



Music listening reduces length of stay in hospitals

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White Paper

1. Background

“A single 20-minute session of live harp music was effective in decreasing pain and anxiety in newly post-op cardiac and thoracic patients” (Aragon, Farris and Byers, 2002).

Increasingly, hospitals use ancillary therapies to improve patient well being and reduce length of stay. In various hospital settings, music listening has shown to increase patient overall well being, relaxation responses, reduce anxiety levels, respiratory rates, and sensation of pain. In some settings where length of stay was measured comparing a music listening group to a control group, significant reductions in length of stay were recorded. While there are not enough studies to prove conclusively that music listening reduces length of stay in all hospital settings, enough evidence exists for Neonatal Intensive Care Units to show that music increases quality of services, reduces average length of stay by 11.9 hospital days and generates savings of \$33,000 per child (Standley, J.M., 1998). This may be true in other settings as well. The following summarizes studies for all service delivery systems and makes a case for utilizing music in hospitals.

2. Which are the hospital settings where music can be helpful?

Music helps to improve mood and decrease anxiety, as well as decrease the pain associated with surgery, medical procedures, and chronic conditions. Therefore, music listening can support pre-operative, post-operative, rehabilitative and surgery settings. In addition, music may enhance care-giving behavior overall in the hospital (Kemper, K. & Danhauer, S. 2005). Studies have shown that music can be effective preparing patients for surgery and supporting their recovery or preparation for chemotherapy, as well as increase relaxation in pediatric and adult intensive care units. “This relaxation response includes decreases in heart and respiratory rate, muscle relaxation, sleep, decreased oxygen consumption, lowered metabolic rates, and a reduction in circulating corticosteroids”. (Guzzetta, C. 1998)

In particular, the sound of live music serves as a “divider” between patients who are situated in close proximity such as the Neonatal Intensive Care Unit (NICU). For this setting, there is a larger body of evidence with enough homogeneity of findings to suggest that

music has statistically significant and clinically important benefits for premature infants in the NICU. The unique acoustic properties that differentiate music from all other sounds serve to reduce anxiety and open up a personal space for each patient. (Standley, JM, 2002).

Orthopaedic surgery and recovery also has benefited from music as part of a multi-modal approach to pain management. Nonpharmacologic interventions include cold application, relaxation, imagery, and music listening. The Journal for Orthopaedic Nursing found that “multi-modal, pre-emptive analgesia decreases the length of hospital stay following total joint arthroplasty“ (Parker, R.J. 2011)

Patients recovering from burns are helped by music to reduce their pain sensation. According to the gate control theory of pain, a gating mechanism in the brain can block the sensation of pain at the level of the spinal cord. Hearing soothing music distracts patients from noxious input. A secondary effect is the reduction of anxiety associated with pain. In effect, the length of stay may be reduced significantly (Ferguson, S.L.&Voll, K.V.2004).

Length of stay was reduced by 20-25 percent for female patients who listened to soothing music before and after gynecological operation, lowering cortisol by a factor of 2.4 compared with 1.7 in the control group and an increase in well being of 88.9 percent as measured by the Minnesota Multiphasic Personality Index compared to 10 percent in the control group. (Gerassimowitsch, G.& Sidorenko, W. 2000)

Music support can make a significant difference in the Neonatal Care Unit. Data from heart and respiratory rates, oxygen saturation, and the Strengths Inventory are collected during music therapy and fed into the CRIES Neonatal pain scale and help shape the neonate’s individual profile, alerting staff to individual pain thresholds and triggers. Music Therapy has shown to be a effective multi-sensorial stimulation component of a multi-disciplinary approach including nonnutritive sucking, swaddling or facilitated tucking, and kangaroo care. (Golianu, B. 2007)

In fact, music listening seems to produce positive results in most settings: a meta-analysis of 29 studies shows that overall showed that music reduces patients' anxiety in all care deliver systems except where patients underwent procedures such as bronchoscopy, sigmoidoscopy, or surgery with a spinal anaesthetic. In addition, music improves patients' tolerance to procedures. (Evans, D. 2002).

3. An example of the successes gained by providing music in a hospital

At Boston's Children's Hospital, two certified music practitioners, trained for the hospital setting, play for the children, staff and visiting parents in surgery and recovery. In addition, harpists visit for 9 hours/week in half-hour sessions. The harp creates a calming musical environment conducive to healing and reflection. Harpists are available by request to all Intensive Care Units, dialysis units, surgical waiting areas and various patient care units. The

results are measured concurrent with treatment:

- Cancer patients who received 30 minutes of live harp music experienced anxiety reduction and decreased respiratory and heart rates.
- Live harp music lulls newborns for 30 minutes following session, significantly reducing heart rate, inducing deeper sleep and improved behavioral scores. Recorded music had no significant effect on any of the parameters (*Stanelow, 2006*).

4. What are the therapeutic effects of Music?

Music therapy is defined as the “controlled use of music and its influence on the human being in physiologic, psychologic, and emotional integration of the individual during treatment of an illness or disability.” Harmonic sound patterns significantly increase the perception of restedness and relaxation response to pain and stressful environments (Smith, M.J., 1986).

5. How do staff react to the music in their environment?

A study of 150 nurses and 37 physicians in the NICU found that the majority (68%) agreed that they would like to have music played in the NICU. Most agreed that music could reduce stress (86%) and crying (79%) and improve sleep (79%) in premature infants.” Kemper, Martin, Block, Shoaf & Woods, 2004). Nurses in particular like music therapy and the resulting increased engagement of patients. In the NICU, Music Therapy calms workflow,

resulting in increased nosocomial infection control.

6. Conclusion

Enough evidence has been accumulated over the past 12 years to establish and document advantages of music in hospital settings. Following the example of Boston's Children's Hospital, studies and measures concurrent to treatment should be conducted on a broad basis to identify the hospital settings where music can bring the best leverage to reduce length of stay. Return of investment studies should measure savings resulting in length of stay reductions and compare those to the expenditures of a music program. If current ROI studies for the NICU hold true for other settings, the return of investment rate us between 2,000 and 3,000 percent, a significant savings to the hospital administrator.

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Stephan Betz, Ph.D., is a Board Certified Music Therapist (MT-BC) who practiced and researched music therapy since 1977 at outpatient clinics and inpatient hospitals in Europe, Australia and the USA. He currently serves as First 5 Commissioner for Solano County, a program that won a national and two State awards for its perinatal care. Stephan Betz specializes in treating children with autism and applies findings of his work to infant and early childhood attachment therapy and was awarded the American Music Therapy Association Betty Isern Howery Award for Professional Excellence.

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