The purpose of this evidence-based practice project was to identify and implement evidence-based non-pharmacologic nursing interventions to supplement pharmacologic pain control methods in the post-operative neurosurgical spine patient population.

Rationale
- Pain control for post-operative neurosurgical spine patients is very challenging and results in low patient satisfaction scores.
- Nurses and patients feel powerless when pain is not controlled with pharmacologic measures.
- Music listening can lead to decreases in pain and anxiety after surgery (Dippins, 2009; Voss, et al., 2004)
- Non-pharmacologic interventions (relaxation, music, deep breathing, heat, and cold) have been shown to decrease pain and physiological stress responses (Gordon, et al., 2005; Jarzyna, et al., 2011; Pasero & McCaffery, 2011)

Practice Change
- Prior to Initiating Practice Changes
  - Literature search from multiple sources identified gaps in pain control for neurosurgical spine patients.
  - Identified evidence-based non-pharmacologic interventions (relaxation, music, deep breathing, heat, and cold)
- Evaluation
  - Staff Knowledge and Attitude
    - Mean Scores: I = Strongly Disagree to 5 = Strongly Agree
    - Before Practice Change (n=34); Jan-Sept 2011
    - After Practice Change (n=13); Oct 2011-Feb 2012
- Selection Criteria: Interventions
  - Guided Relaxation
  - Music Listening
  - Responding
- Implementation Strategies
  - AID Plan
  - Patient Education
  - Revised Nursing Documentation
  - Revised Nursing Plan Format
  - Staff Reference Binder
  - Grant Funding for Musicians
  - Staff Meetings
- Non-Pharmacologic Interventions Toolkit
  - Cold Application
  - Exercise
  - Ice
  - Music Listening
  - Pillow
  - Distraction
  - Repositioning
  - Relaxation Therapy
  - Therapeutic Touch
  - Visualization
- Evaluation
  - Documentation: Chart Audit Results
  - Press Ganey® Outcome Measures
  - Non-Pharmacologic Nursing Interventions Documentation: Pre-Implementation (n=21)
  - Non-Pharmacologic Nursing Interventions Documentation: Post-Implementation (n=65)
- Conclusion
  - Successful practice changes can be made when a multi-faceted approach to implementation is utilized.
  - Post-operative neurosurgical spine patients reported improved satisfaction with pain control after implementation of the non-pharmacologic nursing interventions toolkit.
- Implications for Nursing Practice
  - Practice change was based on evidence aimed at general post-operative patient populations.
  - Non-pharmacologic nursing interventions toolkit could be applied to other post-operative patient populations, other units, and other organizations.

Acknowledgements
- A special thanks to all the patients and staff members who have provided feedback and support for this evidence-based practice staff nurse internship project.
- Materials made possible by funding from Volunteer Services at the University of Iowa Hospitals and Clinics.

Evaluation (Continued)

Nursing Interventions Documentation:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Pre-Implementation (n=34)</th>
<th>Post-Implementation (n=13)</th>
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<tr>
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<tr>
<td>Visualization</td>
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</table>

Implications for Nursing Practice
- Practice change was based on evidence aimed at general post-operative patient populations.
- Non-pharmacologic nursing interventions toolkit could be applied to other post-operative patient populations, other units, and other organizations.

Next Steps
- Continue to evaluate effectiveness of the non-pharmacologic interventions toolkit.
- Continue to reiterate efforts aimed at increasing staff awareness.
- Implement non-pharmacologic nursing interventions for other patient populations on the unit and within the hospital.
- Create educational brochure for patients highlighting benefits of music therapeutic therapy.

Project Framework

Nurse Internship Practice Change Plan

- Staff Meetings
- Grant Funding for Music/Headsets
- Staff Reference Binder
- Revised Nursing Documentation
- Music Therapy
- Pain Control After Spine Surgery
- Controlling Acute Pain

Evaluation (Continued)

Mean Scores: I = Strongly Disagree to 5 = Strongly Agree

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Patient Education Updates
- Hospitalswide "Controlling Acute Pain" brochure
- Unit-specific "Pain Control After Spine Surgery" insert
- Consulting Music Therapy Department who offered their extensive library of materials to create appropriate compact discs
- Patients received "Controlling Acute Pain" brochure and "Pain Control After Spine Surgery" insert if not previously received
- Patients receive the new "Pain Control After Spine Surgery" insert highlighting the following interventions: music listening, guided imagery, exercise, and deep breathing
- Staff received "Controlling Acute Pain" brochure and "Pain Control After Spine Surgery" insert if not previously received

Synthesis of Evidence
- Patients receiving interventions (pharmacologic and/or non-pharmacologic) that reduce or eliminate pain associated with their diagnosis, procedure or treatment must be reassessed for the effectiveness of the intervention (American Pain Society, 2008; American Society of Anesthesiologists, 2010; Berry, et al., 2006; Gordon, et al., 2005; Herr, et al., 2008; Jarzyna, et al., 2011; Pasero & McCaffery, 2011)
- An accumulation of non-pharmacologic interventions that are successful in helping patients deal with pain and discomfort, and outcomes and outcomes should be given to each patient/family member (American Pain Society, 2008; American Society of Anesthesiologists, 2010; Berry, et al., 2006; Gordon, et al., 2005; Herr, et al., 2008; Jarzyna, et al., 2011; Pasero & McCaffery, 2011)
- Pre-operative teaching interventions result in improvement in knowledge, attitudes, and use of non-drug pain interventions for patients (American Pain Society, 2008; American Society of Anesthesiologists, 2010; Berry, et al., 2006; Gordon, et al., 2005; Herr, et al., 2008; Jarzyna, et al., 2011; Pasero & McCaffery, 2011)
- Non-pharmacologic pain intervention fails reduce spatial use and anxiety in post-operative patients (American Pain Society, 2008; American Society of Anesthesiologists, 2010; Berry, et al., 2006; Gordon, et al., 2005; Herr, et al., 2008; Jarzyna, et al., 2011; Pasero & McCaffery, 2011)
- Relaxation programs, such as guided imagery, improve pain relief and decrease anxiety in surgical patients (American Pain Society, 2008; American Society of Anesthesiologists, 2010; Berry, et al., 2006; Gordon, et al., 2005; Herr, et al., 2008; Jarzyna, et al., 2011; Pasero & McCaffery, 2011)

Evaluation

Mean Scores: 1 = Strongly Disagree to 5 = Strongly Agree

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<th>Pain Control After Spine Surgery</th>
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<td>3.21 (Post)</td>
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