Integrative Medicine
PBR; Allina Health and BraveNet/PRIMIER

Jeffery Dusek, PhD
Director of Research

December 5, 2015
Research Continuum

Research Continuum: Basic Science

Research Continuum: Efficacy

Research Continuum: Clinical Practice

Research Continuum: Translational

Practice-Based Research

What is Practiced-based research?

• Practice-based research occurs in the office, clinic or hospital, where patients generally receive clinical care.

• Practice-based research can
  - identify the problems that arise in daily clinical practice that create the gap between recommended care and actual care;
  - demonstrate whether interventions with proven efficacy are truly effective and sustainable when provided in real-world setting of ambulatory care; and
  - provide the “laboratory” for testing system improvements in primary care to maximize the number of patients who benefit from medical discovery.
What is a practiced-based research network (PBRN)?

• A PBRN is a group of practices devoted principally to the clinical care of patients, affiliated with each other in order to investigate questions related to community-based practice.

• PBRNs often link practicing clinicians with investigators experienced in clinical and health services research, while at the same time enhancing the research skills of the network members.

• PBRNs provide a sense of ongoing commitment to the research endeavor and an organizational structure that transcends a single study.
Two examples of PBR in practice

• Integrative Medicine provided at Abbott Northwestern Hospital (ANW)

• BraveNet Practice Based Research Network (PBRN)
ANW Inpatient Program History

• Started at Abbott Northwestern Hospital (ANW) in Minneapolis in 2003

• Practitioners – holistic nurse clinicians, massage therapists, acupuncturists, music therapist, reflexologist

• Services provided - initial consults, massage, acupuncture, acupressure, music therapy, reflexology, guided imagery, relaxation and stress management
Purpose of IM Inpatient Program

• Increase awareness and understanding of integrative approach in acute care

• Incorporate integrative modalities to support more comprehensive care, especially with symptom management (pain, anxiety), stress reduction and enhanced comfort

• Empower patients and staff to engage in their own healing process through education and practice of self care
Patients receive individualized care including:
  – Acupuncture, acupressure
  – Therapeutic medical massage, reflexology
  – Mind/body therapies (e.g., relaxation response)
  – Energy healing (e.g., Reiki, healing touch)
  – Music therapy
  – Aromatherapy

15 practitioners (11.5 FTEs)
  – 6.3 FTE massage therapists
  – 3.5 FTE acupuncturists
  – 0.9 FTE music therapist
  – 0.8 FTE Nursing
Penny George Institute: Process

~10,000 IM visits annually: ~4,000 unique pts.

- Physician or nurse referrals via EPIC electronic health record (EHR)
- Triage Meeting
- Medical record review by IM provider
- Treatment (24-36 hrs)
  - Intake
  - Baseline data collection (e.g., pain, anxiety, nausea)
  - IM therapy
  - Follow-up data collection
- IM provider documents in EHR
### Therapeutic Session Information

**Mode:** Accordion

#### Therapeutic Session Time
- **Visit Start Time:** 1307
- **Visit End Time:** 1341
- **Interrupt Time (minutes):** 0

#### Pre-Therapeutic Session
- **Group Treatment:**
- **Visit Outcome:** Seen - services provided
- **Primary Focus of Visit:** Pain
- **Additional Focus of Visit:** Anxiety
- **Pre-scores Recorded**

#### Pre-Scores
- **Alternate Scale Used for Pre-Pain:**
- **Pain Score:**
- **Anxiety Score:**
- **Nausea Score:**
- **Ability to Cope Score:**

#### Post-Therapeutic Session
- **Post-scores Recorded**

#### Post-Scores
- **Alternate Scale Used for Post-Pain:**
- **Pain Score:**
- **Anxiety Score:**
- **Nausea Score:**
- **Ability to Cope Score:**

#### Services Provided
- **Services Provided:**
- **Primary Service Provided:**

#### Oriental Medicine
- **Diagnosis:** Qi, Blood, Yin, Yang Diagnosis
- **Qi, Blood, Yin, Yang Diagnosis:**
- **Qi:**
- **Qi and Blood Stagnation:**

#### Pain Score
- **Comment:** Not rated
ACUPUNCTURE POINTS USED

<table>
<thead>
<tr>
<th>Point</th>
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<tbody>
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<tr>
<td>4 right</td>
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<tr>
<td>Stomach (ST)</td>
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<td>36 bilateral</td>
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<tr>
<td>Spine (SP)</td>
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<tr>
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<tr>
<td>Heart (HT)</td>
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<td>Small Intestine (ST)</td>
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<tr>
<td>Bladder (BL)</td>
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<td>Kidney (KI)</td>
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<td>Pericardium (PC)</td>
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<tr>
<td>Gall Bladder (GB)</td>
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<td>Liver (LV)</td>
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<td>Du Mai (DU)</td>
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<tr>
<td>Ron Mai (RN)</td>
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<td>Bilateral Auricular Points Used</td>
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<td>Scalp Points Used</td>
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<td>Tung Points Used</td>
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<tr>
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<tr>
<td>22 00 (Palm/Dorsal Hand)</td>
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<td>33 00 (Forearm)</td>
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<td>44 00 (Arm)</td>
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<td>55 00 (Calf)</td>
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<td>66 00 (Dorsal Foot)</td>
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<td>77 00 (Leg)</td>
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<td>35 bilateral</td>
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<td>Spleen (SP)</td>
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<td>Heart (HT)</td>
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<td>Bladder (BL or UB)</td>
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<td>Du Mai (DU)</td>
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<td>Ren Mai (RN)</td>
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<td>Tung 33.00 (Forearm)</td>
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<td>Tung 44.00 (Arm)</td>
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<tr>
<td>Tung 55.00 ( Sole)</td>
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<tr>
<td>Tung 66.00 (Dorsal Foot)</td>
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<tr>
<td>Tung 77.00 (Leg)</td>
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</table>
**Therapeutic Session**

**Visit Start Time:** 09/29/15 1300

**Value Information:**
- Taken by: Reinstein, Adam S at 09/29/15 1300
- Recreated by: Reinstein, Adam S

**Row Information:**
Visit start time is defined as the exact time that:
A. The time you entered the patient's room.
B. The time you entered the patient's room.
C. The time you entered the patient's room.
D. The time you arrived and then you completely completed their work with the patient.

**VITAL SIGNS**
- **Temperature:** 99.8°F (37.7°C)
- **Pulse:** 76
- **Respiration:** 20
- **Blood Pressure:** 120/80
- **Weight:** 59 kg (130 lb 1.1 oz)
- **Height:** 163 cm (5' 6.14"
- **BMI:** 20.90 kg/m²
- **O2 saturation:** 99%

**Inspection**
- **Facial Symmetry:** Normal
- **Skin Integrity:** Normal
- **Mucous Membrane Color:** Normal
- **Cardiac Function:** Normal
- **Respiratory Function:** Normal
- **Abdomen:** Soft and nontender
- **Neurological Function:** Normal
- **Excretory System:** Normal
- **Musculoskeletal System:** Normal

**Allergies**
- Morphine
- Ragweed
- As of 08/23/15
- TOB: Never Assessed

**Plan of Care**
- **Bleeding noted at site:** Yes
- **ACUPUNCTURE BLEEDING SITE #1**
  - **Affected Meridian:** ST 6 - Spleen Left
  - **Specific Point:** 5
  - **Extra Points Used:**
  - **Left Auricular Points Used:**
  - **Right Auricular Points Used:**
  - **Scalp Points Used:**
  - **Quantity of Bleeding:** Just a Drop: small spot on Q-tip
  - **Needle Gauge:** 40 gauge / .16
  - **Needling Description:** Moderate (0.5 - 1.0 cm insertion depth)
  - **Additional Point with Bleeding noted:** No
  - **Follow Up Visit?:** No

**Therapeutic Session**

**Visit Start Time:** 09/29/15 1300

**Value Information:**
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D. The time you arrived and then you completely completed their work with the patient.
Impact on Pain Management

• Participants: 1837 patients hospitalized between January 1, 2008 and June 30, 2009.

• Measurements: Pretreatment and post-treatment pain scores on a verbal scale of 0 to 10.

• Results: Most patients (66%) had never previously received any integrative services.

• The average reduction in pain was 1.9 points and the average percentage in pain reduction was 55%.

• No differences across clinical populations (small sample size).

The Impact of Integrative Medicine on Pain Management in a Tertiary Care Hospital

Jeffery A. Dusek, PhD,* Michael Finch, PhD,† Gregory Plotnikoff, MD, MTS, FACP‡ and Lori Knutson, RN, BSN, HN-BC§ and on behalf of the Penny George Institute for Health and Healing Inpatient Care Team

Background: Optimal inpatient pain management remains a major institutional and therapeutic challenge. Nontoxic, nonpharmacological approaches to treating pain show promise but have not been widely implemented. How does the effectiveness and appropriateness of these approaches compare to conventional care? The purpose of this objective was to determine the effectiveness of nontoxic, nonpharmacological, integrative approaches to pain management in hospitalized patients, including obstetrics, surgical, and postoperative and cancer-related pain.

Methods: The formal provision of inpatient integrative medicine had a significant impact on pain scores for hospitalized patients, reducing self-reported pain by more than 50%, without placing patients at increased risk of adverse effects. This was true in all 6 settings. Age, previous use of complementary therapies, and sex did not affect results. Future research should determine the appropriateness of the intervention, the duration of the relief, and the identification of patients most likely to respond to these nonpharmacological treatments. Additionally, future research using the electronic health record will allow quantification of any reduction in total costs, pain medication usage, and adverse events.

Key Words: integrative medicine, pain management

(J Patient Saf 2010;6: 48–51)

Optimal inpatient pain management remains a major institutional and therapeutic challenge. Roughly 80% of patients report moderate to severe pain levels after surgery.1 Since at least 2001, the Joint Commission has held acute care hospitals accountable for the assessment, documentation, and management of pain.2,3 This has undoubtedly improved the quality of pain management. Now, health care leaders must face the next level question: how can institutional policies emphasize effective pain control and simultaneously avoid side effects of opioid medications including respiratory depression, clouded mentation, hypotension, nausea, constipation, dizziness, and presumably, falls?4 For many providers, these dualing concerns represent a clinical dilemma that is not well answered when pain management guidelines emphasize pharmacological interventions.

The National Quality Forum’s recent report, Safe Practices for Better Healthcare—2009 Update, establishes the importance of addressing both safety and quality. Specifically, this report queries how the current health care system can better manage pain (improve quality) while reducing side effects (improve safety).5 The report further states that “There is strong evidence that integrative care can heal and improve basic conventional care by addressing the mind, body and spirit connection.”6 Integrative medicine (IM) refers to the blend of conventional medical practices and nonpharmacological, complementary practices7 by using all appropriate therapeutic approaches to attain optimal health and healing. Integrative medicine strives to achieve wellness and health as well as cure illness and disease. Research studies of nonpharmacological, integrative methods to manage pain have shown both efficacy and the potential for reduced risk of side effects (e.g., safety). However, these studies have been silent, if not mute, on the subject of the effectiveness of these approaches. Can these approaches be implemented in real-time, across and under real operational and financial constraints within an acute care hospital? Although randomized controlled trials are the accepted standard of clinical research, careful observational studies are invaluable as they provide an opportunity to assess what approaches are acceptable to patients and clinical care providers. They can be implemented in conventional treatment settings18 and, we contend, could improve pain management.

The purpose of this observational study was to evaluate the effectiveness of an IM medicine pain management approach for patients across an entire tertiary care hospital. We hypothesize that it would be feasible to coordinate adult service for pain management across the hospital and that the integrative care will reduce patients’ self-reported pain scores.

IM Intervention

The Penny George Institute for Health and Healing (Penny Institute) is the Integrative Medicine Department at Abbott

From the *Penny George Institute of Health and Healing, Abbott Northwestern Hospital; †Finch and King, Inc; ‡Penny George Institute of Health and Healing, Abbott Northwestern Hospital; and §Penny George Institute of Health and Healing, Abbott Northwestern Hospital, Minneapolis, MN 55407. (e-mail: jeffery.dusek@callina.com).

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• Initial evidence that adjunctive IM therapies substantially reduce both short-term pain and anxiety among inpatients.

• However...
  – How does the IM referral process work?
  – Would one see the same 55% reduction in a larger sample?
  – Are specific therapies more effective in clinical populations?
  – What is the duration of pain relief?
**National Institute of Health grant - 2011-2016**

**Project Number:** 5R01AT006518-03  
**Title:** EFFECT OF COMPLEMENTARY AND ALTERNATIVE MEDICINE ON PAIN AMONG INPATIENTS  
**Contact PI / Project Leader:** DUSEK, JEFFERY A  
**Awardee Organization:** ALLINA HEALTH SYSTEM

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**Abstract Text:**

DESCRIPTION (provided by applicant): Effective and safe pain management is a major health priority for the US healthcare system. Pharmaceutical interventions remain the primary approach to pain management, despite their well documented risk of adverse events, potential for addiction, and adverse impact on recovery if used excessively.

Nowhere is this more evident than in the post-operative period where roughly 80% of patients report moderate to severe pain after surgery even after receiving pharmaceutical interventions. In inpatient settings, finding an effective non-pharmacologic intervention to augment narcotic medications would be a significant benefit. National surveys indicate that complementary and alternative medicine (CAM) interventions are currently used by 15% of American hospitals. Most often, these therapies are employed to address specific unmet clinical needs, the most frequent of which is pain. Eleven clinical trials have demonstrated the efficacy of CAM therapies to reduce pain (short- and long-term) in hospitalized patients along with traditional pharmaceutical interventions. Generating additional evidence of the effectiveness of these therapies for pain relief would advance knowledge and potentially affect practice patterns. In a preliminary study, we retrospectively studied 1,837 patients who received CAM therapies at Abbott Northwestern Hospital. We found an average reduction in immediate pain of 56% and roughly 33% reported complete pain relief after the initial CAM visit. We recognize inadequacies of this study that limit both our knowledge of how adjunctive CAM therapies are implemented in hospitals and the effect of various CAM therapies on pain management, which can only be answered with prospective data collection. Using a prospective, observational design, we propose a large scale study to build on this exploratory work. It will document predictors of CAM referral, service delivery, and therapy selection for pain management. It will also examine the impact of CAM therapies as adjuncts to traditional interventions on short and long-term changes in pain across clinical groups in a hospital setting. The setting for this study of CAM is the Penny George Institute for Health and Healing at Abbott Northwestern Hospital. The George Institute is uniquely suited for this work as it is the nation's largest inpatient CAM program serving over 19,000 patients since 2004.

The proposed study has 3 aims: 1) quantitatively describe a model for delivering CAM therapies to understand selection of patients and CAM therapies for pain management, 2) examine the effects of selected CAM therapies on immediate change in pain, and 3) examine the effects of selected CAM therapies on duration of pain change. Positive results from this study will assist hospitals in the integration of usual care and CAM therapy for pain reduction. Findings may also drive future research on the cost effectiveness of these therapies for pain management, as well as impact on patient outcomes such as length of stay and use of narcotics.
NCCIH funded observational R01: (2011-2016)

- **Aim 1:** Understand selection of patients and IM therapies for pain management,

- **Aim 2:** Examine the effects of therapies on immediate change in pain

- **Aim 3:** Examine the effects on duration of pain management
Update on Status of NIH R01

• Study data collection:
  – Time period: 7/12 to 12/14 (30 months)
  – Databases undergoing final analyses.
  – Analyses & manuscripts: by end of May 2016
Update on Status of NIH R01

• Study data collection:
  – Time period: 7/12 to 12/14 (30 months)
  – Databases undergoing final analyses.
  – Analyses & manuscripts: by end of May 2016

• Assembled a test database 7/1/09 to 12/31/12:
  – To test analysis models.
  – Focus on certain clinical populations.
    • Oncology, cardiology and joint replacement.
Group Acupuncture for Joint Replacement

- Fast-track joint replacement surgery is becoming more popular to reduce stays
Fast-track joint replacement surgery is becoming more popular to reduce stays

About 33% report moderate to severe pain
Group Acupuncture for Joint Replacement

• Fast-track joint replacement surgery is becoming more popular to reduce stays
• About 33% report moderate to severe pain
• Pain medications (including opioids) can result in sedation which limits patients participation in rehabilitation
• Fast-track joint replacement surgery is becoming more popular to reduce stays
• About 33% report moderate to severe pain
• Pain medications (including opioids) can result in sedation which limits patients participation in rehabilitation
• Current joint replacement recommendations urge reduction of opioids in favor of multi-modal approaches
• Surgery performed on the 1st day of admission
• Surgery performed on the 1\textsuperscript{st} day of admission
• Acupuncturists meet patients morning of post-op day to invite to afternoon AQ session
**AQ in Joint replacement: Procedures**

- Surgery performed on the 1st day of admission
- Acupuncturists meet patients morning of post-op day to invite to afternoon AQ session
- Group physical therapy: 1:30 to 2:15pm
- Group AQ: follows immediately afterwards on 1st and 2nd day post-op
• Surgery performed on the 1st day of admission
• Acupuncturists meet patients morning of post-op day to invite to afternoon AQ session
• Group physical therapy: 1:30 to 2:15pm
• Group AQ: follows immediately afterwards on 1st and 2nd day post-op
• Consensus Points include:
  – LI11, LI4 bilaterally; ST 36, GB34, SP6, and LV 3 on the nonsurgical extremity; and auricular points Hip or Knee Joint and Ear Shen Men.
• Average treatment time was 41.3 minutes (standard deviation of 12.5 minutes).
Group AQ in Joint Replacement: Pain Analysis

<table>
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<tr>
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<th>Any Joint Replacement</th>
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<tbody>
<tr>
<td><strong>Any Treatment</strong></td>
<td><strong>No. Pain Obs</strong></td>
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<tr>
<td><strong>Unit Decrease in Pain</strong></td>
<td><strong>-1.91 (-45.2%)</strong></td>
</tr>
<tr>
<td><strong>95% CI</strong></td>
<td><strong>(1.83-1.99)</strong></td>
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<td><strong>p-value</strong></td>
<td><strong>&lt;0.001</strong></td>
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<td><strong>Unit Decrease in Pain</strong></td>
<td><strong>-1.79 (-38.8%)</strong></td>
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<tr>
<td><strong>95% CI</strong></td>
<td><strong>(1.69 – 1.89)</strong></td>
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<tr>
<td><strong>p-value</strong></td>
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<td><strong>Unit Decrease in Pain</strong></td>
<td><strong>- 2.14 (59.9%)</strong></td>
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<tr>
<td><strong>95% CI</strong></td>
<td><strong>(2.01 – 2.26)</strong></td>
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<td><strong>p-value</strong></td>
<td><strong>&lt;0.001</strong></td>
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41% of patients had moderate/severe pain prior to receiving AQ and only 15% of patients had moderate/severe pain after receiving acupuncture.
## Group AQ in Joint Replacement: Pain Analysis

### Pre- to post-IM therapy percent decrease in pain scores

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<td>Unit Decrease in Pain</td>
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<tr>
<td>p-value</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

| Day 1                | 1,259                 |
| No. Anxiety Obs      |                       |
| Unit Decrease in Pain| -1.79 (-38.8%)        |
| 95% CI               | (1.69 – 1.89)         |
| p-value              | <0.001                |

| Day 2                | 718                   |
| No. Anxiety Obs      |                       |
| Unit Decrease in Pain| - 2.14 (59.9%)        |
| 95% CI               | (2.01 – 2.26)         |
| p-value              | <0.001                |
Acupuncture Provides Short-Term Pain Relief for Patients in a Total Joint Replacement Program

Daniel J. Crespin, MSPH,*
Kristen H. Griffin, MA, MPH,†
Jill R. Johnson, PhD, MPH,† Cynthia Miller, RN, LAc,†
Michael D. Finch, PhD,§ Rachael L. Rivard, BS,†
Scott Anseth, MD,¶ and Jeffery A. Dusek, PhD†
## Oncology: Pain and Anxiety Analysis

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<td><strong>Pre- to post-IM therapy change in pain and anxiety scores</strong></td>
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<td>% Change in Pain</td>
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<td>% Change in Anxiety</td>
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Effects of Integrative Medicine on Pain and Anxiety Among Oncology Inpatients

Jill R. Johnson, Daniel J. Crespin, Kristen H. Griffin, Michael D. Finch, Jeffery A. Dusek

Correspondence to: Jill R. Johnson, PhD, MPH, Penny George Institute for Health and Healing, 800 East 28th Street, MR 33540, Minneapolis, MN 55407-3799 (e-mail: Jill.Johnson3@allina.com)

Background
Few studies have investigated the effectiveness of integrative medicine (IM) therapies on pain and anxiety among oncology inpatients.

Methods
Retrospective data obtained from electronic medical records identified patients with an oncology International Classification of Diseases-9 code who were admitted to a large Midwestern hospital between July 1, 2009 and December 31, 2012. Outcomes were change in patient-reported pain and anxiety, rated before and after individual IM treatment sessions, using a numeric scale (0–10).

Results
Of 10,948 hospital admissions over the study period, 1,833 (17%) included IM therapy. Older patients had reduced odds of receiving any IM therapy (odds ratio [OR]: 0.97, 95% confidence interval [95% CI] = 0.96 to 0.98) and females had 63% (OR: 1.63, 95% CI = 1.38 to 1.92) higher odds of receiving any IM therapy compared with males. Moderate (OR: 1.97, 95% CI = 1.61 to 2.41), major (OR: 3.54, 95% CI = 2.88 to 4.35), and extreme (OR: 5.96, 95% CI = 4.71 to 7.56) illness severity were significantly associated with higher odds of receiving IM therapy compared with admissions of minor illness severity. After receiving IM therapy, patients averaged a 46.9% (95% CI = 45.1% to 48.6%, P < .001) reduction in pain and a 56.1% (95% CI = 54.3% to 58.0%, P < .001) reduction in anxiety. Bodywork and traditional Chinese Medicine therapies were most effective for reducing pain, while no significant differences among therapies for reducing anxiety were observed.

Conclusions
IM services to oncology inpatients resulted in substantial decreases in pain and anxiety. Observational studies using electronic medical records provide unique information about real-world utilization of IM. Future studies are warranted and should explore potential synergy of opioid analgesics and IM therapy for pain control.


Pain is a common, often debilitating symptom of cancer and a

The evidence base for integrative oncology among inpatients
## Cardiovascular: Pain and Anxiety Analysis

Pre- to post-IM therapy percent decrease in pain and anxiety scores

<table>
<thead>
<tr>
<th>Any Cardiovascular Disease</th>
<th>Any Treatment</th>
<th>No. Pain Obs</th>
<th>% Decrease in Pain</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Treatment</td>
<td>No. Pain Obs</td>
<td>5,981</td>
<td>-46.5</td>
<td>(45.5 – 47.4)</td>
<td>&lt;0.001</td>
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<tr>
<td></td>
<td>% Decrease in Pain</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>95% CI</td>
<td>(45.5 – 47.4)</td>
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<tr>
<td></td>
<td>p-value</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Any Cardiovascular Disease</th>
<th>Any Treatment</th>
<th>No. Anxiety Obs</th>
<th>% Decrease in Anxiety</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>No. Anxiety Obs</td>
<td>3,109</td>
<td>-54.8</td>
<td>(53.7 – 55.9)</td>
<td>&lt;0.001</td>
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<tr>
<td></td>
<td>% Decrease in Anxiety</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>95% CI</td>
<td>(53.7 – 55.9)</td>
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</tbody>
</table>
The effectiveness of integrative medicine interventions on pain and anxiety in cardiovascular inpatients: a practice-based research evaluation

Jill R Johnson, Daniel J Crespin, Kristen H Griffin, Michael D Finch, Rachael L Rivard, Courtney J Baechler and Jeffery A Dusek

Abstract

Background: Pain and anxiety occurring from cardiovascular disease are associated with long-term health risks. Integrative medicine (IM) therapies reduce pain and anxiety in small samples of hospitalized cardiovascular patients within randomized controlled trials; however, practice-based effectiveness research has been limited. The goal of the study is to evaluate the effectiveness of IM interventions (i.e., bodywork, mind-body and energy therapies, and traditional Chinese medicine) on pain and anxiety measures across a cardiovascular population.

Methods: Retrospective data obtained from medical records identified patients with a cardiovascular ICD-9 code admitted to a large Midwestern hospital between 7/1/2009 and 12/31/2012. Outcomes were changes in patient-reported pain and anxiety, rated before and after IM treatments based on a numeric scale (0-10).

Results: Of 57,295 hospital cardiovascular admissions, 6,589 (11.5%) included IM. After receiving IM therapy, patients averaged a 46.5% (p-value < 0.001) decrease in pain and a 54.8% (p-value < 0.001) decrease in anxiety. There was no difference between treatment modalities on pain reduction; however, mind-body and energy therapies (p-value < 0.01), traditional Chinese medicine (p-value < 0.05), and combination therapies (p-value < 0.01) were more effective at reducing anxiety than bodywork therapies. Each additional year of age reduced the odds of receiving any IM therapy by two percent (OR: 0.98, p-value < 0.01) and females had 96% (OR: 1.96, p-value < 0.01) higher odds of receiving any IM therapy compared to males.
Conclusions

• Results provide evidence that IM therapies substantially reduce both short-term pain and anxiety among various inpatients.

• Future studies are warranted and could explore:
  – Potential synergy of opioid analgesics and IM therapy.
  – Longer-term effects of IM on pain and anxiety.
  – Cost effectiveness of IM therapy for inpatients.
  – Biological mechanisms of action.
Practice-Based Research

Collaborators and Funding Source

• Pamela Jo Johnson PhD, Co-Investigator (U of M)
• Jon Christianson PhD, Economist (U of M)
• Michael Finch PhD, Methodologist (U of M)
• Rachel Rivard, Biostatistician
• Desiree Trebesch MA, Study Coordinator
• Kristen Griffin MA, MPH, Scientific Advisor
• Adam Reinstein MaOM, LAc Acupuncturist
• Kelly McBride LAc, Acupuncturist

• Jill Johnson PhD, Epidemiologist
• Alison Kolste, Study Coordinator
• Dan Crespin, Methodologist
• Robert Jones, Senior Research Assistant
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• Stephanie Wallerius, Research Assistant
• Nichole Janssen, Research Assistant
• Sirri Ngwa, Research Assistant

The project is supported by grant R01 AT006518 from the National Center for Complementary and Integrative Health (NCCIH) to JD.
BraveNet: Integrative Medicine Practice-Based Research Network

Jeffery Dusek, PhD
BraveNet Executive Committee member
PRIMIER, CO-PI
What is BraveNet?

• A practice-based research network made up of nineteen leading integrative medicine centers around the U.S.
• Established in 2007 with funding from the Bravewell Collaborative
• Charged with collaborating in projects to increase the knowledge and evidence-based practice of integrative medicine
BraveNet Mission

To advance integrative medicine by:

• Collecting and analyzing data on use, effectiveness, safety, cost, and patient satisfaction with integrative medicine
• Creating an atmosphere of collaboration that stimulates and supports innovation in integrative medicine
• Contributing to the scientific credibility of integrative medicine
• Facilitating the dissemination of information that will influence the practice of medicine and creation of healthcare policy
• Providing a way to improve care at each practice and clinic
• Providing a way to work collaboratively to develop new methods of care
BraveNet Structure

• Executive Committee
  – Benjamin Kligler, MD, BraveNet Chair
  – Jeffery Dusek, PhD, PRIMIER Co-PI
  – Donald Abrams, MD, PRIMIER Co-PI
  – Coordinating Center PI and PL

• Steering Committee (site representatives)

• Coordinating Ctr (Einstein College of Medicine)
  – M. Diane McKee, MD, Principal Investigator
  – Claudia Lechaga, MS, Project Leader
Completed Research Projects

• BraveNet Multi-Center Integrative Medicine Survey (Registry Study)
  – 4,180 subjects, one visit (Explore, 2012 and 2015)

• BraveNet Multi-Center Study on Integrative Medicine Treatment Approaches for Pain (SIMTAP)
  – 400 subject target, four visits with 24 weeks follow-up, and includes laboratory testing
  – 252 participants completed four study visits and contributed to final analysis (BMC CAM, 2013 and Integrative Cancer Therapies, 2014)
The BraveNet prospective observational study on integrative medicine treatment approaches for pain

Donald I. Abrams, Rowena Dolor, Rhonda Roberts, Constance Pechura, Jeffery Dusek, Sandi Amoils, Steven Amoils, Kevin Barrows, Joel S. Edman, Joyce Frye, Erminia Guarneri, Ben Kliger, Daniel Monti, Myles Spar, and Ruth Q. Wolaver

Characteristics of Cancer Patients Presenting to an Integrative Medicine Practice-Based Research Network

Joel S. Edman, DSc, Rhonda S. Roberts, MS, Jeffery A. Dusek, PhD, Rowena Dolor, MD, Ruth Q. Wolaver, PhD, and Donald I. Abrams, MD

Integrative Medicine Patients Have High Stress, Pain, and Psychological Symptoms

Ruth Q. Wolaver, PhD, Nikita S. Godol, MS, Rhonda S. Roberts, MS, Karen Caldwell, PhD, Benjamin Kliger, MD, Jeffery A. Dusek, PhD, Adam Perman, MD, Rowena Dolor, MD, and Donald I. Abrams, MD

Patients Seek Integrative Medicine for Preventive Approach to Optimize Health

Ruth Q. Wolaver, PhD, Donald I. Abrams, MD, Benjamin Kliger, MD, Jeffery A. Dusek, PhD, Rhonda Roberts, MS, Joyce Frye, DO, MBA, MSCE, Joel S. Edman, DSc, Steve Amoils, MD, Elizabeth Pradhan, PhD, Myles Spar, MD, MPH, Tracy Gaudet, MD, Erminia Guarneri, MD, Peter Homel, PhD, Sandra Amoils, MD, Roberta A. Lee, MD, Brian Berman, MD, Daniel A. Monti, MD, and Rowena Dolor, MD, MHS

SAGE
BraveNet Access to Patients In Current Network Sites

- Over 300,000 patient visits in 2013-2015
- More than 45,000 unique patients
- Over 300 Health Care Providers at the nineteen IM clinical sites
- Interest in expanding to additional sites for future studies
PRIMIER

- Patients
- Receiving
- Integrative
- Medicine
- Interventions
- Effectiveness
- Registry

NCT01754038
PRIMIER Objectives

• PRIMARY OBJECTIVE
  – To evaluate the change in patient-reported outcomes (e.g. quality of life, mood and stress) over time

• SECONDARY OBJECTIVES
  – To evaluate whether patient-reported outcomes differ by baseline characteristics of the participants (e.g. demographics, clinical condition, patient activation measure score or intervention sought)
  – Identify best practices of Integrative Health and Medicine to improve the health of the US.
PRIMIER Inclusion Criteria

- Be seen as a clinical patient in one of the participating BraveNet clinics and willing to participate in the Registry
- Be 18 years of age or older
- Have access to a computer with internet connection and a valid email address
- Be willing to be contacted in the future by study investigators
**PRIMIER Data Collection**

- REDCap is used to collect all patient-reported data
- Baseline, 2, 4, 6, 12, 18 & 24 months

- Patient Demographics
  - Alcohol, Tobacco etc
  - Utilization of IM interventions per NHIS
- PROMIS ® 29
- Perceived Stress Scale (PSS-4)
- Patient Activation Measure © (PAM)
PRIMIER Registry

Patient-Reported Outcomes from REDCap survey

EHR Weight, Height and Pain scores

EHR Procedure Codes and Diagnosis

PRIMIER REGISTRY
Baseline Demographics (n=1684)

- Female 77.4%
- Race: White 84%, AA 6%, Hispanic 6%
- College or Beyond: 81%
- Married: 56% Partnered: 10%
- Divorced: 11% Never Married: 18% Widowed: 2%
- Employed: 68% Retired: 14%
- Annual Income >$100,000- 49% <$20,000- 8%
Depressive Symptomology

![Diagram showing the change in depressive symptoms over time from enrollment. The x-axis represents time from enrollment (Baseline, 2 Month, 4 Month, 6 Month), and the y-axis represents change from baseline in depression, with categories for Worsening, No Change, and Improving. The graph illustrates a trend of improvement in depressive symptoms over time.]
Perceived Stress

![Graph showing change in perceived stress from baseline over time. The x-axis represents time from enrollment (Baseline, 2 Month, 4 Month, 6 Month), and the y-axis represents change from baseline in PSS (Worsening to Improving). The graph shows a trend of no significant change in perceived stress across the time points.](image-url)
Patient Activation Measure

- **Level 1**: Does not believe has active or important role (↓46%)
- **Level 2**: Lacks knowledge and confidence to act (↓31%)
- **Level 3**: Beginning to take action (↑17%)
- **Level 4**: Maintaining behavior over time (↑17%)
Practice-based Research

Summary: Practice-Based Research

• PBR studies provide invaluable information for the field of complementary and integrative health
  – Both operations and research.

• Answers derived from these studies can be used in various ways
  • Future randomized trials
  • Clinical practice (operations)
  • Additional observational studies