

**1) Provide a brief abstract or summary of your Honors in Action project including the following components: academic research and analysis, leadership roles, leadership development, action, collaboration, reflection and outcomes.**

Music therapy as a healing influence can be traced back to the writings of Aristotle and Plato. Researchers such as Dr. Anthony Holland are replicating the practice of music therapy in innovative ways to treat cancer. According to him, "Cancer treatment rooms for children will now be very different...They'll draw pictures, color in their books, play with their toys all the while unaware that above them are beautiful blue pinkish plasma lights emanating healing, pulsing electric fields; shattering their cancer painlessly and non-toxically one cell at a time." We investigated how the world works using music therapy to treat cancer. Our research led us to conclude music therapy is psychologically and physiologically beneficial. Unfortunately, it is not widely practiced in our home state of South Carolina (SC) due to a licensing issue. We attended workshops to develop skills to help us research, plan and complete our project. We created research, interview and action committees to accomplish our objectives. Through collaboration with music therapists, healthcare professionals and Horry Georgetown Technical College (HGTC) staff, we developed "The Healing Powers of Music Therapy" forum and advocated for the use of music therapy in cancer treatment to seventy attendees. Ultimately, we grew as scholar-servant-leaders when we learned we can effect change in our community through advocacy.

**2) What theme in the current Honors Program Guide did your chapter focus on?**

- Innovation and Replication

**3) Why and by what process did you choose this theme?**

Our advisors facilitated a lightning round exercise during officer training where we were charged with reviewing the Honors Program Guide and creating a mock Honors in Action (HiA) project in ninety minutes. This exercise motivated us to discuss themes during subsequent HiA meetings. After hearing speakers at International Honors Institute and actively participating in seminar groups, we experienced an epiphany about the power of music when we reflected on our participation in Choir! Choir! Choir! We decided music would be the focus of our research and explored such areas as therapy, science, culture and health. Committee members researched and presented a summary of each topic. Chapter officers voted to concentrate our efforts on music therapy. In the 2013 dos Reis Lestard study, we found music therapy could physiologically affect those with cancer. This innovative approach to cancer treatment fascinated us and caused us to question how music could treat a physical disease.

**4) List the academic/ expert sources that were most enlightening regarding multiple perspectives of the Honors Study Topic theme you selected. Briefly explain why there were most important sources and what you learned from each of them as you researched your theme.**

Archie, Patrick, Eduardo Bruera, and Lorenzo Cohen. (2013). Music-Based Interventions In Palliative Cancer Care: A Review Of Quantitative Studies And Neurobiological Literature. *Supportive Care In Cancer* 21.9: 2609-2624.

Music therapy may have positive impacts on pain, anxiety, mood disturbance and quality of life in cancer patients. These findings intrigued us and we wanted to see if it was offered in our community.

Bowden, Meredith, MT-BC, NICU-MT. Certified Music Therapist, Greenville Health System. Personal Interview. September 20, 2016.

This interview educated us on certification requirements and treatment modalities used by certified music therapists. She also spoke at our forum.

Bradt, J., Dileo, C., Grocke, D., and Magill, L. (2016). Music Interventions for Improving Psychological and Physical Outcomes in Cancer Patients. *Cochrane Database of Systematic Reviews*, Issue 8.

Music interventions may have beneficial effects on anxiety, pain, mood and quality of life in cancer patients. Additionally, music may have a small effect on heart rate, respiratory rate, and blood pressure. Most trials mentioned in this study were inconclusive and at high risk of bias. This study countered our perception of music therapy always being beneficial.

dos Reis Lestard, Nathalia, et al. (2013). Direct Effects Of Music In Non-Auditory Cells In Culture. *Noise & Health* 15.66: 307-314.

This Brazilian study suggests music can modify cellular conversion, cell size and granularity in refined cells. Music can directly affect hormone binding, proposing that music or audible sounds could alter physiological and pathophysiological processes. This study indicated Beethoven's 5<sup>th</sup> Symphony was most successful in reducing cell volume and granularity and increasing cell vulnerability. We were astonished to learn certain forms of music can combat cancer cells. This led us to the Anthony Holland TEDTalk video.

Engen, Rebecca. PhD, MT-BC. Neurologic Music Therapist, Director of Music Therapy Program, Queens University, Charlotte, NC. Personal Interview. September 9, 2016.

Our interview revealed there is no state licensing board in North Carolina for music therapists. This led us to question South Carolina's licensure status. Dr. Engen became an enthusiastic supporter of our project and provided a speaker for our college forum.

Hart, Jane. (2009). Music Therapy For Children And Adults With Cancer. *Alternative & Complementary Therapies* 15.5: 221-225

Music therapy diminishes anxiety, increases relaxation and gives patients an identity beyond their cancer diagnosis. It is becoming an essential part of hospice and palliative-care units in hospitals. It eases psychological, physical and spiritual burdens experienced by cancer patients. This research led us to investigate whether our local hospitals and cancer centers were utilizing music therapy.

Shattering cancer with resonant frequencies: Anthony Holland at TEDxSkidmoreCollege Video [Video file]. Retrieved from [https://www.youtube.com/watch?v=1w0\\_kazbb\\_U](https://www.youtube.com/watch?v=1w0_kazbb_U)

We discovered Dr. Holland's video demonstrating his research on oscillating pulsed electric fields destroying cancer cells more effectively than radiation therapy. He stated cancer cells are susceptible to frequencies between 100,000 and 300,000 Hertz. We used this video in our forums.

Zhang, J., Wang, P., Yao, J., Zhao, L., Davis, M., Walsh, D., & Yue, G. (2012). Music Interventions for Psychological and Physical Outcomes in Cancer: A Systematic Review and Meta-analysis. *Supportive Care In Cancer*. 20(12). 3043-3053.

While searching for opposing views, this meta-analysis of English language and Chinese language databases suggests physiological effects of music therapy, especially on blood pressure, are small. It argues many trials in favor of music therapy are based on samples too small to be statistically significant. High-quality trials are necessary to further determine the efficacy of music intervention. This meta-analysis affirmed the Bradt study.

##### **5) What conclusions did your chapter reach based on your research and how did these conclusions guide you to select the action part of your project?**

Our research indicated music therapy is beneficial in treating psychological and physiological conditions of cancer patients. It alleviates symptoms of anxiety and depression, improves quality of life and combats the loss of a sense of identity in adults and children diagnosed with cancer. We were especially intrigued when we discovered Dr. Holland's groundbreaking evidence of shattering ovarian, leukemia and pancreatic cancer cells using a specific range of input frequencies. Dr. Holland concluded cancer cells are most vulnerable between 100,000 and 300,000 Hertz. A Brazilian study indicated Beethoven's 5<sup>th</sup> Symphony significantly reduced the volume of and caused morphological alterations to human breast cancer cells. We were amazed how simply replicating music notes could lead to innovative cancer treatment. Additional studies indicated music can mitigate physical and physiological implications of cancer such as pain and neuropathy. We had difficulty finding an opposing source indicating music therapy is not beneficial to cancer patients. We returned to our school librarian to help us refine our search criteria. His guidance led us to a collection of studies

suggesting music therapy did not have a significant effect on oxygen saturation, distress, body image, immunologic functioning or communication. From this research, we concluded music therapy is beneficial and questioned if it was being practiced locally and requirements needed to become a certified music therapist. We reviewed music therapy programs in the United States (US) and around the world, including Aalborg University in Denmark and the University of Melbourne in Australia. The US has fewer graduate and doctoral programs than other countries, and international programs require more coursework and internships. We were excited to find a pilot program in Greenville, SC incorporating music therapy to treat cancer patients. Additionally, we researched licensing, educational and practice requirements for international music therapists. Our interview with Stephen Williams at Capilano University in Vancouver indicated music therapists are nationally certified in Canada. In the United Kingdom (UK), music therapists are also trained musicians who are required to study at a postgraduate level. They must register with the Health and Care Professions Council, which protects their title under UK law. Countries with universal healthcare systems allow music therapists to register nationally and practice in any part of the country. The US has a national certification for music therapists. However, in order to practice legally, each state requires state licensure. Only three states currently have licensure requirements. We learned in our interview with Dr. Engen neither North Carolina nor South Carolina has a state licensing board. In South Carolina, three issues may arise for patients seeking alternative care without state licensed music therapists: 1) No access to nationally board certified music therapists for a service that is approved by Medicaid; 2) Unlicensed providers could bill for a service which could lead to fraud; and 3) No protection from harmful or unsafe music therapy practices. We were appalled so few people in our state can benefit from cancer treatment using music therapy. We decided to promote awareness and advocate for a state licensing board to be implemented in South Carolina.

**6) Summarize your objectives for this Honors in Action project and the process by which the chapter set these objectives.**

Our research clearly indicated the strong benefits of music therapy on cancer patients. Committee members brainstormed and debated to finalize the following objectives:

- Assess local use of music therapy
- Educate ourselves and our community how to become a music therapist
- Inform our community of the benefits of music therapy for cancer patients

Further investigation revealed lack of licensing in North and South Carolina. In response we decided to add an additional objective of advocating for state licensure.

**7) With whom did you collaborate for this Honors in Action project?**

HGTC Departments:

- Information Technology (IT)
- Career Resource Center
- Library

-Rebecca Engen, Queens University of Charlotte, Director of Music Therapy Program  
-Krystal Heffinger, Music Therapist, Levine Cancer Institute  
-Meredith Bowden, Music Therapist, Center for Integrative Oncology and Survivorship, Greenville Health System

**8) Describe the leadership of chapter members that contributed to the planning, preparations, and implementation of this Honors in Action project. The exercise of leadership may come from groups/ committees, officers, and non-officers. Leadership roles are not necessarily those that come with "titles".**

Our HiA committee formed three subcommittees to reach our objectives: research, interview and action. Our research committee used skills learned at a research workshop to investigate music therapy. We revisited our research librarian for assistance on researching opposing views. Each committee member used the online organizational tool, Trello, to post research findings and assign tasks. Our research coordinator compiled a 13-page summary of our findings, which she delivered to three interested professionals. Our interview committee used skills obtained from our training with the HGTC career resource specialist to develop questions to interview local and international professionals. One researcher called local music therapists and support groups. Our research coordinator called hospitals, oncology centers and Greenville Health System. Our interview specialist called Capilano University, Queens University, Charleston Southern University, Converse College and Levine Cancer Institute. Our action committee developed "The Healing Powers of Music Therapy" forum to present at the Carolinas Region Leadership Conference and to the public at HGTC. Our technology specialist created the Prezi we used for both forums. We rehearsed our roles several times using presentation skills taught by one of our advisors. Two committee members secured expert speakers for our public forum at HGTC and collaborated with the IT department to allow for video conferencing. Our graphic designer created a program and flyers. Our publicity coordinator contacted local media and worked with staff to publicize our event. Our survey coordinator created surveys to assess attendees' knowledge of music therapy and later compiled and analyzed results.

**9) Describe the leadership education and training activities taken to specifically help chapter members be more effective leaders for *this* Honors in Action Project.**

Our project began during officer training where members participated in a lightning round exercise to introduce the process of completing an HiA project. Our College Project chairperson taught us how to keep track of meetings and research using the online organizational tool, Trello. Our research librarian conducted a workshop instructing us how to use a library guide created specifically for our project and how to conduct scholarly research using databases. We met with an HGTC career resource specialist who showed us how to appropriately conduct interviews via phone and e-mail. This was valuable when we contacted music therapists, professors and local health professionals. We attended the Carolinas Region Leadership Conference where we participated in a "Be an Honors in Action Judge" workshop. We learned how to score projects using the rubric by reading and judging past projects. We also participated in a mock HiA project from start to finish, which included choosing a topic, researching, planning the action component and writing the award entry for judging. To prepare for our first music therapy forum, our advisor coached us how to give an engaging presentation. He instructed us how to maximize the use of space, maintain eye contact, not move our hands too much, and most importantly, to be confident and have fun.

**10) Describe the service or "action" components of this Honors in Action project that were inspired by and directly connected to your Honors Study Topic research. (Action can also include promoting awareness and advocacy.)**

Our committee decided to conduct two forums to educate and advocate for the benefits of music therapy for cancer patients, one at the Carolinas Region Leadership Conference and one at our college. We created a Prezi which included summaries of significant research findings, Dr. Holland's TEDTalk and patient testimonial videos from Greenville Health System. We expanded our community forum at HGTC to include expert speakers. We were most intrigued by Greenville Health System's pilot music therapy program for cancer patients. We were unable to contact their leading physician after numerous attempts, however, we finally reached Meredith Bowden, a board certified music therapist working with the pilot program. She agreed to speak about the educational requirements to become a music therapist. We invited Dr. Engen to speak, but she was unable to attend due to scheduling conflicts. She recommended Krystal Heffinger, also a board certified music therapist, to speak about using music therapy with cancer patients. We were notified at the last minute neither Meredith nor Krystal could travel to our college, so we collaborated with our IT department to arrange video conferencing. We informed attendees about the SC state licensure online petition "The Music Therapy Practice Act" Bill S.589. We shared the web address to sign this petition and conducted a survey to assess what forum attendees learned.

**11) What were the quantitative and qualitative outcomes of your project, including the lessons learned by your chapter members and others?**

Seventy people attended our two forums. Survey results revealed 40% of attendees had prior knowledge of music therapy. After listening to our presentation, 91% of attendees agreed music therapy was beneficial to cancer patients. One attendee stated, "I feel this field could be very promising." Forum participants seemed to understand and were genuinely interested in the material based on open-ended survey responses. Our Phi Theta Kappa audience asked questions concerning why music therapy wasn't being funded or researched more heavily. This group was intrigued with the topic and our qualitative results contained thought-provoking responses. One stated, "We need to consider alternative healing methods to replace our dependence on medicines. Children can benefit from music therapy." During our question and answer session, one student asked, "Do you believe big pharma may be the reason this phenomenon is not as deeply researched and is underfunded?" We found an article suggesting drug companies will not fund music therapy because they do not see a profit in it.

We planned our forum around Dr. Engen because she was enthusiastic about our project, stating, "It is unprecedented to have non-family, non-musician, independent advocates like this." Dr. Engen was disappointed she could not attend and offered to find a replacement. Her replacement did not confirm her participation until a week before our forum. This taught us the importance of having an alternate strategy when planning a major event. We became better researchers when we learned how to use Boolean phrases with database searches. Our interview workshop helped us improve our professional communication skills, and we were more confident speaking in public. We grew as scholar-servant-leaders as we explored music therapy and discovered little-known innovative ways to treat cancer. This project inspired us to explore global perspectives and helped us understand the power of advocacy. Like Anthony Holland, we would love to see the day cancer treatments do not make children sicker.

**12) What is left undone or what opportunities remain for the future?**

The petition still needs 688 signatures. Therefore, we will continue to encourage people to sign it. We could also investigate if private insurance covers the cost of music therapy and share that information with local oncologists and cancer treatment centers.