

**Piloting Music, Imagery, and  
Massage as Non-Drug  
Enhancements in Post-  
Operative Pain Management**

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**Background**

- **Unresolved post-operative pain remains high on the list of patient safety issues for AHRQ and JCAHO**
- **Underuse of non-drug methods for pain management is a pressing issue ~ especially in today's healthcare environment where people seek non-invasive, low cost, easy to use methods.**

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**Problem with Pain Management  
Teaching**

- **Many strategies have been used to teach patients how to cope with or manage pain.**
- **A core problem we investigated had to do with how to bring patient teaching on nondrug pain enhancements to the patients in a way that was meaningful to the patient (so that the information would stick) and be useful as part of their recuperation trajectory.**

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**Patient Teaching and Complementary Enhancements for Pain Management**

- \* As primary caregivers, nurses are responsible for teaching patient about the measures to prevent postoperative complications both during and following discharge.
- \* Patient teaching cannot be underestimated as an important medium for empowering patients with responsibility for self-care.
- \* Effective patient teaching improves patient satisfaction with nursing care by narrowing the difference between anticipated and actual patient experiences.

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**Barriers to Effective Patient Teaching**

- Nurses do not use the knowledge they have regarding pain management.
- Schools of nursing do not spend enough time teaching pain management, including nondrug complements to pharmacological pain management
- Patient lack of understanding of teaching materials

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- Poor readability of teaching content presented to patients
- Difficulty in getting patient education materials to "stick" (Ni, et. al., 2001)
- Lack of nursing staffing, time, and receptiveness of patients to teaching (Marcum et al, 2002)
- Lack of medical and agency support for use of nondrug methods
- Nurses' lack of knowledge regarding empirical evidence on nondrug methods for pain management

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**Customizing Patient Teaching**

- Literature suggests there may be tangible benefits to tailoring teaching interventions to be consistent with unique patient characteristics.
- Interdisciplinary research suggests customizing information enhances customer attentiveness and recall, thereby enhancing the meaning and usefulness of the information which, in turn, improves outcomes. (Kreuter, Strecher, & Glassman, 1999).

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**Project Overview**

- A research translation model known as the Collaborative Research Utilization Model [Dufault, 1995] was used to underpin a pilot study on the feasibility of using of a tailored teaching intervention (TTI) on nondrug complementary methods to aid patients in pain management.

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**Research Questions**

1. Do patients who are exposed to the best practice protocols for massage, music and self-guided imagery experience less pain intensity, less interference with functional ability, and greater satisfaction with interventions and with caregiver responsiveness on postoperative day 1, 3, and day of discharge?
2. Do subjects' knowledge about the purposes and benefits of using music, massage, and self-guided imagery for pain management change after using a tailored teaching intervention (TTI)?

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**Research Questions**

3. Do subjects' attitudes about using music, self-guided imagery, and massage for pain management change after using TTI?
4. Is there a change in use of music, self-guided imagery, and massage over subjects' day of surgery and first three postoperative days following TTI?

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**The CRU**

- **A six step process:**
  - 1. Identification of the clinical problem and assessment of the research bases for evidence of a solution
  - 2. Evaluating the relevance of the research related to agency values, standards, and potential costs and benefits
  - 3. Designing evidence-based "best practices" for massage, music, self-guided imagery, and related patient teaching
  - 4. Evaluating the protocols and related tailored teaching intervention
  - 5. Decision to adopt the "best practice" protocols
  - 6. Dissemination of Study Results & Extension of "Best Practices" to other units

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**Brief Study Description**

- Quasi-experimental, descriptive design
- Aimed at determining the feasibility of translating best practice protocols on nondrug pain management into practice
- 148-bed full service urban community hospital serving high population of tourists, military, and adults from island community
- Striking lack of documented use of non-drug interventions to enhance pharmacological pain management (0%)

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● Sample = 136 adults > 50, surgical patients undergoing elective joint replacement surgery

● English speaking, cognitively intact, no history of mental illness with reality disturbances

● Outcome variables of interest

- Perceived changes in pain intensity, interference with functional abilities, patient satisfaction with interventions, and caregiver responsiveness
- Patient changes in knowledge, attitudes & behaviors related to massage, music, and self guided imagery before and after TTI

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### Instrumentation

● Demographic Data Form

● Miller Behavioral Style Scale (Miller, s., 1987)

● Brief Pain Inventory (Cleeland, Daut, 1983)

● Non-Drug Complementary Pain Interventions Survey (Tracy, S., 2004)

● Use of Non-Drug Pain Interventions (Tracy, S., 2004)

● Complementary audit Instrument (Dufault, 2001 - as adapted from Ferrell, et. al., 1995)

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### Procedures & Data Collection



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**Developing the TTI within the CRU framework**

- CRU step 1 – *Identify clinical problem and assess research bases for evidence of a solution*
  - Hospital focus groups by nurse researcher with unit-base staff nurse council members regarding areas of pain management that were problematic on their units
  - Comprehensive literature search on music, imagery, and massage for empirical evidence of benefits particularly in area of pain management

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- CRU step 2 – *Evaluate relevance of research as it relates to selected problem, agency values, standards, and potential costs/benefits*
  - Critiquing the research
  - Research roundtables with staff
    - Using recommendations from research roundtables

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- Step 3 – *Designing a policy, standard of care, or protocol that meets the needs of the pain management problem*
  - Use of best practice protocols for development of NDCPI survey and Patient Teaching Pamphlets on music, imagery, massage
  - Creation of seven step TTI to include:
    - Assessing patient's information coping style
    - Assessing patient's prior use of nondrug methods
    - Providing and reviewing teaching on music, imagery, and massage through pamphlet designed to match their information coping style
    - Viewing of videotape explaining teaching pamphlet information
    - Development of personalized pain management plan
    - Daily follow-up throughout acute care
    - Revision of pain management plan as needed

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**Survey Development**

- Survey items generated from roundtable recommendations, focus group findings, and empirical evidence from literature
- Multiple questions about each nondrug method
- Attitude items were modified from a previous study about CAM attitudes in medical students and other health professionals
- Final product was 28 item survey using 5-point Likert-type scale (strongly agree to strongly disagree)

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**Creation of Teaching Pamphlets**

- Use of 22 roundtable recommendations along with critiqued literature
- Developed two pamphlets
  - One for 'monitors'
  - One for 'blunters'
- Both contained essential information on use of music, imagery, massage
  - 'Monitor' pamphlet contained more detailed information

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**Step 4 - Evaluating the protocols and related tailored teaching intervention**

- Conduct of study & analysis of results
- Findings

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## Analysis

Using SPSS computer-based software:

- Descriptive statistics including frequencies, measures of central tendency, standard deviations
- ANCOVA
- Paired samples *t* test
- Upper and lower confidence intervals set at 95%

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## Study Demographics

- ~ 15 (32%) males and 31 (67%) females
- ~ Mean age of 70.4 (range: 52-88 yrs)
- ~ 45 white, non-Hispanic, 1 black
- ~ 21 married; 15 widowed, divorced, or single
- ~ Most (67.4%) had some college
- ~ 40 (87%) "monitors"; 6 (13%) "blunters"

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## Prior use of complementary methods

Method	n	% of sample
Prayer/meditation	27	58.8
Music	25	54.4
Heat or Cold	23	50.0
Massage	10	21.6
Self-help Education	10	21.6
Herbs	6	13.1
Self Guided Imagery	6	13.1
Acupressure	5	10.9
Aromatherapy	5	10.9
Acupuncture	4	8.7
Yoga	4	8.7
Reiki or Therapeutic Touch	1	2.2

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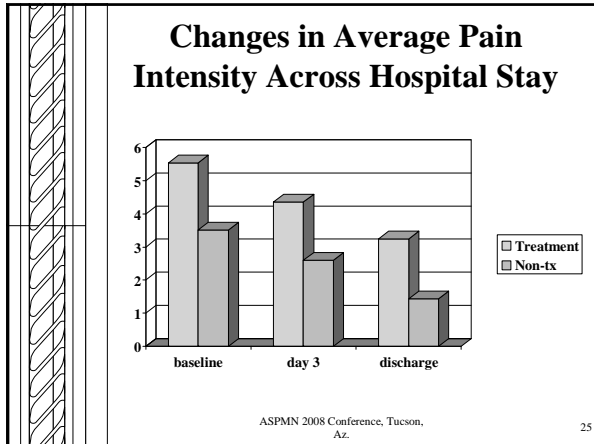
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### Knowledge and Attitude Changes Toward Non Drug Methods after Tailored Teaching Intervention

	N	Pretest Mean Score	N	Post test Mean Score	Change Score	Paired Samples t test	P Value
<b>Knowledge</b>	45	57.82	35	61.05	3.23	2.95	<.01
<b>Attitudes</b>	44	48.36	34	52.41	4.05	3.81	<.01

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### Non Drug Methods Mean Use Scores Across Hospital Stay

	N	Mean*	Standard Deviation
<b>Total Use Day of Surgery</b>	36	5.750	3.25
<b>Total Use POD 1</b>	37	7.919	4.32
<b>Total Use POD 2</b>	35	8.914	4.09
<b>Total Use POD 3</b>	31	9.323	4.70

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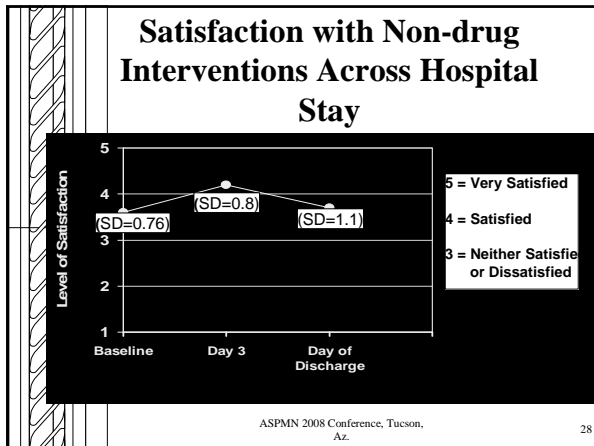
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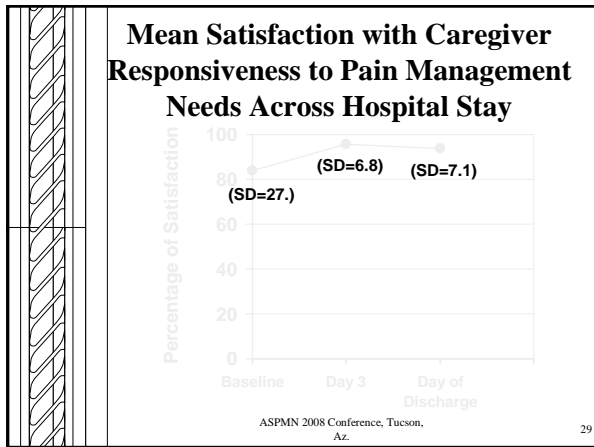
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- ### Post Research Steps of CRU
- Step 5 - *Decision to adopt the "best practice" protocols*
    - Agency-based decisional process following completion of study
  - Step 6 - *Dissemination of Study Results & Extension of "Best Practices" to other units*
    - Scholarly presentations & publications
    - Extension of process to other units is ongoing work
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**Selected Limitations**

- Pilot studies cannot produce generalizable results
- Piloted instruments may not be psychometrically strong
- Small sample size
- Teaching pamphlets need further testing to ensure they correspond to scored information coping style

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**Future Research**

- Recently completed psychometric strengthening of NDCPI-R survey
- New studies in planning phases to assess knowledge and attitudes about non-drug methods in different populations with both acute and chronic pain
- RCT or the pilot study is in planning phases
  - To re-test TTI
  - To test efficacy of nondrug methods on pain management

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**Conclusions and Summary**

- Unresolved pain continues to plague postoperative patients
- Nondrug pain interventions may show promise for pain management in postoperative patients
- Unique teaching interventions are needed to make information meaningful to patients and foster use of strategies that promote healing
- Tailored teaching should be tested with patients with chronic diseases where recidivism is high
- Substantial research is still needed

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## Thank You!

- If you would like more information about our study or are interested in collaborating on research about tailored teaching or nondrug complementary methods for pain management, please contact me at **s.tracy@unh.edu**.

- Thanks for your attention!

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