.

**Statement of Work**

This statement of work provides an overview of a two year project in which the candidate will spend half of her week on the Yale Campus and half on the Dartmouth Campus.

Task 1. Develop research skills and abilities, including measurement, data analysis, and conceptual model development in breast cancer research through mentorship and doctoral education. (Months 1-18)

1. Weekly meeting with Dr. Ahles for mentored research supervision (Months 1-24)
2. Participate in 15 hrs/wk supervised Research Activities with doctoral faculty (Month 1-18)
3. Complete Year 1-Spring term (Months 1-5) and Year 2 -Fall and Spring (Months 9-17) required doctoral coursework (Yale)
4. Take Research Methods (CECS), Neurology, or Pharmacology Cognates (DMS) (Months 1-5, 9-12, 13-17)
5. Complete Preliminary Exam (at completion of 1<sup>st</sup> year of coursework) Month 6
6. Complete Qualifying Exam (at completion of 2<sup>nd</sup> year of coursework) Month 18
7. Dissertation underway (Month 21-completion)
8. Dissertation advisement (Month 21-completion)

Task 2. Collect pilot data on peripheral neurological (PN) effects in conjunction with serial neuropsychological and quality of life measures in women enrolled in a longitudinal study of cognitive effects of breast cancer treatment. (Months 1-18)

1. Precepted Clinical Neurological Examination Skills (Cohen/Fadul) (Months 1-3)
2. Precepted Neuropsychological Assessment Training (Ahles)
3. Refine and produce standardized neuropathy assessment tool (Cohen/Fadul) (Month 1-5)
4. Develop PN Data Management Procedures (Month 5)
5. Attend weekly meetings of Psychooncology Center for Research and Breast Cancer Tumor Board to identify breast cancer patients on study (Months 6-18)
6. Perform neuropathy assessment on breast cancer patients enrolled in Longitudinal Cognitive Effects (Months 6-18)

Task 3. Identify gaps in knowledge, research hypotheses, and feasible methods to study and develop interventions as a basis for a doctoral dissertation and future program of research (Months 6-24)

1. Perform Review of Literature on Neurological Effects (Months 6-9)
2. Perform Secondary analysis of existing data and summarize preliminary data (months 6-9)
3. Develop draft of a model of neurological effects of breast cancer treatment (Month 10)
4. Call expert panel meeting (Month 10 & 17)
5. Incorporate expert panel comments into model (Month 11-12)
6. Generate list of problems/hypotheses and methods to study, determine feasibility of conducting studies of above, determine funding sources, develop patient educational materials on CNS/PNS effects (Months 12-18)
7. g. Develop dissertation defense based on above to prepare for qualifying exam (Months 12-18)

APPENDIX B.

# Yale University Student Information System

## Display Transcript



This is NOT an official transcript. A course for which a grade has not been submitted will appear separately under Courses in Progress.

If your course displays with '\*\*\*\*' in the grade column, you must complete a course evaluation or indicate that you choose not to evaluate the course. Click on the link below the asterisks to go to the course evaluation page.

[Transfer Credit](#)   [Institution Credit](#)   [Courses in Progress](#)

**Transcript Data**

Registration ID:  
1025427

\*\*\*This is NOT an Official Transcript\*\*\*

**TRANSFER CREDIT ACCEPTED BY INSTITUTION**   [-Top-](#)

Spring 2003:

Dartmouth College

| Subject | Course | Title                   | Grade | Credit Hours |
|---------|--------|-------------------------|-------|--------------|
| SPRG    | 2003   | Survey Research Methods | CR    | 3.30         |

Unofficial Transcript

Spring 2004:

Dartmouth College

| Subject | Course | Title           | Grade | Credit Hours |
|---------|--------|-----------------|-------|--------------|
| SPRG    | 2004   | Health Policy 2 | CR    | 3.30         |

Unofficial Transcript

**INSTITUTION CREDIT**   [-Top-](#)

Fall 2002

College:

Nursing School

| Subject | Course Title | Grade | Credit Hours | Grade Mode | Instructor |
|---------|--------------|-------|--------------|------------|------------|
|---------|--------------|-------|--------------|------------|------------|

|      |     |                                |   |      |         |  |
|------|-----|--------------------------------|---|------|---------|--|
| NURS | 529 | Statistics for Clin Nurs Res   | H | 0.00 | Nursing | M. Funk                                |
| NURS | 901 | Methods for Nursing Research   | H | 3.00 | Nursing | J. Dixon                               |
| NURS | 913 | Conceptual Bas for Nsg Science | H | 3.00 | Nursing | C. Gilliss<br>K. Knaf                  |
| NURS | 915 | Doc Research Prac I            | H | 1.00 | Nursing | R.<br>McCorkle                         |
| NURS | 943 | Conceptual Basis Self/Fam Mgt  | H | 3.00 | Nursing | R.<br>McCorkle<br>G. Melkus<br>K. Knaf |

Unofficial Transcript

Spring 2003

College:

Nursing School

| Subject | Course Title | Grade                          | Credit Hours | Grade Mode | Instructor                           |
|---------|--------------|--------------------------------|--------------|------------|--------------------------------------|
| NURS    | 904          | Neuro.Effects/Breast CancTrtmt | H            | 3.00       | Nursing<br>R.<br>McCorkle            |
| NURS    | 904          | Dev.Conc.Rsch.Propsls&Publctns | H            | 1.00       | Nursing<br>R.<br>McCorkle<br>K. Knaf |
| NURS    | 915          | Doctoral Research Pract. II    | H            | 1.00       | Nursing<br>R.<br>McCorkle            |
| NURS    | 917          | Adv Stats for Clin Nurs Resrch | H            | 3.00       | Nursing<br>G. Knaf                   |
| NURS    | 943          | Mthlgcl Iss.StudyMgtHlth&Illns | H            | 3.00       | Nursing<br>M. Grey<br>G. Melkus      |

Unofficial Transcript

Fall 2003

College:

Nursing School

| Subject | Course Title | Grade                         | Credit Hours | Grade Mode | Instructor                |
|---------|--------------|-------------------------------|--------------|------------|---------------------------|
| NURS    | 805          | Cancer Pharmacology           | HP           | 1.50       | Nursing<br>N. Beaulieu    |
| NURS    | 903          | Measurement of Clin Variables | H            | 3.00       | Nursing<br>J. Dixon       |
| NURS    | 907          | Dissertation Seminar          | YR           | 0.00       | Nursing<br>R.<br>McCorkle |
| NURS    | 915          | Doctoral Research Pract. II   | RE           | 0.50       | Nursing<br>R.<br>McCorkle |

|      |     |                                |    |      |         |          |
|------|-----|--------------------------------|----|------|---------|----------|
| NURS | 925 | Qualitative Research in Nrsg   | H  | 3.00 | Nursing | K. Knaff |
| NURS | 961 | Hlth Pol for Pub & Priv Sectrs | HP | 3.00 | Nursing | S. Cohen |

## Unofficial Transcript

Spring 2004

College:

Nursing School

| Subject | Course Title | Grade                         | Credit Hours | Grade Mode | Instructor |                           |
|---------|--------------|-------------------------------|--------------|------------|------------|---------------------------|
| SOCY    | 560          | Comparative Research Workshop | H            | 2.00       | Nursing    | I. Szelenyi<br>A. Schrank |

## Unofficial Transcript

COURSES IN PROGRESS -Top-

Spring 2004

College:

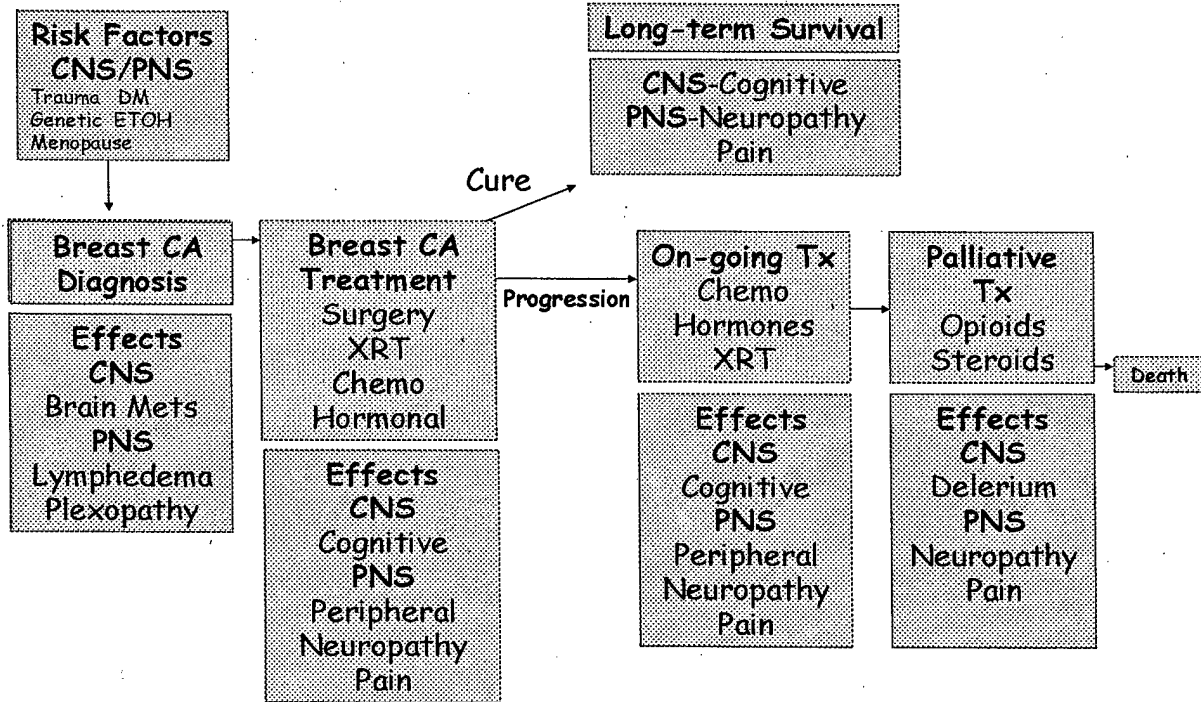
Nursing School

| Subject | Course Title | Credit Hours                  | Grade Mode | Instructor |                |
|---------|--------------|-------------------------------|------------|------------|----------------|
| CDE     | 534          | Approaches to Data Management | 3.00       | Nursing    | M. Desai       |
| NURS    | 905          | CreatingMethod:IssinNursRes   | 3.00       | Nursing    | J. Dixon       |
| NURS    | 907          | Dissertation Seminar          | 3.00       | Nursing    | M. Grey        |
| NURS    | 915          | Doctoral Research Pract. II   | 0.50       | Nursing    | R.<br>McCorkle |

RELEASE: 5.5

APPENDIX C.

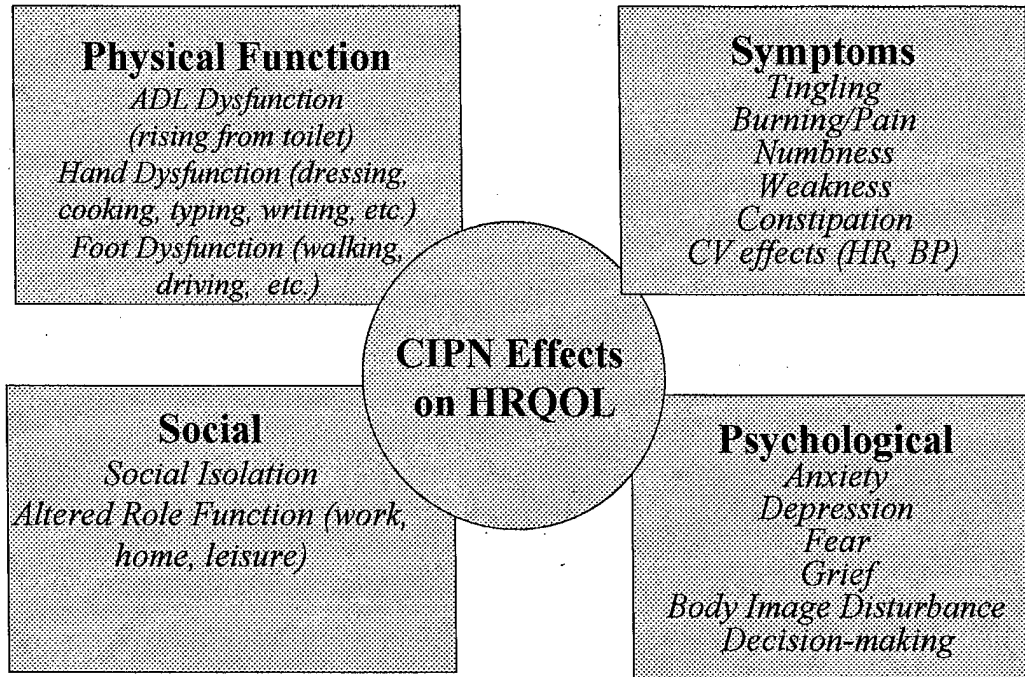
Neurological Effects of Cancer Tx Across Trajectory



Bakitas. 2003

APPENDIX D.

# Proposed Model of CIPN Effects on QOL \*



\*Based on cancer chemotherapy and DM literature

Bakitas 2003

Smith, Ellen /Neuropathic Pain

## APPENDIX E.

### Testing an Evidenced-Based Treatment and Referral Algorithm in Hematology/Oncology Outpatients with Neuropathic Pain (NP)

Principal Investigator: Ellen M. Lavoie Smith, MS, APRN-BC, AOCN Co-Investigators: Louise Meyer, MS, ARNP, Marie Bakitas, MS, APRN-BC, AOCN, FAAN, Camilo Fadul, MD; **Dartmouth Hitchcock Medical Center (DHMC)/Norris Cotton Cancer Center (NCCC), Lebanon, NH**  
Consultants: Marilyn Bookbinder, PhD, RN, Peter Homel, PhD; **Beth Israel Medical Center, New York, NY**

#### Abstract

#### Purpose/Specific Aims:

The specific aims of this study are:

1. To implement an evidence-based screening, assessment, treatment and referral guideline for hematology/oncology outpatients with neuropathic pain (NP) receiving care at a comprehensive cancer center and 6 affiliated rural outreach clinics; and

2. To pilot-test the efficacy of an NP Algorithm on patient outcomes (pain experience, activities of daily living), and patient perceptions of the assessment/treatment process.

**Rationale and Significance:** Neuropathic pain is defined as pain that arises from injury, disease, or dysfunction of the central or peripheral nervous system. NP is described as burning, numbness, stabbing, pricking, tingling, sharpness, shooting, or electric-shock-like. NP is estimated to affect more than 2 million Americans, and suffering can be severe and persist for months to years. Historically NP has been inadequately assessed by healthcare professionals and underreported by patients. Data suggests that healthcare professionals lack knowledge regarding effective NP assessment and management strategies. Investigations of NP analgesic efficacy have provided little evidence to guide practitioners when selecting, titrating, and rotating analgesic combinations with different mechanisms of action. Therefore, evidence-based guidelines defining drug choice, combinations, dosage, sequence, and treatment duration have not been systematically implemented or tested. Suboptimal assessment practices and scant knowledge of "best practice" algorithms contribute to a high prevalence of uncontrolled NP and negative effects on patients' quality of life.

**Guideline to Be Implemented:** The NP evidence-based algorithm to be pilot-tested builds upon this Investigative Team's earlier ONF-funded project, "QUEST for PAIN Relief (2000-2001). QUEST developed an infrastructure to raise the standard of oncology patient care by fostering evidenced-based practice, utilization of research findings, and the generation of future research. Ellen Smith (PI), one of five advanced practice nurses mentored by the researcher-clinician team (Bookbinder and Whedon) served as a formal linkage agent, using a continuous quality improvement approach, to develop the NP guideline piloted in this project.

**Practice Change:** The recommended practice change involves implementation of NP assessment and treatment guidelines using a proven quality improvement model and multi-level educational strategies to change practice patterns and improve outcomes in identified patients with NP. Strategies involve traditional educational approaches in a cancer center and six outreach sites via in-services, audit-feedback, and clinical system changes through integrating an evidence-based algorithm into practice standards and ongoing communication via an electronic "community of practice" site throughout the grant period. Other innovative educational approaches include case-based nurse education and practice-linked reminders such as laminated pocket cards and posters reinforcing assessment, treatment, and referral guidelines. Outpatients with NP ratings greater than 4 on a 0-10 pain scale will be identified by nursing assistants and staff nurses for a follow-up neurological exam by the nurse practitioner and initiation of the treatment algorithm when appropriate. The algorithm study team and site-specific QI teams will meet at least bimonthly to evaluate and communicate progress throughout all study phases.

**Evaluation Plan:** Evaluation includes: ARNP clinical competency in NP assessment and management, chart audit for algorithm adherence and efficacy, and patient outcomes using standardized assessment tools.

APPENDIX F.

- 1 Aaronson, N.K. 1990. Quality of life research in cancer clinical trials: a need for common rules and language. *Oncology* 4 (5):59-66.
- 2 Aaronson, N.K., Ahmedzai, S., Bullinger, M, Crabeels, D. , Estape, J, Filiberti, A, Flechtner, H, Frick, U. , Hurny, C, Kaasa, S., Klee, M., Mastilica, M., Osoba, D., Pfausler, B., Razavi, D., Rofe, PBC, Schraub, S, Sullivan, M., and Takeda, F. 1991. The EORTC core quality-of-life questionnaire: interim results of an international field study. In *Effect of Cancer on Quality of Life*, edited by D. Osoba. New York: Raven Press.
- 3 Aggarwal, A. N., Gupta, D., Lal, V., Behera, D., Jindal, S. K., and Prabhakar, S. 2003. Ventilatory management of respiratory failure in patients with severe Guillain-Barre syndrome. *Neurology India*. 51 (2):203-5.
- 4 Ahles, Tim A., and Whedon, M. 1999. Chemo Brain: Cognitive impact of systemic chemotherapy. *Coping with Cancer* (July/August):48.
- 5 Ahles, Tim A., and Saykin, AJ. 2002. Breast cancer chemotherapy-related cognitive dysfunction. *Clin Breast Cancer* 3 (Suppl 3):S84-S90.
- 6 Ahles, Tim A., Saykin, AJ, Noll, WW, and al., et. 2003. Relationship of APOE genotype to neuropsychological performance in long-term cancer survivors treated with standard dose chemotherapy. *Psycho-Oncology* 12:612-619.
- 7 Allen, R. 1998. Neuropathic Pain in the Cancer Patient. *Neuropathic Pain Syndromes* 16 (4):869-888.
- 8 Almadrones, Lois, McGuire, Deborah B., Walczak, Janet Ruth, Florio, Colleen M., and Tian, Chunqiao. 2004, in press. Psychometric evaluation of two scales assessing functional status and peripheral neuropathy associated with chemotherapy for ovarian cancer: A Gynecologic Oncology Group study. *Oncology Nursing Forum*.
- 9 Anderson, PM, Ramsay, NKC, Shu, XO, Rydholm, N, Rogosheske, J, Nicklow, R, Weisdorf, DJ, and Skubitz, KM. 1998. Effect of low-dose oral glutamine on painful stomatitis during bone marrow transplantation. *Bone Marrow Transplantation* 22 (339-44).
- 10 Anonymous. 1999. Effects of vinorelbine on quality of life and survival of elderly patients with advanced non-small-cell lung cancer. The Elderly Lung Cancer Vinorelbine Italian Study Group. *Journal of the National Cancer Institute* 91 (1):66-72.
- 11 Arner, S, and Meyerson, B. 1988. Lack of analgesic effect of opioids on neuropathic and idiopathic forms of pain. *Pain* 33:11-23.
- 12 Austgen, TR, Dudrick, PS, Sitren, H, Bland, KI, Copeland, E, and Souba, WW. 1992. The effects of glutamine-enriched TPN on tumor growth and host tissues. *Annals of Surgery* 215 (2):107-113.
- 13 Backonja, MM, and Galer, BS. 1998. Pain assessment and evaluation of patients who have neuropathic pain. *Neurologic Clinics* 16 (4):775-90.
- 14 Backonja, Misha-Miroslav. 2002. Use of anticonvulsants for treatment of neuropathic pain. *Neurology* 59 (90052):14S-17.
- 15 Bakitas, Marie A. 2002. Developing a Research Program on Neurological Effects of Breast Cancer Treatment via Doctoral Education, Department of Defense, Congressionally Directed Medical Research Programs, [Http://cdmrp.army.mil/cgi-bin/search/search\\_results.pl](http://cdmrp.army.mil/cgi-bin/search/search_results.pl).
- 16 Barajon, I, Bersani, M., Quartu, M, Del Fiacco, M, Cavaletti, G, Holst, JJ, and Tredici, G. 138(1):93-104. 1996. Neuropeptides and morphological changes in

- cisplatin-induced dorsal root ganglion neuronopathy. *Experimental Neurology* 138 (1):93-104.
- 17 Barreiro, P., de Mendoza, C., Camino, N., Garcia-Benayas, T., Blanco, F., Nunez, M., Gonzalez-Lahoz, J., and Soriano, V. 2003. Hydroxyurea plus didanosine as maintenance therapy for HIV-infected patients on long-term successful highly active antiretroviral therapy. *HIV Clinical Trials*. 4 (6):361-71.
- 18 Barroso, Julie, and Sandelowski, Margarete. 2001. In the field with the Beck Depression Inventory. *Qualitative Health Research* 11 (4):491-504.
- 19 Bartlett, DL, Charland, S, and Torosian, MH. 1995. Effects of glutamine on tumor and host growth. *Annals of Surgical Oncology* 2 (1):71-76.
- 20 Beck, CT, and Gable, RK. 2001. Ensuring content validity: An illustration of the process. *Journal of Nursing Measurement* 9 (2):201-215.
- 21 Benbow, SJ, Wallymahmed, ME, and Macfarlan, IA. 1998. Diabetic peripheral neuropathy and quality of life. *Q J Med* 91:733-737.
- 22 Benedetti, F., S., Vighetti, C., Ricco, M., Amanzio, L., Bergamasco, C., Casadio, R., Cianci, R., Giobbe, A., Oliaro, B., Bergamasco, and G., Maggi. 1998. Neurophysiologic assessment of nerve impairment in posterolateral and muscle-sparing thoracotomy. *Journal of Thoracic & Cardiovascular Surgery* 115 (4):841-7.
- 23 Benner, Patricia. 1994. *Interpretive Phenomenology: Embodiment, Caring, and Ethics in Health and Illness*. Thousand Oaks, CA: Sage Publications.
- 24 Beydoun, A, and Nasreddine, W. Pharmacotherapy of Painful Peripheral Neuropathies. *Progress in Neurology*:3-7.
- 25 Blazeby, Jane, Sprangers, MAG, Cull, A, Groenvold, M, and Bottomley, A. 2001. EORTC Quality of Life Group Guidelines for Developing Questionnaire Modules, 3rd edition. Brussels: EORTC.
- 26 Bolay, Hayrunnisa, and Moskowitz, Michael A. 2002. Mechanisms of pain modulation in chronic syndromes. *Neurology* 59 (90052):2S-7.
- 27 Bookbinder, M. 1992. Nurse linkage agents efforts to facilitate the use of a research-based innovation, Nursing, New York University, New York, New York.
- 28 Bookbinder, M, and Whedon, M. 2001. QUEST for pain relief: building "best practices". Paper read at Proceedings from the Twenty-sixth Annual Oncology Nursing Society Congress. Podium presentation., May, at San Diego, CA.
- 29 Boyle, FM, Wheeler, HR, and Shenfield, GM. 1996. Glutamate ameliorates experimental vincristine neuropathy. *Journal of Pharmacology & Experimental Therapeutics* 279 (1):410-5.
- 30 Boyle, F, Monk, R, Davey, R, Wheeler, H, and Shenfield, G. 1996. Prevention of experimental paclitaxel neuropathy with glutamate. Paper read at 87th Annual Meeting of the American Association for Cancer Research, April 20-24, at Washington, D.C., USA.
- 31 Boyle, F, Monk, R, Wheeler, H, and Shenfield, G. 1997. The experimental neuroprotectant glutamate does not inhibit cytotoxicity of vinca alkaloids, cisplatin or paclitaxel. Paper read at Proceedings American Association for Cancer Research Annual Meeting, April 12-16, at Eighty-eighth Annual Meeting of the American Association for Cancer Research, San Diego, California, USA.
- 32 Boyle, FM, Wheeler, HR, and Shenfield, GM. 1999. Amelioration of experimental cisplatin and paclitaxel neuropathy with glutamate. *Journal of Neuro-Oncology* 41 (2):107-16.
- 33 Boyle, FM, Beatson, C, Monk, R, Grant, SL, and Kurek, JB. 2001. The

- experimental neuroprotectant leukaemia inhibitory factor (LIF) does not compromise antitumour activity of paclitaxel, cisplatin and carboplatin. *Cancer Chemotherapy & Pharmacology* 48 (6):429-34.
- 34 Bozzetti, F, Biganzoli, L, Gavazzi, C, Cappuzzo, F, Carnaghi, C, Buzzoni, R, Dibartolomeo, M, and Baietta, E. 1997. Glutamine supplementation in cancer patients receiving chemotherapy: a double-blind randomized study. *Nutrition* 13 (7-8):748-51.
- 35 Brady, M.J., Peterman, A. H., Fitchett, G., Mo, M., and Cella, D. 1999. A case for including spirituality in quality of life measurement in oncology. *Psycho-Oncology* 8 (5):417-428.
- 36 Brod, M. 1998. Pilot Study: Quality of life issues in patients with diabetes and lower extremity ulcers: patients and care givers. *Quality of Life Research* 7:365-372.
- 37 Burrows, M, Dibble, S, and Miaskowski, C. 1998. Differences in Outcomes Among Patients Experiencing Different Types of Cancer-Related Pain. *Burrows* 25 (4):735-741.
- 38 Calhoun, EA, Welshman, EE, Chang, C, Lurain, JR, Fishman, DA, and Cella, D. Psychometric evaluation of the Functional Assessment of Cancer Therapy/Gynecologic Oncology Group-Neurotoxicity (FACT/GOG-Ntx) questionnaire for pateints receiving systemic chemotherapy. *Undergoing peer review*.
- 39 Calhoun, E, Fishman, D, Roland, P, Lurain, J, Chang, C, and Cella, D. 2000. Validity and selective sensitivity of the FACT/GOG-Ntx. *Proceedings of ASCO* 19:Abstract 1751.
- 40 Calhoun, Elizabeth A., Welshman, Emily E., Chang, Chih-Hung, Lurain, John R., Fishman, David A., Hunt, Timothy L., and Cella, David. 2003. Psychometric evaluation of the Functional Assessment of Cancer Therapy/Gynecologic Oncology Group-Neurotoxicity (FACT/GOG-Ntx) Questionnaire for Patients Receiving Systemic Chemotherapy. *International Journal of Gynecologic Oncology* 13:1-8.
- 41 ———. 2003, in press. Psychometric evaluation of the Functional Assessment of Cancer Therapy/Gynecologic Oncology Group-Neurotoxicity (FACT/GOG-Ntx) Questionnaire for Patients Receiving Systemic Chemotherapy. *International Journal of Gynecologic Oncology*.
- 42 Cancer Facts and Figures, 2003.
- 43 Cao, Y, Feng, Z, Hoos, A, and Klimberg, VS. 1998. Glutamine enhances gut glutathione production. *Journal of Parenteral and Neteral Nutrition* 22:224-7.
- 44 Cavaletti, G, Bogliun, G, Marzorati, L, Tredici, G, Colombo, N, Parma, G, and Miceli, MD. 1994. Long-term peripheral neurotoxicity of cisplatin in patients with successfully treated epithelial ovarian cancer. *Anticancer Research* 14 (3B):1287-92.
- 45 Cavaletti, G., Bogliun G., Marzorati L., Zincone A., Piatti M., Colombo N., Parma G., Lissoni A., Fei F., Cundari S., and C., Zanna. 2003. Grading of chemotherapy-induced peripheral neurotoxicity using the Total Neuropathy Scale. *Neurology*. 61 (9):1297-300.
- 46 Cella, David, and Cherin, E. 1988. Quality of life during and after cancer treatment. *Comprehensive Therapy* 14 (5):69-75.
- 47 Cella, David, Tulsky, DS, Gray, G, Sarafian, B, LLOYD, S, Linn, E, and al., et.

1993. The Functional Assessment of Cancer Therapy (FACT) Scale: Development and validation of the general measure. *Journal of Clinical Oncology* 11:570-579.
- 48 Cella, David, and Bonomi, AE. 1995. Measuring quality of life: 1995 Update. *Oncology* November Supplement:47-60.
- 49 Cella, David, Paul, Diane, Yount, Susan, Winn, Rodger, Chang, Chih-Hung, Banik, Donald, and Weeks, Jane. 2003. What are the most important symptom targets when treating advanced cancers? A survey of providers in the National Comprehensive Cancer Network (NCCN). *Cancer Investigation* 21 (4):526-535.
- 50 Cella, David, Peterman, Amy, Hudgens, Stacie, Webster, Kimberly, and Socinski, Mark A. 2003. Measuring the side effects of taxane therapy in oncology: The Functional Assessment of Cancer Therapy-Taxane (FACT-Taxane). *Cancer* 98 (4):822-831.
- 51 ———. 2003, under review. Measuring the side effects of taxane therapy in oncology: The Functional Assessment of Cancer Therapy-Taxane (FACT-Taxane).
- 52 Cersosimo, RJ. 1989. Cisplatin neurotoxicity. *Cancer Treatment Reviews* 16 (4):195-211.
- 53 Chakravarty, A., and Mukherjee, S. C. 2003. Primary degenerative cerebellar ataxias in ethnic Bengalees in West Bengal: some observations. *Neurology India*. 51 (2):227-34.
- 54 Chang, V.T., and Ingham, Jane. 2003. Symptom control. *Cancer Investigation* 21 (4):564-578.
- 55 Chaudhry, V, Rowinsky, EK, Sartious, SE, Donehower, RC, and Cornblath, DR. 1994. Peripheral neuropathy from taxol and cisplatin combination chemotherapy: Clinical and electrophysiological studies. *Annual Neurology* 35:304-344.
- 56 Chaudhry, V, Chaudhry, M., Crawford, TO, Simmons-O'Brien, E, and Griffin, JW. 2003. Toxic neuropathy in patients with pre-existing neuropathy. *Neurology* 60:337-340.
- 57 Cleeland, CS. 1989. Measurement of pain by subjective report. In *Advances in Pain Research and Therapy: Issues in Pain Measurement*, edited by C. Chapman and J. Loeser. New York: Raven Press.
- 58 Cockerham, MB, Weinberger, BB, and Lerchie, SB. 2000. Oral glutamine for the prevention of oral mucositis associated with high-dose paclitaxel and melphalan for autologous bone marrow transplantation. *Annals of Pharmacotherapeutics* 34:300-3.
- 59 Coghlin Dickson, TM, Wong, RM, Negring, RS, Shizuru, JA, Johnston, LR, Hu, WW, Blume, KG, and Stockerl-Goldstein, KE. 2000. Effect of oral glutamine supplementation during bone marrow transplantation. *Journal of Parenteral and Enteral Nutrition* 24:61-66.
- 60 Collins, J, Grier, H, Sethna, N, Widler, R, and Berde, C. 1996. Regional anesthesia for pain associated with terminal pediatric malignancy. *Pain* 65:63-69.
- 61 Corson, J, and Schneider. 1984. The Dartmouth Pain Questionnaire: an Adjunct to the McGill Pain Questionnaire. *Pain* 19:59-69.
- 62 Cramond, T. 1998. Invasive Techniques for Neuropathic Pain in Cancer. In *Topics in Palliative Care*, edited by E. Bruera and R. Portenoy. New York: Oxford University Press.
- 63 Creswell, John W. 1998. *Qualitative inquiry and research design: Choosing*

- among five traditions. Thousand Oaks, CA: Sage Publications.
- 64 Cros, Didier. 2001. *Peripheral Neuropathy: A Practical Approach to Diagnosis and Management*. Philadelphia: Lippincott Williams and Wilkins.
- 65 Daniele, B, Perrone, F, Gallo, C, Pignata, S, De Martino, S, DeVivo, R, Barletta, E, Tambaro, R, Abbiati, R, and D'Agostino, L. 2001. Oral glutamine in the prevention of fluorouracil induced intestinal toxicity: a double blind, placebo controlled, randomised trial. *Gut* 48:28-33.
- 66 Davies, H, Crombie, I, and Macrae, W. 1994. Why use a pain clinic? Management of neurogenic pain before and after referral. *Journal of Royal Society of Medicine* 87:382-385.
- 67 Davies, H, Crombie, I, Macrae, W, Rogers, K, and Charlton, J. 1996. Audit in pain clinics: Changing the management of low-back and nerve-damage pain. *Anaesthesia* 51:641-646.
- 68 Decker, GM. 2002. Glutamine: indicated in cancer care? *Clinical Journal of ONcology Nursing* 6 (2):112-115.
- 69 Decker-Baumann, C, Buhl, K, Frohumuller, S, Herbay, AV, Dueckk, M, and Schlag, PM. 1999. Reduction of chemotherapy-induced side-effects by parenteral glutamine supplementation in patients with metastatic colorectal cancer. *European Journal of Cancer* 35 (2):202-7.
- 70 DeLeo, J, Colburn, R, Nichols, M, and Malhotra, A. 1996. Interleukin-6-Mediated Hyperalgesia/Allodynia and Increased Spinal IL-6 Expression in a Rat Mononeuropathy Model. *Journal of Interferon and Cytokine Research* 16:695-700.
- 71 DeLeo, J, Colburn, R, and Rickman, A. 1997. Cytokine and growth factor immunohistochemical spinal profiles in two animal models of mononeuropathy. *Brain Research* 759 (1):50-7.
- 72 Derry, WB, Wilson, L, and Jordan, MA. 1995. Substoichiometric binding of taxol suppresses microtubule dynamics. *Biochemistry* 34 (7):2203-2211.
- 73 DeVellis, RF. 2003. *Scale development: Theory and applications*. Vol. 26, *Applied Social Research Methods Series*. Thousand Oaks: Sage.
- 74 Diekelmann, Nancy I., Schuster, Robert, and Lam, Sui-Lun. 1995. MARTIN, a Computer Software Program. In *Interpretive Phenomenology*, edited by P. Benner. Thousand Oaks, CA: Sage.
- 75 Dixon, Jane K. 2001. Factor Analysis. In *Statistical methods for health care research*, edited by B. Munro. Philadelphia: Lippincott.
- 76 Ellison, N, Loprinzi, C, Kugler, J, Hatfield, A, Miser, A, Sloan, J, Wender, D, Rowland, K, Molina, R, Cascino, T, Vukov, A, Dhaliwal, H, and Ghosh, C. 1997. Phase III Placebo-Controlled Trial of Capsaicin Cream in the Management of Surgical neuropathic Pain in Cancer Patients. *Journal of Clinical Oncology* 15 (8):2974-2980.
- 77 Engersoll, Gail L. 2000. Evidence-Based Nursing: What It Is and What It Isn't. *Nursing Outlook* 42:151-152.
- 78 Fahr, MJ, Kornbluth, J, Blossom, S, Schaeffer, R, and Klimberg, VS. 1994. Glutamine enhances immunoregulation of tumor growth. *Journal of Parenteral and Enteral Nutrition* 18 (6):471-76.
- 79 Ferrell, Betty R., and Grant, Marcia. 2003. Quality of life and symptoms. In *Quality of Life From Nursing and Patient Perspectives*, edited by C. King and P. Hinds. Boston: Jones and Bartlett Publishers.
- 80 Fielding, N.G., and Lee, R. M. 1998. *Computer analysis and qualitative research*.

- London: Sage.
- 81 Fisher, and McPherson. 1997. Gabapentin (Neurontin, Parke-Davis). *American Journal of Hospice and Palliative Care*:311-312.
- 82 Fleury, Julie. 1993. Preserving qualitative meaning in instrument development. *Journal of Nursing Measurement* 1 (2):135-144.
- 83 Foley, KM. 2003. Opioids and chronic neuropathic pain. *The New England Journal of Medicine* 348 (13):1279-1281.
- 84 Forsyth, P, Balmaceda, C, Peterson, K, Seidman, A, Brasher, P, and DeAngelis, L. 1997. Prospective study of paclitaxel-induced peripheral neuropathy with quantitative sensory testing. *Journal of Neuro-Oncology* 35:47-53.
- 85 Franklin, Gary M. 2004. Peripheral neuropathy. In *Neuroepidemiology: From Principles to Practice*, edited by L. M. Nelson, C. M. Tanner, S. K. Van Den Eeden and V. M. McGuire. Oxford: Oxford University Press.
- 86 Freilich, RI, Balmaceda, C, Seidman, AD, M, Rubin, and DeAngelis, LM. 1996. Motor neuropathy due to docetaxel and paclitaxel. *Neurology* 47 (1):115-118.
- 87 Freyer, Gilles, Hennebert, Philippe, Awada, Ahmad, Gil, Thierry, Kerger, Joseph, Selleslags, Jean, Brassinne, Christiane, Piccart, Martine, and de Valeriola, Dominique. 2002. Influence of Amifostine on the Toxicity and Pharmacokinetics of Docetaxel in Metastatic Breast Cancer Patients: A Pilot Study. *Clin Cancer Res* 8 (1):95-102.
- 88 Fusco, B, and Giancovazzo, M. 1997. Peppers and Pain: The Promise of Capsaicin. *Drugs* 53 (6):909-914.
- 89 Galer, BS. 1994. Painful polyneuropathy: diagnosis, pathophysiology, and management. *Seminars in Neurology* 14 (3):237-46.
- 90 Galer, Bradley S. 1995. Neuropathic pain of peripheral origin: Advances in pharmacologic treatment. *Neurology* 45 (9):S17-S25.
- 91 Galer, B, and Jensen, M. 1997. Development and preliminary validation of a pain measure specific to neuropathic pain: The Neuropathic Pain Scale. *Neurology* 48 (2):332-338.
- 92 Galer, BS. 1998. Painful polyneuropathy. *Neurologic Clinics* 16 (4):791-812.
- 93 Galer, Bradley S, Gianas, Ann, and Jensen, Mark P. 2000. Painful diabetic polyneuropathy: epidemiology, pain description, and quality of life. *Diabetes REsearch & Clinical Practice* 47 (2):123-8.
- 94 Garcia, J, and Altman, R. 1997. Chronic Pain States: Invasion Procedures. *Seminars in Arthritis and Rheumatism* 27 (3):156-160.
- 95 ———. 1997. Chronic Pain States: Pathophysiology and Medical Therapy. *Seminars in Arthritis and Rheumatism* 27 (1):1-16.
- 96 Gelmon, K, Eisenhauer, E., Bryce, C., Tolcher, A., Mayer, L., Tomlinson, E., Zee, B., Blackstein, M., Tomiak, E., Yau, J., Batist, G., Fisher, B., and Iglesias, J. 1999. Randomized phase II study of high-dose paclitaxel with or without amifostine in patients with metastatic breast cancer. *J Clin Oncol* 17 (10):3038-3047.
- 97 Glaser, B.G., and Strauss, A.L. 1967. *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine.
- 98 Gogas, H, Shapiro, F, Aghajanian, C, Fennelly, D, Almadrones, L, and Hoskins, WJ. 1996. The impact of diabetes mellitus on the toxicity of therapy for advanced ovarian cancer. *Gynecologic Oncology* 61 (1):22-6.
- 99 Goodwin, Pamela J., Black, Jeanne T., Bordeleau, Louise J., and Ganz, Patricia

- A. 2003. Health-related quality-of-life measurement in randomized clinical trials in breast cancer--Taking stock. *Journal of the National Cancer Institute* 95 (4):263-281.
- 100 Gregg, RW, Molepo, JM, Monpetit, VJ, Mikael, NZ, Redmond, D, Gadia, M, and Stewart, DJ. 1992. Cisplatin neurotoxicity: the relationship between dosage, time, and platinum concentration in neurologic tissues, and morphologic evidence of toxicity. *Jouranl of Clinical Oncology* 10 (5):795-803.
- 101 Grond, S, Radbruch, L, Meuser, T, Sabatowski, R, Loick, G, and Lehmann, K. 1999. Assessment and treatment of neuropathic cancer pain following WHO guidelines. *Pain* 79:15-20.
- 102 Haase, Joan E., and Bradden, Carrie Jo. 2003. Conceptualization and measurement of quality of life and related concepts: Guidelines for clarity. In *Quality of Life: From Nursing and Patient Perspectives 2nd edition*, edited by C. King and P. Hinds. Boston: Jones and Bartlett Publishers.
- 103 Haberman, Mel R., and Bush, Nigel. 2003. Quality of life: Methodological and Measurement Issues. In *Quality of Life: From Nursing and Patient Perspectives 2nd edition*, edited by C. King and P. Hinds. Boston: Jones and Bartlett Publishers.
- 104 Hansen, SW. 1992. Late-effects after treatment for germ-cell cancer with cisplatin, vinblastine, and bleomycin. *Danish Medical Bulletin* 39 (5):391-9.
- 105 Henderson, I. Craig, Berry, Donald A., Demetri, George D., Cirrincione, Constance T., Goldstein, Lori J., Martino, Silvana, Ingle, James N., Cooper, M. Robert, Hayes, Daniel F., Tkaczuk, Katherine H., Fleming, Gini, Holland, James F., Duggan, David B., Carpenter, John T., Frei, Emil, III, Schilsky, Richard L., Wood, William C., Muss, Hyman B., and Norton, Larry. 2003. Improved Outcomes From Adding Sequential Paclitaxel but Not From Escalating Doxorubicin Dose in an Adjuvant Chemotherapy Regimen for Patients With Node-Positive Primary Breast Cancer. *J Clin Oncol* 21 (6):976-983.
- 106 Henderson-Martin, B. 2000. Adverse effects of paclitaxel in patients with alcohol abuse histories. *Clinical Journal of Oncology Nursing* 4 (1):11-13.
- 107 Hensley, ML, Schuchter, LM, Lindley, C, and et al. 1999. American Society of Clinical Oncology clinical practice guidelines for the use of chemotherapy and radiotherapy protectants. *Journal of Clinical Oncology* 17 (3333-55).
- 108 Hensley, ML, Schuchter, LM, Lindley, C, and al., et. 1999. American Society of Clinical Oncology clinical practice guidelines for the use of chemotherapy and radiotherapy protectants. *Journal of Clinical Oncology* 17 (3333-55).
- 109 Hewitt, D, and Portenoy, R. 1998. Adjuvant Drugs for Neuropathic Cancer Pain. In *Topic in Palliative Care*, edited by E. Bruera and R. Portenoy. New York: Oxford Univeristy Press.
- 110 Hogan, JW, and Laird, NM. 1997. Mixture models for the joint distribution of repeated measures and event times. *Statistics in Medicine* 16:239-257.
- 111 Holland, N, Crawford, T, Hauer, P, Cornblath, D, Griffin, J, and McArthur, J. 1998. Small-Fiber Sensory Neuropathies: Clinical Course and Neuropathology of Idiopathic Cases. *Annals of Neurology* 44 (1):47-59.
- 112 Huang, EY, Leung, SW, Wang, CJ, Chen, HC, Sun, LM, Fang, FM, Yeh, SA, Hsu, HC, and Hsiung, CY. 2000. Oral glutamine to alleviate radiation-induced oral mucositis: a pilot randomized trial. *International Journal of Radiation Oncology, Biology, and Physics* 46 (3):535-39.
- 113 Jadad, A. 1998. Opioids in the Treatment of Neuropathic Pain: A Systematic

- Review of Controlled Clinical Trials. In *Topics in Palliative Care*, edited by E. Bruera and R. Portenoy. New York: Oxford University Press.
- 114 Jebb, SA, Osborne, RJ, Maughant, TS, and Elia, M. 1994. 5-flourouracil and folinic acid induced mucositis: no effect of oral glutamine supplementation. *British Journal of Cancer* 70 (732-35).
- 115 Jemal, A., Thomas, A., Murray, T., and Thun, M. 2002. Cancer statistics, 2002. *CA Cancer Journal for Clinicians* 52 (1):23-45.
- 116 Jensen, N. 1991. Accurate diagnosis and drug selection in chronic pain patients. *Postgrad Medicine Journal* 67 (2):S2-S8.
- 117 Jensen, JC, Schaefer, R, Nwokedi, E, Bevans, DW, Baker, ML, Pappas, AA, Westbrook, KC, and Klimberg, VS. 1994. Prevention of chronic radiation enteropathy by dietary glutamine. *Annals of Surgical Oncology* 1 (2):157-63.
- 118 Jones, M, Munson, J, and Thompson, S. 1999. A role for nerve growth in sympathetic sprouting in rat dorsal root ganglia. *Pain* 79:21-29.
- 119 Juretic, A. 1994. Glutamine requirements in the generation of LAK cells. *Clinical Nutrition* 13:42.
- 120 Kandel, ER, Schwartz, JH, and Jessell, TM. 1991. *Principles of neural science*. 3rd ed. Norwalk, Conn: Appleton & Lange.
- 121 Kingery, W. 1997. A critical review of controlled clinical trials for peripheral neuropathic pain and complex regional pain syndromes. *Pain* 73:123-139.
- 122 Klimberg, VS, Souba, WW, Dolson, DJ, Solloum, RM, Hautamaki, RD, Plumley, DA, Mendenhall, WM, Bova, FJ, Khan, SR, Hackett, RL, Bland, KI, and Copeland, EM. 1990. Prophylactic glutamine protects the intestinal mucosa from radiation injury. *Cancer* 66:62-8.
- 123 Klimberg, VS, Kornbluth, J, Cao, Y, Dang, A, Blossom, S, and Schaeffer, RF. 1996. Glutamine suppresses PGE2 synthesis and breast cancer growth. *Journal of Surgical Research* 63 (1):293-7.
- 124 Knobf, M. Tish. 2000. Symptom distress before, during, and after adjuvant breast cancer therapy. *Developments in Supportive Cancer Care* 4 (1):13-16.
- 125 Kornblith, AB, Hollis, DR, Zuckerman, E, Lyss, aP, Canellos, GP, Cooper, MR, Herndon, JE 2nd, Phillips, CA, Abrams, J, and Aisner, J. 1993. Effect of megestrol acetate on quality of life in a dose-response trial in women with advanced breast cancer. The Cancer and Leukemia Group B. *Journal of Clinical Oncology* 11 (11):2081-9.
- 126 Krarup-Hansen, A, Fugleholm, K, Helweg-Larsen, S, Hauge, EN, Schmalbruch, H, Trojaborg, W, and Krarup, C. 1993. Examination of distal involvement in cisplatin-induced neuropathy in man. An electrophysiological and histological study with particular reference to touch receptor function. *Brain* 116 ((Pt 5)):1017-41.
- 127 Labow, BI, and Souba, WW. 2000. Glutamine. *World Journal of Surgery* 24 (12):1503-13.
- 128 Lincoln, Y.S., and Guba, E.G. 1985. *Naturalistic inquiry*. Beverly Hills, CA: Sage.
- 129 Lipman, A. 1996. Analgesic Drugs for Neuropathic and Sympathetically Maintained Pain. *Clinics in Geriatric Medicine* 12 (3):501-515.
- 130 Lipton, SA, and Kater, SB. 1989. Neurotransmitter regulation of neuronal outgrowth, plasticity and survival. *Trends in Neurosciences* 12:265-70.
- 131 Lipton, SA, and Rosenberg, PA. 1994. Excitatory amino acids as a final common pathway for neurologic disorders. *New England Journal of Medicine* 330:613-22.
- 132 Lo, Y. L., Leoh, T. H., Dan, Y. F., Tan, Y. E., Nurjannah, S., and Fook-Chong, S.

2003. An electrophysiological study of the deep peroneal sensory nerve. *European Neurology*. 50 (4):244-7.
- 133 Lowe, DK, Benfell, K, Smith, RJ, Jacobs, DO, Murawski, B, Ziegler, TR, and Wilmore, DW. 1990. Safety of glutamine-enriched parenteral nutrient solutions in humans. *American Journal of Clinical Nutrition* 52 (6):1101-6.
- 134 Lynn, MR. 1986. Determination and quantification of content validity. *Nursing Research* 35:382-385.
- 135 Magari, E, Hamel, M, and Wasson, J. 1998. An Easy Way to Measure Quality of Physician-Patient Interactions. *Journal Ambulatory Care Manage* 21 (3):27-33.
- 136 Magy, L., Chassande, B., Maisonobe, T., Bouche, P., Vallat, J. M., and Leger, J. M. 2003. Polyneuropathy associated with IgG/IgA monoclonal gammopathy: a clinical and electrophysiological study of 15 cases. *European Journal of Neurology*. 10 (6):677-85.
- 137 Malgrange, B, Delree, P, Rigo, JM, Baron, H, and Moonen, G. 1994. Image analysis of neuritic regeneration by adult rat dorsal root ganglion neurons in culture: quantification of the neurotoxicity of anticancer agents and of its prevention by nerve growth factor or basic fibroblast growth factor but not brain-derived neurotrophic factor or neurotrophin-3. *Journal of Neuroscience Methods* 53 (1):111-22.
- 138 Marshall, C, and Rossman, GB. 1999. *Designing qualitative research*. Thousand Oaks, CA: Sage.
- 139 Martin, L, and Hagen, N. 1997. Neuropathic Pain in Cancer Patients: Mechanisms, Syndromes, and Clinical Controversies. *Journal of Pain and Symptom Management* 14 (2):99-117.
- 140 Mast, Merle Erb. 1995. Definition and measurement of quality of life in oncology nursing research: Review and theoretical implications. *Oncology Nursing Forum* 22 (6):957-964.
- 141 McDonald, DD, Poudrier, S, Gonzalez, T, Brace, J, Lakhani, K, Landry, S, and Wrigley, P. 2002. Pain problems in young adults and pain reduction strategies. *Pain Management Nursing* 3:81-86.
- 142 McGuire, William P, Hoskins, William J., Brady, Mark F., Kucera, Paul R., Partridge, Edward E., Look, Katherine Y., Clarke-Pearson, Daniel L., and Davidson, Martin. 1996. Cyclophosphamide and cisplatin compared with paclitaxel and cisplatin in patients with stage III and stage IV ovarian cancer. *The New England Journal of Medicine* 334 (1):1-6.
- 143 McQuay, H, Carroll, D, Jadad, A, Wiffen, P, and Moore, A. 1995. Anticolvulsant drugs for management of pain: a systematic review. *BMJ* 311:1047-1052.
- 144 McQuay, H, Tramer, M, Nye, B, Carroll, D, Wiffen, P, and Moore, R. 1996. A systematic review of antidepressants in neuropathic pain. *Pain* 68 (2-3):217-227.
- 145 Medina, MA, Sanchez-Jimenez, F, Marquez, J, Rodriguez Quesada, A, and Nunez de Castro, I. 1992. Relevance of glutamine metabolism to tumor cell growth. *Molecular & Cellular Biochemistry* 113 (1):1-15.
- 146 Meehan, JL, and Johnson, BL. 1992. The neurotoxicity of antineoplastic agents. *Current Issues in Cancer Nursing Practice Updates* 1 (18):1-11.
- 147 Meggs, W. J. 2003. Permanent paralysis at sites of dermal exposure to chlorpyrifos. *Journal of Toxicology - Clinical Toxicology*. 41 (6):883-6.
- 148 Mendell, Jerry R, and Sahenk, Zarife. 2003. Painful sensory neuropathy. *New England Journal of Medicine* 348 (13):1243-1255.
- 149 Meyer-Rosberg, K, Kvarnstrom, A, Kinnman, E, Gordh, T, Nordfors, LO, and

- Kristofferson, A. 2001. Peripheral neuropathic pain - a multidimensional burden for patients. *European Journal of Pain* 5:379-389.
- 150 Miles, M., and Huberman, M. 1994. *Qualitative data analysis: An expanded sourcebook, 2nd edition*. Thousand Oaks, CA: Sage.
- 151 Miller, AL. 1999. Therapeutic considerations of L-glutamine: a review of the literature. *Alternative Medicine Review* 4 (4):239-48.
- 152 Moore, RA, Tramer, MR, Carroll, D, Wiffen, PJ, and McQuay, HJ. 1998. Quantitative systematic review of topically applied non-steroidal anti-inflammatory drugs. *BMJ* 316:333-338.
- 153 Morgan, David L. 1998. Practical strategies for combining qualitative and quantitative methods: Applications to health research. *Qualitative Health Research* 8 (3):362-376.
- 154 Moulin, D. 1998. Neuropathic Cancer Pain: Syndromes and Clinical Controversies. In *Topics in Palliative Care*, edited by E. Bruera and R. Portenoy. New York: Oxford University Press.
- 155 Moustakas, C. 1994. *Phenomenological research methods*. Thousand Oaks, CA: Sage.
- 156 Nelson, EC, PB, Batalden, and JC, Ryer. 1998. *Clinical Improvement Action Guide*. Oakbrook Terrace, IL: Joint Commission on Accreditation of Healthcare Organizations.
- 157 Nunnally, J. , and Bernstein, IH. 1994. *Psychometric theory (3rd edition)*. New York: McGraw-Hill.
- 158 Oncology Nursing Society. 2003. *Oncology Nursing Society: Research Agenda 2003-2005*. Pittsburgh, PA: Oncology Nursing Society.
- 159 Ostchega, Yechiam, Donohue, Maggie, and Fox, Nina. 1988. High-dose cisplatin-related peripheral neuropathy. *Cancer Nursing* 11 (1):23-32.
- 160 Parker, James N., and Parker, Philip M. 2002. *The Official Patient's Sourcebook On Peripheral Neuropathy: A Revised and Updated Directory for the Internet Age*. San Diego, CA: ICON Group International, Inc.
- 161 Payne, R. 1998. Practice Guidelines for Cancer Pain Therapy: Issues Pertinent to the Revision of National Guidelines. *NCCA Proceedings* 12 (11A):169-175.
- 162 Pearce, IA, Cambray-Deakin, MA, and Burgoyne, RD. 1987. Glutamate acting on NMDA receptors stimulates neurite outgrowth from cerebellar granule cells. *FEBS Letter* 223:143-7.
- 163 Peltier, AC, and Russell, JW. 2002. Recent advances in drug-induced neuropathies. *Current Opinion in Neurology* 15 (5):633-8.
- 164 Polomano, Rosemary C., and Bennett, Gary J. 2001. Chemotherapy-evoked painful peripheral neuropathy. *Pain Medicine* 2 (1):8-14.
- 165 Portenoy, RK, ed. 1996. *Neuropathic Pain*. Edited by R. Portenoy and R. Connor, *Contemporary Neurology Series*. Philadelphia: F.A. Davis.
- 166 Portenoy, R. 1998. Introduction: Neuropathic Pain: From Unresolved Questions to Clinical Practice. In *Topics in Palliative Care*, edited by E. Bruera and R. Portenoy. New York: Oxford University Press.
- 167 Portenoy, Russell. K. , and Bruera, Eduardo. 2003. *Issues in Palliative Care Research*. Oxford: Oxford University Press.
- 168 Posner, JB. 1995. Side effects of chemotherapy. In *Neurologic Complications of Cancer*, edited by R. Reinhardt, B. Wissler and R. Massey. Philadelphia: F. A. Davis Company.
- 169 Postma, T.J., Heimans, J. J., Muller, M.J., Ossenkoppele, G.J., Vermorken, J.B.,

- and Aaronson, N.K. 1998. Pitfalls in grading severity of chemotherapy-induced peripheral neuropathy. *Annals of Oncology* 9:739-744.
- 170 Postma, T.J., Heimans, J. J., Aaronson, N.K., Grant, R., Huddart, R., Maher, J., Hildebrand, JG, Lanteri-Minet, M, and Delattre, JY. 1999. The impact of chemotherapy induced peripheral neuropathy on quality of life [Proceedings]. *Journal of Neurology, Neurosurgery, and Psychiatry* 67 (6):838-839.
- 171 Postma, T.J., and Heimans, J. J. 2000. Grading of chemotherapy-induced peripheral neuropathy. *Annals of Oncology* 11:509-513.
- 172 Pud, D, Eisenberg, E, Spitzer, A, Adler, R, Fried, G, and Yarnitsky, D. 1998. The NMDA receptor antagonist amantadine reduces surgical neuropathic pain in cancer patients: a double blinde, randomized, placebo controlled trial. *Pain* 75:349-354.
- 173 Quasthoff, S, and Hartung, HP. 2002. Chemotherapy-induced peripheral neuropathy. *Journal of Neurology* 249:9-17.
- 174 Rogers, EM. 1995. *Diffusion of innovations*. Vol. 4th. New York: The Free Press.
- 175 Rosner, H, Rubin, L, and Kestenbaum, A. 1996. Gabapentin Adjunctive Therapy in Neuropathic Pain States. *The Clinical Journal of Pain* 12 (1):56-58.
- 176 Rowinsky, EK, Chaudhry, V, Cornblath, DR, and Donehower, RC. 1993. Neurotoxicity of taxol. *Journal of the National Cancer Institute. Monographs* 15:107-115.
- 177 Rudnik-Schoneborn, S., Goebel, H. H., Schlote, W., Molaian, S., Omran, H., Ketelsen, U., Korinthenberg, R., Wenzel, D., Lauffer, H., Kreiss-Nachtsheim, M., Wirth, B., and Zerres, K. 2003. Classical infantile spinal muscular atrophy with SMN deficiency causes sensory neuronopathy. *Neurology*. 60 (6):983-7.
- 178 Rutledge, DN, and Bookbinder, M. 2002. Processes and outcomes of evidence-based practice. *Seminars in Oncology Nursing* 18 (1):3-10.
- 179 Savy, GK. 1997. Enteral glutamine supplementation: clinical review and practical guidelines. *Nutrition in Clinical Practice* 12:259-62.
- 180 Schloerb, PR, and Amare, M. 1993. Total parenteral nutrition with glutamine in bone marrow transplantation and other clinical applications (A randomized, double-blind study). *Journal of Parenteral and Enteral Nutrition* 17:407-13.
- 181 Schloerb, PR, and Skikne, BS. 1999. Oral and parenteral glutamine in bone marrow transplantation: a randomized, double-blind study. *23 3 (117-22)*.
- 182 Segal, A, and Rordorf, G. 1996. Gabapentin as a novel treatment for postherpetic neuralgia. *American Academy of Neurology* 46 (4):1175-6.
- 183 Senneff, John A. 1999. *Numb Toes and Aching Soles: Coping with Peripheral Neuropathy*. San Antonio, TX: MedPress.
- 184 ———. 2001. *Numb Toes and Other Woes*. San Antonio, TX: MedPress.
- 185 ———. 2002. *Nutrients for Neuropathy*. San Antonio, TX: MedPress.
- 186 Smith, G, and Henderson, IC. 1996. New treatments for breast cancer. *Seminars in Oncology* 23:506-528.
- 187 Smith, EL, Whedon, MB, and Bookbinder, M. 2002. Quality improvement of painful peripheral neuropathy. *Seminars in Oncology Nursing* 18 (1):36-43.
- 188 Souba, WW, Smith, RJ, and Wilmore, DW. 1985. Glutamine metabolism by the intestinal tract. *Jpen: Journal of Parenteral & Enteral Nutrition* 9 (5):608-17.
- 189 Souba, WW. 1993. Glutamine and cancer. *Annals of Surgery* 218 (6):715-728.
- 190 Sprangers, MAG, Cull, A, Bjordal, K, and al, et. 1993. The European Organization for REsearch and Treatment of Cancer approach to quality of life

- assessment: Guidelines for developing questionnaire modules. *Quality of Life Research* 2:287-95.
- 191 Streiner, DL, and Norman, GR. 2003. *Health Measurement Scales: A practical guide to their development and use, 2nd edition*. Oxford: Oxford Medical Publications.
- 192 Sullivan-Bolyai, Susan. 2003. Triangulation: Does data collection order matter? *Unpublished manuscript*.
- 193 Takahashi, H, Miyazaki, M, Nanbu, T, Yanagida, H, and Morita, S. 1998. The NMDA-receptor antagonist ketamine abolishes neuropathic pain after epidural administration in a clinical case. *Pain* 75:391-94.
- 194 Takimoto, Chris H., and Rowinsky, Eric K. 2003. Dose-Intense Paclitaxel: Deja Vu All Over Again? *J Clin Oncol* 21 (15):2810-2814.
- 195 Tashakkori, Abbas, and Teddlie, Charles. 1998. *Mixed methodology: Combining qualitative and quantitative approaches*. Vol. 46, *Applied Social Research Methods Series*. Thousand Oaks, CA: Sage.
- 196 Teunissen, LL, Eurelings, M, Notermans, NC, Hop, JW, and van Gijn, J. 2000. Quality of life in patients with axonal polyneuropathy. *J Neurol* 247:195-199.
- 197 Thigpen, TJ, Blessing, SA, Ball, H, Hummell, SJ, and Barrett, RJ. 1994. Phase II trial of paclitaxel in patients with progressive ovarian carcinoma after platinum-based chemotherapy. *Clinical Oncology* 12:1748-1753.
- 198 Tseng, C. H. 2003. Abnormal current perception thresholds measured by neurometer among residents in blackfoot disease-hyperendemic villages in Taiwan. *Toxicology Letters*. 146 (1):27-36.
- 199 Vahdat, L, Papadopoulos, K, Lange, D, Leuin, S, Kaufman, E, Donovan, D, Frederick, D, Bagiella, E, Tiersten, A, Nichols, G, Garrett, T, Savage, D, Antman, K, Hesdorffer, CS, and Balmaceda, C. 2001. Reduction of paclitaxel-induced peripheral neuropathy with glutamine. *Clinical Cancer Research* 7:1192-97.
- 200 Vahdat, Linda, Papadopoulos, Kyriakos, Lange, Dale, Leuin, Shelby, Kaufman, Elizabeth, Donovan, Diana, Frederick, Deborah, Bagiella, Emilia, Tiersten, Amy, Nichols, Gwen, Garrett, Thomas, Savage, David, Antman, Karen, Hesdorffer, Charles S., and Balmaceda, Casilda. 2001. Reduction of Paclitaxel-induced Peripheral Neuropathy with Glutamine. *Clin Cancer Res* 7 (5):1192-1197.
- 201 van den Bent, MJ, van Putten, WLJ, Hilkens, PHE, de Wit, R, and van der Burg, MEL. 2002. Retreatment with dose-dense weekly cisplatin after previous cisplatin chemotherapy is not complicated by significant neuro-toxicity. *European Journal of Cancer* 38:387-391.
- 202 Van Manen, Max. 1990. *Researching Lived Experience: Human Science for an Action Sensitive Pedagogy*. New York: State University of New York.
- 203 Vaurs-Barriere, C., Wong, K., Weibel, T. D., Abu-Asab, M., Weiss, M. D., Kaneski, C. R., Mixon, T. H., Bonavita, S., Creveaux, I., Heiss, J. D., Tsokos, M., Goldin, E., Quarles, R. H., Boespflug-Tanguy, O., and Schiffmann, R. 2003. Insertion of mutant proteolipid protein results in missorting of myelin proteins. *Annals of Neurology*. 54 (6):769-80.
- 204 Verstappen, Carla C.P., Heimans, J. J., Hoekman, Klaas, and Postma, T.J. 2003. Neurotoxic complications of chemotherapy in patients with cancer: Clinical signs and optimal management. *Drugs* 63 (15):1549-1563.
- 205 Verstappen, Carla C.P., Postma, T.J., Hoekman, Klaas, and Heimans, J. J. 2003. Peripheral neuropathy due to therapy with paclitaxel, gemcitabine, and

- cisplatin in patients with advanced ovarian cancer. *Journal of Neuro-Oncology* 63:201-205.
- 206 Vigano, A, Fan, D, and Bruera, E. 1996. Individual use of methadone and opioid rotation in the comprehensive management of cancer pain associated with poor prognostic indicators. *Pain* 67:115-119.
- 207 Vileikyte, Loretta, Peyrot, Mark, Bundy, Christine, Rubin, Richard R., Leventhal, Howard, Mora, Pablo, Shaw, Jonathan E., Baker, Paul, and Boulton, Andrew J.M. 2003. The development and validation of a neuropathy-and foot ulcer-specific quality of life instrument. *Diabetes Care* 26 (9):2549-2555.
- 208 Visovsky, C. 2002. Characterization of chemotherapy-induced peripheral neuropathy. Doctoral Dissertation, School of Graduate Studies, Case Western Reserve University, Cleveland.
- 209 ———. 2003. Chemotherapy-induced peripheral neuropathy. *Cancer Investigation* 21 (3):439-451.
- 210 Walsh, T. 1983. Antidepressants in Chronic Pain. *Clinical Neuropharmacology* 6 (4):271-295.
- 211 Wechsler, R, E, Frank, Halpern, E, Nazarian, L, Jalali, S, and Ratner, E. 1998. Percutaneous Lumbar Sympathetic Plexus Catheter Placement for Short- and Long-Term Pain Relief: CT technique and Results. *Journal of Computer Assisted Tomography* 22 (4):518-523.
- 212 Weitzman, Eben A. 1999. Analyzing qualitative data with computer software. *Health Services Research* 34 (5):1241-1263.
- 213 ———. 2000. Software and qualitative research. In *Handbook of Qualitative Research 2nd edition*, edited by N. K. Denzin and Y. S. Lincoln. Thousand Oaks, CA: Sage Publications, Inc.
- 214 Wiener, S. 1992. Topical Capsaicin for Painful Diabetic Neuropathy. *ACP Journal Club*:50.
- 215 Wilson, RH, Lehky, Tanya, Thomas, RR, Quinn, Mary G., Floeter, MK, and Grem, Jean L. 2002. Acute oxaliplatin-induced peripheral nerve hyperexcitability. *J Clin Oncol* 20 (7):1767-1774.
- 216 Yoshida, S, Matsui, M, Shirouzu, Y, Fujita, H, Yamana, H, and Shirouzu, K. 1998. Effects of glutamine supplements and radiochemotherapy on systemic immune and gut barrier function in patients with advanced esophageal cancer. *Annals of Surgery* 227 (4):485-91.
- 217 Yoshida, S, Kaibara, A, Ishibashi, N, and Shirouzu, K. 2001. Glutamine supplementation in cancer patients. *Nutrition* 17 (9):766-8.
- 218 Zieger, TR, Young, LS, Benefell, K, Scheltinga, M, Hortos, K, Bye, R, Morrow, FD, Jacobs, DO, Smith, RJ, Antin, JH, and Wilmore, DW. 1992. Clinical and metabolic efficacy of glutamine-supplemented parenteral nutrition after bone marrow transplantation. *Annals of Internal Medicine* 116 (10):821-828.
- 219 Zieger, TR. 2002. Glutamine supplementation in bone marrow transplantation. *British Journal of Nutrition* 87 (1):S9-15.
- 220 Ziegler, TR, Benfell, K, Smith, RJ, Young, LS, Brown, E, Ferrari-Baliviera, E, Lowe, DK, and Wilmore, DW. 1990. Safety and metabolic effects of L-glutamine administration in humans. *Jpen: Journal of Parenteral & Enteral Nutrition* 14 (4 Suppl):137S-146S.
- 221 Ziegler, TR, Bye, RL, Persinger, RL, Young, LS, Antin, JH, and Wilmore, DW. 1998. Effects of glutamine supplementation on circulating lymphocytes after

bone marrow transplantation: a pilot study. *American Journal of the Medical Sciences* 315 (1):4-10.

- 222 Ziegler, TR. 2001. Glutamine supplementation in cancer patients receiving bone marrow transplantation and high dose chemotherapy. *Journal of Nutrition* 131:2578S-84S.