


# Music in a Hospital: The Impact of a Live Music Program on Pediatric Patients and Their Caregivers

Music and Medicine  
3(4) 213-223  
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sagepub.com/journalsPermissions.nav  
DOI: 10.1177/1943862111399449  
http://mmd.sagepub.com  


Costanza Preti, PhD, MA, MRes, Dip Mus<sup>1</sup> and  
Graham F. Welch, PhD, MA, BEd(Hons), CertEd<sup>1</sup>

## Abstract

This research looks at the impact of live music on children and their caregivers in a pediatric hospital in Italy. Observations were carried out over a period of 4 weeks involving 162 children and 146 caregivers. In addition, interviews were conducted with 14 children and 22 caregivers. Subsequently, thematic analysis and content analysis were performed on 4 modes of data (observations, videos, interviews, field notes) with the support of *Atlas.ti* software. Results suggest that, in this context, there is evidence of the musical intervention helping the children and their families to focus their attention on something that is external to the illness. Through the familiarity of the repertoire, children's perceptions of the hospital environment turns into something more familiar and less threatening. Consequently, the music constitutes for children and their family a psychosocial space where they can interact without the anxiety and stress elicited by diagnosis-feared perception as well as illness.

## Keywords

active and receptive music approaches in pediatrics, music health and well being, psychosocial music interventions, live music in hospitals

The presence of professional musicians in hospitals has been notable in the last 10 years across the United States and Europe, shifting from a voluntary engagement by both charities and musicians to one that is becoming more mixed and formalized in terms of provision and its contractual basis.<sup>1,2</sup> This trend is evidenced (a) by an increasing number of charities involved in the provision of musical activities in hospital settings (eg, Live Music Now!, UK; Music in hospitals, UK; Music for all seasons, US; Musicians on call, US; Musique & Santé, France; Centre de Formation de Musiciens Intervenants, Université Marc Bloch, France; Musica nos Hospitais, Portugal), and (b) by a growing number of conferences organized on the theme of music and health,<sup>3</sup> reflecting a growing interest in the practice. In addition, institutions such as Temple University in Philadelphia (United States; traditionally associated with a strong music therapy department), the Royal Northern College of Music in Manchester (United Kingdom), and the University of Strasbourg (France) have developed training courses for musicians playing in health care settings, alongside their established music therapy degrees.

The literature supports the notion that listening to music, and live music in particular, can make a difference in the patient, in terms of enhancing relaxation,<sup>4-6</sup> providing distraction,<sup>7-9</sup> and particularly in the case of children, helping patients to verbalize the hospital experience in order to cope better with it.<sup>10,11</sup>

Furthermore, seen through the lens of Lazarus's transactional stress theory,<sup>12</sup> music, through its distracting and soothing

qualities and the familiarity of the repertoire, may function as a form of "social support" (see note 1) and impact positively on the coping mechanism of the hospitalized child. Music, therefore, may influence the child-patients' perceptions of the hospital environment and, consequently, of any perceived threat associated with it.<sup>13</sup>

It seems likely that most of the "working" features of a musical intervention in a hospital originate from perceptual functions of music that are embedded in our genetic design<sup>14,15</sup> and are nurtured by our contemporary environments and, hence, are especially effective in eliciting a set of responses.<sup>16,17</sup> As far as the child patient is concerned, music is reported to be a central feature of their personal and social identity,<sup>18</sup> being interwoven in their daily leisure and school activities, and omnipresent through the media.<sup>19-21</sup> However, with few exceptions,<sup>5,7</sup> the literature on the impact of music on hospitalized children does not offer integrated views that include a wider system of social and emotional interactions<sup>22</sup> between the musicians, the

<sup>1</sup>International Music Education Research Centre (iMerc), Institute of Education, University of London

## Corresponding Author:

Costanza Preti, International Music Education Research Centre (iMerc), Institute of Education, University of London, 20 Bedford Way, London WC1H 0AL, United Kingdom  
Email: costanza.preti@gmail.com

child-patients, the caregivers, and the hospital staff. Accordingly, a specially designed case study research project was undertaken of a pediatric hospital, in Italy, that had offered a music program for the past 6 years, at the time of the research. Within the overall aims of the larger study researching the impact of the live music program on all stakeholders involved, the present study provided an opportunity to investigate the multifaceted nature of such a program and to analyze its impact on the hospitalized children and their caregivers through structured observations and interviews over a 4-week period.

## Context

A pediatric hospital in Italy was selected because of its unique musical activity, which has been ongoing since 2003 and which covers 23 wards with 45 hours of live music each week, performed by a team of 9 musicians specifically trained to perform in the hospital, but without any formal music therapy background.

The genesis of the music programme dates back to 1996, when a local children's foundation introduced live music in the hospital's oncology ward. The programme was inspired by *Musique et Santé* (see note 2), a French organization that since the early 80s had been running live music programmes in pediatric hospitals in France. Subsequent to the oncology ward activity, in 2001, the children's foundation organized the first Italian training course for musicians playing in hospitals. The course's aims were twofold: (1) to create a new professional figure, a "musician in hospital," which could be integrated into the hospital's everyday life through regular performance activities; and (2) to extend the musical provision from the oncology ward to all the hospital's wards, which subsequently happened in 2003.

The duration of the training course was of one year and it was held once a week (Saturday), partly in the hospital, and partly in a local school of music. The subjects covered in the course were elements of psychology applied to the hospital context; improvisation skills; vocal skills, group performance; body percussion; plus specific workshops on the musical repertoire and on how to build musical instruments. Teachers were local musicians and medical staff from the hospital. Once a month, for a long weekend, Philippe Bouteloup (director of *Musique et Santé*) and Victor Flusser, (director of the *Centre de Formation de Musiciens Intervenant en milieu de la santé et en milieu social* [see note 3] from the Marc Bloch University in Strasbourg) held a workshop on specific aspects of the musical intervention in the hospital. In particular, they focused on the analysis of the hospital environment in relation to performance opportunities (theory and practice); the planning of musical interventions in the hospital, according to different sets of circumstances (eg, child's health, hospital's daily routine); how to foster collaboration between the musicians and the hospital staff; the child's and caregivers' reactions to hospitalization; and the planning of musical interventions tailored for different age groups. The workshop included a guided observation of musical interventions in different spaces of the hospitals, conducted by the participant musicians. The last 4 months of the

course were focused on the training of the musicians across selected wards and waiting spaces in the hospital. The musicians' training, and their subsequent interventions, did not involve any medical or psychosocial approaches when dealing with the patients. The main aim of their intervention was to distract and engage the child in a musical activity.

Although the musicians brought their main instrument into the hospital (at the time of the case study these were 2 violins, viola, 2 guitars, 2 saxophones, flute, and oboe) and sometimes played instrumental music, they were strongly encouraged to sing and to use their "main" instrument as an accompaniment. The musicians also used a variety of little percussion instruments to involve the children and their caregivers communally in the musical intervention. Each musician had a range of approximately 20 to 35 percussion instruments that were selected for each intervention. They were expected to have a variety of interesting instruments from both a musical and a visual perspective, and were encouraged to build the instruments themselves by using recycled materials or unusual objects with a range of surprising sonic possibilities. An additional feature was that they tended to have at least 2 instruments of each kind to interact with the child and improvise through an imitation process. Examples of percussion instruments included little twist drums, sea drums, tambourines, wooden castanets, small maracas, egg shakers, rain sticks, bell sticks, guiro shakers, tone block, rhythm sticks, cymbals.

During the training, the musicians learned how to use the little percussion instruments as a way to involve children and their caregivers in the musical action. The instruments were also valuable to foster a sense of belonging to the musical event by the action of sharing the holding of a variety of different instruments. Also, during the intervention, the musicians showed the child how to use the instrument and—depending on the willingness of the child to get involved at that particular moment in time—they explored together the various rhythmic and sonic possibilities of such instruments, performing little rhythmic improvisations so that the session often turned into an educational game where the child had the chance to have a close encounter with music and deepen their learning of how to interact through music.

The musicians usually performed alone and sporadically in a duo, due to the limited funding available for the music staffing. The length of a standard "intervention" was typically around 40 minutes. Recipient children and their caregivers were selected on the basis of a priori information that the musicians gathered from the nursing team and from their own experience of where they might be the most effective, especially when approaching children in large waiting rooms.

In the context of the Italian hospital reported in the study, the musicians were expected to develop a repertoire of familiar songs that reflected the culturally diverse patient population of the hospital. The musical repertoire knowledge was similar across all the musicians. It was based on traditional songs for children, largely regional, and mainly learned during the musicians' training courses (see Appendix 1 for a detailed list of repertoire). This appeared to be a precise stylistic choice whose

rationale was not always clear, as some of the songs were observed to be unfamiliar to the children. Nor did they seem to appeal to all children's tastes, as much of the music was strongly contextualized in a regional-folk tradition that often appeared to be extraneous to some of the children (eg, such as those coming from different regions and outside Italy).

Musically, one of the most evident characteristics of the folk song-based repertoire was their repetitive patterns whose tunes were easy to memorize and their incremental lyrics simple enough to be learned in a short time. The repertoire alternated lullabies or "calming" songs with more cheerful music. Only a few musicians included songs from other sources, such as Walt Disney's cartoons (eg, "Bibbidi Bobbidi Boo"; "A Dream Is A Wish Your Heart Makes"; "Under The Sea"; "A Whole New World"). The repertoire also comprised a minority of foreign songs, mainly English and Albanian (one of the most common minority ethnicities in the hospital population). Albanian mothers, in a few cases, were reported to have taught examples of their native songs to the musicians. Musicians occasionally played instrumental music (eg, the *Pink Panther* theme, "Danny Boy," Pachelbel's Canon) mainly to mark the beginning and the end of a session.

## Research Approach and Methodology

This study is part of a qualitative research project focused on the impact of an established music program in a hospital on all the participants involved (musicians, children, caregivers, and hospital staff). The focus of the research reported here is on how the live music played in the hospital impacted on the child patients and their caregivers. As the program was hospital-wide, there was no opportunity to include some form of "control" group of children in the study. Consequently, the focus was not on a measure of whether or not the music provision had an impact, but rather on seeking to understand the nature of this provision through the reactions of example participants that represented the main constituencies.

Qualitative and analytical case studies, based on multiple methods of data collection (participant observations, field notes, interviews, audio and video recordings), were employed to investigate the impact of the music program on the selected group of participants: children-patients and their caregivers.

Among the reported advantages in adopting a case study design, Cohen and Manion<sup>23(p123)</sup> suggest that case studies "allow generalizations either about an instance or from an instance to a class" as their strength "lies in their attention to the subtlety and complexity of the case in its own right." Furthermore, Yin<sup>24</sup> describes case studies as an appropriate option when the research is focused on a situation where the boundary between the phenomenon and its context are not clear. Specifically to the researched context, such a design offered the opportunity to explore the multifaceted dynamic of interactions between different groups of people.

The role of the researcher in the data collection process was that of an "insider" having been employed several years previously as a musician playing in the selected hospital. The

familiarity with the particular context appeared to be an advantage, both in terms of being welcomed and also facilitated the choice of research procedures. The research design included data triangulation by comparing data from videoed observation and subsequent interviews that also included an opportunity for the participant musicians to review the videoed events.

Observations were carried out according to a schedule previously designed by the first author and subsequently refined in an opening pilot phase of the fieldwork. The aims were to (1) record the number and the quality of interactions happening between musician, child, and caregivers and (2) to determine what kind of musical event was triggering a particular response in any of the groups involved. The observation schedule was adapted from that employed by the Structured Observation System (SOS),<sup>25</sup> a data collection method developed to document changes in the communication behavior of children identified with speech and language delays. The adaptation of the SOS observation schedule was more appropriate in that it was not designed primarily to seek the recurrence of any kind of specific behavior nor specific actions. The main aim of the observation itself was to collate a wide array of behaviors (musical and nonmusical) and to note the type of interactions occurring during a music session. All observations were audio recorded and, when possible, video recorded; audio data were gathered as an aid to fill the missing information in the observation schedules. The research was approved by the hospital's ethic committee. The researcher also adhered to the code of ethics approved by the British Educational Research Association (BERA; see note 4). A standard form supplied by the hospital was used to provide written consent from all participants. The fieldwork took place across 4 weeks. Interviews were conducted with 14 children and 22 caregivers, while observations included 162 children, 146 caregivers, and 9 musicians.

The number of caregivers interviewed when their child was present was 22, with the majority being mothers ( $n = 14$ ). Only 6 children were interviewed directly, except in one case when the child was 11 years old. The interview sample of carers was rather heterogeneous in its geographical provenience, with half of the participants ( $n = 7$ ) coming from Florence and the other half coming partly within the region ( $n = 4$ ) and from other parts of the country ( $n = 3$ ). Nonnative (Italian) children were not included in the interviewed group as the language was an obvious barrier. Also, the selection of children and carers was not controlled by the researcher in so far as it was the nurse of the designated ward who had decided which children were able and willing to engage in the conversation. The majority of interviews (10 of 14) were focused on children who were undergoing extensive treatment. Individual and group interviews happened after the musical intervention, depending on their hospital schedule. In 3 cases, interviews were carried out the next day as the hospital schedule did not allow time previously.

Thematic analysis informed by grounded theory<sup>26</sup> and content analysis were performed on the 4 groups of emergent data (observations, videos, interviews, field notes) with the support

**Table 1.** Total Observations of Children (n = 162) and Caregivers (n = 146)

	Children and Caregivers Observed									
	Children—Age				Children—Sex		Caregivers Present			
	0-2	3-6	7-10	11-15	M	f	Mother	Father	Mother and Father	Mother and Other
Total	32	57	51	22	92	70	81	16	42 (21M+21F)	7
Percentage	20%	35%	31%	14%	57%	43%	55%	11%	29%	5%

of *Atlas.ti* software,<sup>27</sup> specially designed for the qualitative analysis of textual, graphical, audio, and video data.

The process of analysis was as follows:

- Observations, field notes, and interviews were transcribed into Word documents.
- The Word files were then imported into *Atlas.ti* as “raw” data.
- The text was coded by the first author according to particular emergent features (related to the inherent focus of the textual comment and/or the application of categories/concepts from the literature).
- The software automatically grouped codes together and presented them (a) as a list that (b) had direct links back to the original text.
- The list of codes was then clustered by the authors into “groupings” of related categories.
- A similar process was undertaken with the video data in which the raw video was imported into *Atlas.ti* and coded in the same way.

Examples of coding and clustering (“groupings”) were verified by the authors jointly, having previously discussed extracts from the videos with participants (musicians playing in the hospital) and (subsequently) fellow researchers. The derived categories and the different stages of the interpretative process are illustrated in Appendix 2.

Every child in the hospital was, without exception, accompanied by a caregiver, who, since the early stages of the fieldwork, was observed to play a key role within the dynamics of the musical intervention. In 55% of the cases, these caregivers were the mothers alone (Table 1). In the remaining 45%, the caregiver role was undertaken either by the fathers alone (11%), or mothers and fathers together (29%), or mother plus some other member of the family (5%).

The selection of children and their caregivers for observation was not random but derived from the nature of hospitalization (eg, whoever was in the hospital for treatment at the time), except for children with long-term illnesses that were spending long periods in the hospital (see note 5). In this latter case, there was a degree of predictability in such children’s recurring hospitalizations and the musicians were noticed to be willing to make an exception to their timetable to be able to spend some extra time with these children and their parents, and with whom they had become familiar. However, this patient subgroup represented an exception, as most children were met on a one-off

basis. In the case of the interviews, child and caregiver participants were selected by a nurse who was familiar with their conditions on the agreed day of the interview.

From the researchers’ perspective, if there was a degree of unpredictability in the selection of participants, there were at least 3 criteria that appeared to determine the likelihood of an interaction between the child and the musician: (1) the children’s willingness to take part in the music session, which was chiefly connected to the absence/presence of pain and their more general physical conditions (eg, level of anxiety or being intimidated by the new environment); (2) the level of distress exhibited by their accompanying caregivers; and (3) the focus of attention—that is by the musician in their selection of the child, based on the musician’s perception of who they thought likely to be more responsive to music on entry to the ward.

## Results

The following commentary draws on (a) 22 hours of observation and an additional 11 hours of video material, and (b) 14 interviews conducted with children (n = 6) or through their parents (n = 8), due to the age of the children observed, with 55% of them being between a few months to 6-years old. Parents (n = 22) were also interviewed. Observations and interviews took place in (1) well-lit examinations waiting rooms (eg, used for blood tests); (2) procedure waiting rooms (eg, for dialysis); and (3) wards (bedside and corridors). It was noticed that the musical relationship between the musician and child included also, almost without exception, a relationship with the caregiver who was accompanying the child. Four recurring situations were observed to predominate the sessions: (1) The child was interacting directly with the musician; (2) The parent was acting as a facilitator, encouraging the child to start a musical interaction with the musician; (3) The musician was acting as a facilitator, fostering a musical interaction between the child and the parent(s); and (4) The use of familiar music in promoting a musical interaction with a child.

### *Children Interacting Directly With the Musician*

Two common reactions toward music were observed across the hospitalized children. They either were attracted by the music and ready to join in the activity, or otherwise they appeared to be intimidated by it and, therefore, were more cautious in getting closer to the musician, often shielding themselves

behind the parent. The degree of these reactions varied according to the age of the children observed.

The direct interaction with the musician was noticed to be more likely to take place in waiting common rooms, as the child was allowed to move freely in the room and to get closer to the musician or play with other children, while the parent was either dealing with hospitalization paperwork, talking on the phone, or discussing the child's condition with a member of staff. Also, the presence of other children was noted as acting as a facilitator for the more intimidated or younger patients. Musicians sought to involve each child in the music process by handing out little percussion instruments to those who were around them. This process elicited the curiosity of other children in the room who usually moved closer to observe the particular small instrument. The children were subsequently involved in the session through the handing out of new instruments that they were likely to exchange among themselves after having tried them out, either improvising or while accompanying a song.

In contrast, in the ward, the chances of establishing a one-to-one interaction with the musician diminished because of the constant presence of parents/caregivers. They were noticed to be continuously monitoring the responses of their child, making sure that the child was not uncomfortable or too tired to continue with the music, especially if they were perceived to be frail or still recovering from a surgical intervention.

### *The Parent(s) Acting as Facilitator*

Mothers were generally observed to act as facilitators in the musical interaction. If the child was in pain or distressed and unwilling to focus on any external activity, often the mother would start the interaction with the musician, usually by taking the instrument that the musician was offering her, exploring it briefly, and then passing it to the child who was encouraged to start their own exploration. Only at this point would the musician start to engage directly with the child. At such moments, the mother would either (1) focus on the hospital paperwork that she needed to fill in; (2) keep interacting with the musician, who meanwhile was likely to have replaced the instrument passed to her child with a new one; or (3) interact directly with the child, while the musician was focusing on a new child to be included in the music session. The musical interaction was observed to be more likely to occur if the mother (or the caregiver) was verbally encouraging the child to start either singing or taking the percussion instrument that the musician was handing out as an example for the child. The mother's attitude was noticed to occur irrespectively of the child's age.

No differences were observed in the relationship between child and the parents according to the degree of illness of the child. Irrespective of the seriousness of the illness, the parents were generally observed to be worried and to have a protective attitude toward their child. Parents of children that were in the emergency ward, even if the illness was not so severe (eg, a

domestic accident), were noticed to be more anxious and distressed compared to long-term hospitalized children and parents who had had time to become accustomed to both the new environment and the time spent in the hospital, as well as to the presence of music in such an environment.

With very few exceptions, the observed children, regardless of their physical conditions, were noticed to welcome the music in their room. The "acceptance process" was nonverbal, as the musician was usually playing (gently) while entering the room, without formally asking for permission. Of the 22 parents interviewed, 15 reported that their child had an immediate response to the music and that they were almost drawn out of the room by the sounds:

This morning, when she heard the violin, she started fretting because she wanted to go in the corridor, but we couldn't! So I was holding her and we went by the door, but we couldn't go out. [mother of a 3-year-old child—infectious diseases ward]

The parents acted as "interpreters" of their child's body language, politely declining the music if their child was perceived not to be interested in the music or unwell. Depending on their conditions and their mobility, the children were either listening to some of the songs, or become more involved, taking up a percussion instrument. When children were not willing to be engaged in the music, the musician usually tried to play for a short while, testing if the rejection was a genuine one, or the product of an initial shyness. Not all children responded to music in the same way. One of the main variables in engaging with music in the hospital was the age of the child, which was perhaps connected to a repertoire that appeared to be tailored more toward the younger children rather than preadolescents. But also the response appeared to be connected with the coping strategies that older children had elaborated.

I like music in the corridor, but not in my room, because the sound [of the violin] is too acute and I find it annoying, but in the corridor it is not too bad. [11-year-old boy with his mother—infectious disease ward]

She doesn't like to listen to music when she is stressed. [father of a 13-year-old girl—oncology ward]

If parents appeared to understand the distraction-potentialities of the music being offered, and were keen to facilitate the relationship between their child and the musician, then the musician had higher chances of establishing a relationship with the child. The influence of the parent in encouraging a child's response to music was noticed to be connected to the enthusiasm that the parents themselves showed toward the music. Also, talking about their child's musical preference, parents were noticed to simply list their own favorites:

I listen to quite a lot of Italian pop music [. . .]. She likes this music and she knows all their songs. When I was eight months pregnant with her, I went to a Baglioni concert and—this might seem unbelievable—but when she was a baby and she

was crying, I played a Baglioni's CD and she stopped as if she would have recognized the music! [mother of a three-year old child—infectious diseases ward]

In several circumstances, the child that had had to undergo a medium to long-term hospitalization was likely to meet the same musician during their stay in the hospital. When this happened, the child was noticed to have an increased sense of familiarity with the musician and the musical activity and, consequently, to become more engaged in the music.

### *The Musician Acting as a Facilitator*

Meeting the same child in repeatedly the same, and in different, locations was perceived to represent an occasion, not only for the child, but also for the parents, to become familiar with the spaces created by the music. Parents were noticed to be more cooperative when they were exposed to music more than once during their stay in the hospital. Their behavior became progressively more cooperative with the musicians in terms of facilitating their interaction with the child through their active participation in the session, either by playing a percussion instrument or through singing, as they seemed to recognize the “distractive” effect of the music on the family's time in the hospital.

In the context of a room (made up of 2 beds) within a ward, the musicians would often hand out the instruments to one family and then would concentrate initially on an interaction with the other family. In so doing, the different members of the first family were noticed to focus on the musical activity, apparently refocusing on something different from the illness, even if just for a short time.

After a few sessions of music, the parents appeared to be aware of music as a new “tool” that they had at their disposal to distract the child and they were noticed to welcome the musician and encourage them to interact with their child during subsequent visits. Of the 22 parents interviewed, 4 had noticed the positive impact of music on their children from their sustained experiences of music in the hospital. They also reported having learned a musical repertoire from the musicians and to have used the same song at other times when they were with their child, especially in critical situations:

He always relaxes when he hears the music. When he is in the procedure room, he is hardly ever scared. As the nurses switch the radio on, with the music he dances, sings and doesn't worry at all. We even manage to do “CAT” [computerized axialtomography] and nuclear magnetic resonances without sedation, which is very unusual because children, and especially young ones, are afraid of all the noises coming from the machines. But he just gets in there and the only thing he wants is that I sit next to him and sing. When I get stressed I tend to forget the songs. I usually sing the crocodile song [a song that musicians frequently sing in hospital]. I sing very close to his head and hold his hands, in other words I end up having a “CAT” myself, which is not exactly the best outcome! [mother of a two-and-half-year-old boy—oncology ward]

The use of percussion instruments as a means of interacting with the child was often left to the parents, while the musician was creating new interactions in the surrounding space. A repetitive, but interesting, structure within the music session was noticed to create a secure framework in which the child could interact. Musical improvisations on simple percussion instruments appeared to be a successful strategy to keep the child engaged with the musical interaction. This often led to group music making with parents, and sometimes also with members of the hospital staff.

### *The Role of Familiar Music in Promoting a Musical Interaction With a Child*

When asked which kind of music the carer and their children were listening to at home, most parents (16 out of 22) were not able to specify the genre. They would generally mention “music on the radio,” “music from a CD,” “modern music,” without being able to name any of the singers. Children, on the contrary, were more specific about their music, especially older ones:

I like Shakira. My brother has downloaded some of his music and it's all in the ipod. [11-year old boy—infectious disease ward]

He listens to the music from Disney Channel and loves all the songs. [mother of a 18-year-old special needs boy—neurosurgery ward]

She learned these songs from me [mother]. I try to sing with the help of DVD and similar kinds of supports. [mother of a six and a half-year old girl—general pediatric ward]

Although parents were often vague about the music that they were listening to at home, when they recognized some of the songs that the musicians were playing in the hospital, they were able to be more specific and commented positively on the effect that music had on their child:

Once she was having a blood test and she was focused on the procedure, but she recognized the violin and then she recognized the song the musician was singing because her dad often sings that song to her. [mother of a 4-year-old child—infectious diseases ward]

Songs are really pleasant, especially if you are in an isolation ward. Music becomes the only contact you can have with the outside. When we heard the music we left everything and we went close to the door. [mother of a 3-year-old child—infectious diseases ward]

The musicians were observed to enter the environment with the underlying aim to change it, seeking to stimulate the reactivity of the children that through the music, switched from being passive to be more engaged. For the children, live music in the hospital appeared to represent an occasion to interact with different people around them, playing together with their parents or other children, often for the first time, which also constituted

an enriching human and learning experience for them. Children were observed to become instantly or more gradually engaged, chiefly through looking at their parents being involved, as a reassuring example, or through engagement with other children that were already playing along. It was relatively rare for a child not to become involved in the musical context created by the musician.

## Discussion

The hospital staff and caregivers appeared to act as team members in seeking to support the effects of musical interventions. Whether by word or deed, in general, the adults were supportive of the musical provision because for them the effects of music were directly observable.

A process of childhood enculturation into local musical practice is a likely reason why children were arriving into the hospital already biased toward accepting musical activities, particularly in a live context, where the performer was directly in front of them, encouraging participation. For the younger patients, this openness was observed to be both sonic and tactile, especially when they experienced the musical improvisation on the “little instruments.” As children grew older, as might be expected from the literature on musical identity, their musical preferences became more differentiated.<sup>18,28</sup> Therefore, the challenge for the musicians was to be able to provide a wider selection of music in their repertoire, including updated examples from the popular music culture. Nevertheless, all the available evidence (literature and fieldwork) indicated that music was a powerful tool for alleviating some of the more negative aspects of hospitalization for these children and also for nurturing a sense of individual, group and institutional well-being. These findings are in line with Robb’s tested contextual model of music therapy,<sup>29</sup> when she reported that therapeutic music interventions possessed more environmental support elements than other activities (eg reading) and events experienced by children in the hospital environment.

Children were observed to react to the sounds of the instrument and to the voice of the musicians. The familiarity of the repertoire and the use of percussion instruments appeared to be necessary tools to keep the children engaged in the musical interaction. Additionally, the reasons children responded to music, and familiar music in particular, seem to be in need of a culturally located answer. Music has been described as a “flexible” medium for communicating and, at the same time, a powerful means to effect and change emotional state.<sup>30,31</sup> Following a pre-birth form of musical enculturation, newborns enter the world already programmed to recognize sounds, express musical preferences, and distinguish perceptually between basic musical features. Sounds seem to be what children react to in the first place as a consequence of their biological design.<sup>32</sup> In this respect, music has been demonstrated to be an important element in establishing the first bond with the mother and subsequently with other members of a social group in order to preserve group identity or modify collective behavior through different rituals.<sup>33</sup>

Although the majority of the children were attracted to live music, they were often intimidated by the musicians at their first meeting. Consequently, the caregivers were usually observed to be acting as facilitators to help the child engage with the musician. This behavior finds a correspondence in a view of the family as a system of interdependent interactions.<sup>34</sup> Especially, when illness occurs, there is a privileged relationship that develops between the mother and the child. Moreover, children are usually distressed about being in a threatening environment, where procedures are often perceived as worse than the disease itself and where their fantasy can be worse than reality.<sup>35,36</sup> The mediation of the parent, therefore, was observed to be an important step toward establishing a musical channel between the musician and the child. On some occasions, the intervention was observed to help the different members of the family to refocus on a common nonstressful objective, such as the music making, rather than the illness and related anxieties. Even if this was only a short break, it appeared to give the parents a chance to engage in a more normal interaction with their child, facilitated by the musician.

Although there was a general “sameness” about the repertoire, variation was evident on a more moment-to-moment basis in the flexible interaction of the musician with the child. Musicians appeared to work on the musical intention that they wanted to communicate through the song at that moment in time. Therefore, it was not strictly the breadth of repertoire that seemed to be important, but rather a range of musical modalities and improvisation techniques in so far as they allowed the musicians to respond to the need of constantly building their repertoire.

For most of the children, music in hospitals represented the first occasion to experience a close encounter with live music, different musical instruments, and the chance to play unusual percussion instruments within a group. Therefore, beside the distraction and relaxing impact that music was perceived to exert on the children, music in hospitals appeared also to be a learning experience (both in terms of music and of self) for most of the hospitalized children. As Ockelford<sup>37(p212)</sup> observes, music sessions can be a “unique and secure framework” providing children with an opportunity to listen and respond to sounds. Music listening and playing engage cognitive skills such as concentration and memory, as well as co-ordination. Children learn both in and through music. Accordingly, in this context, although music can be considered an informal and relatively unstructured form of education, it can be powerful and long-lasting.

Music in hospitals appeared also to be a learning experience for some of the parents and caregivers, especially those with long-term hospitalized children. Parents were observed to learn the musical repertoire from the musicians, which they then sang to their child during stressful procedures, having experienced their reactions to certain songs. Improvisation on percussion instruments appeared also to be an occasion for informal learning<sup>38,39</sup> for both children and parents. For these groups of participants, an “effective” musical intervention is characterized by (1) a role of the caregivers/parents in which they act as facilitators between the child and the musician to establish a musical relationship in the hospital and (2) an engaging choice of

repertoire, including the selection of musical activities to establish an initial connection with the child and then expand it in new directions so that the musical intervention becomes a learning experience for both the child and their caregivers and an opportunity for critical self-development in the musicians. In the hospital context, the evidence reported above suggests that live music offers the child and their caregivers a chance to be distracted from the anxiety and stress elicited by the hospitalization, as well as the distress related to their physical conditions. In a pediatric context, a live music intervention by sensitive musicians has the possibility of also involving the children in an activity that is emotionally positive and intellectually engaging which, at the same time, may mitigate against the sense of otherness and alienation compared to the home that can be engendered by the hospital environment.<sup>40,41</sup> Future research should seek to explore (within the moral and ethical constraints of research on children who are unwell) whether there is something particularly beneficial about the provision of music compared to some other form of nonmedical activity. Given the emerging findings from the neuroscience of music literature<sup>14,15</sup> about the multiple-sided nature of human musical behavior, it may be that this art form provides something relatively unique.

## Appendix I—Musical Repertoire Played In The Hospital

### Instrumental

*Pink Panther* theme  
Moon River  
Danny Boy  
Pachelbel's Canon  
Ave Maria (Schubert)  
Braham's Lullaby  
Vivaldi's Spring (theme)

### Disney

Bibbidi Bobbidi Boo (*Cinderella*)  
Hakuna Matata (*The Lion King*)  
I sogni son desideri (*Cinderella*)  
Il cerchio della vita (*The Lion King*)  
Il mondo e' tuo (*Aladdin*)  
Impara a fischettare (*Snow White*)  
La marcia di topolino (*The Mickey Mouse Club*)  
La pillola (*Mary Poppins*)  
In fondo al mar (*The Little Mermaid*)  
L'amore e' nell'aria stasera (*The Lion King*)  
Lo stretto indispensabile (*Jungle Book*)  
Supercalifragilisticexpialidocious (*Mary Poppins*)

### Regional Songs

Alla Fiera di Mastro Andre'  
E' ritornato maggio  
Il merlo ha perso il becco  
Il piccolo naviglio  
La pastorella  
La zuppa del pesce

Ninnananna toscana  
O' che bel castello  
O' sole mio

### Pop Music—Foreign Language

Alla fieria dell'est  
Cielito Lindo (Spanish)  
Diamante  
Dormi dormi negrito (Spanish)  
Everybody Is Talking At Me (English)  
Il gatto e la volpe  
La Bamba (Spanish)  
Lascia che io sia  
My Bonny (English)  
Quando i bambini fanno oh  
Samarcanda  
Scarborough Fair (English)  
Second stella a destra  
The Sound of Silence (English)  
Albanian tradition songs (2)

### Children's Songs

Bella nave che vai  
C'era una barca piccolina  
Canzone dell'alfabeto 1  
Canzone dell'alfabeto 2  
Ci vuole un fiore  
E'venuto dal cielo  
Ero stanco di essere un uomo di citta'  
Fra Martino  
Heidi  
I due coccodrilli  
I tre porcellini  
Idiana fa il bucato  
Il barchino che non sapeva navigare  
Il canto del cucu'  
Il leone si e' addormentato  
Jingle Bells (Italian version)  
L'acqua va giu'  
L'orologio che ora fa  
La casa  
La gatta  
La sera laggiu nella valle  
La tartaruga  
La zuppa del cuoco  
Le streghe  
Lettera a Pinocchio  
Ninna nanna mamma  
Oh pescator dell'onda  
Oh Susanna  
Pappagallo sta sulla vecchia pianta  
Per fare un albero  
Pesciolino non piangere  
Se all'uccelin non va tiragli la coda  
Sentiam nella foresta  
Siam tre piccoli porcellini



Siamo i Watussi  
 Stella stella dimmi tu  
 Un di' Noe  
 Un omettino piccino  
 Vento piccolino  
 Vento sottile

Toddler Rhymes and Songs

Batti batti le manine  
 La bella lavanderina  
 Wisky il ragnetto  
 Elefante con le ghetto  
 Due elefanti si dondolavano  
 Petuzzo  
 Nella vecchia fattoria

**Appendix 2—Data Analysis Process**

**Table 1—First Level of Thematic Codes: Initial List of Themes as Emerged From the Analytic Treatment of Interviews, Observations and Field Notes**

1. Caregivers' role
2. Child's musical taste
3. Child's reaction to music
4. Collaboration with hospital staff
5. Coming in—coming out the hospital
6. Educational aspects—unintended
7. Emotional implications of using music in the hospital
8. Establishing a relation with the child
9. Familiar music
10. Favourite ward/waiting room
11. Improvisation—lyric substitution
12. Improvisation—percussion instruments
13. Ingredients of a successful intervention
14. Length of the intervention
15. Meeting the same child again
16. Memories of a particular musician—reasons
17. Music and stress
18. Music as a liberating experience for caregivers
19. Music “as therapy”
20. Music with non Italian children
21. Musical preferences—personal
22. Musicians' musical choice—reasons
23. Musicians' sense of professionalism
24. Non-verbal communication—first impact
25. Parents' musical influence on child's musical preference
26. Parents' musical taste
27. Perceived aims of the intervention
28. Percussion instruments—use of
29. Percussion instruments—self made
30. Playing as a time to rest and look around
31. Hygienic norms when playing in the hospital
32. Preparing the musical intervention
33. Repertoire

34. Stress connected to hospital procedures
35. Stress connected to hospitalization
36. Structure of the intervention
37. Styles—differences between musicians
38. Voice—direct way to communicate
39. Waiting room vs wards

**Table 2—Second Level Themes**

1. Caregivers' role
2. Emotional implications of using music in the hospital
3. Establishing a relation with the child
4. Familiar music
5. Ingredients of a successful intervention
6. Music and stress
7. Music “as therapy”
8. Music with non Italian children
9. Musical preferences—personal
10. Musical preferences—personal
11. Non-verbal communication—first impact
12. Parents' musical influence on child's musical preference
13. Perceived aims of the intervention
14. Repertoire
15. Structure of the intervention
16. Styles—differences between musicians

**Table 3—Emerging Categories**

Category 1—Children interacting directly with the musician  
 Category 2—The parent(s) acting as facilitator  
 Category 3—The musician acting as a facilitator  
 Category 4—The role of familiar music in promoting a musical interaction with a child.

**Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the authorship and/or publication of this article.

**Funding**

The author(s) disclosed receipt of the following financial support for the research and/or authorship of this article: This research was supported by a Research Studentship, PTA030200300938, from the Economic and Social Research Council, and by a Wingate Scholarship both held by the first author.

**Notes**

1. Social support is defined by Cobb (1976) as information belonging to one of more of the following 3 classes: (1) Information leading the participant to believe that he is cared for and loved; (2) Information leading the participant to believe that he is esteemed and valued; (3) Information leading the participant to believe that he belongs to a network of communication and mutual obligation.
2. <http://www.musique-sante.org/>
3. Centre for the training of musicians attending health care settings and social contexts.

4. A copy of the BERA ethical guidelines is available for download at: <http://www.bera.ac.uk/files/2008/09/ethical1.pdf>
5. Depending on their pathology, long-term hospitalized children would stay in hospital from an average of a few weeks to over a month. In the case of dialysis or metabolic-related illnesses, children would generally come to the hospital on a weekly basis.

## References

1. Preti C. Music in hospitals: defining an emerging activity. In: Catherine Stevens ES, Bridget Kruithof, Kym Buckley, and Steven Fazio, ed. *2nd International Conference on Music Communication Science (ICoMCS2)*, 3-4 December. Sydney: University of Western Sydney; 2009:79-82.
2. Dileo C, Bradt J. On creating the discipline, profession, and evidence in the field of arts and healthcare. *Arts Health*. 2009;1(1): 168-182.
3. Clift S, Camic PM, Chapman B, et al. The state of arts and health in England. *Arts Health*. 2009;1(1):6-35.
4. Malone AB. The effects of live music on the distress of pediatric patients receiving intravenous starts, venipunctures, injections, and heel sticks. *J Music Ther*. 1996;33:19-33.
5. Daveson BD. Music therapy and childhood cancer: Goals, methods, patients choice and control during diagnosis, intensive treatment, transplant and palliative care. *Music Ther Perspect*. 2001;19:114-120.
6. Longhi E, Pickett N. Music and well-being in long-term hospitalized children. *Psychol Music*. 2008;36:247-256.
7. Robb S. Designing music interventions for hospitalized children and adolescents using a contextual support model of music therapy. *Music Ther Perspect*. 2003;21:27-40.
8. Caprilli S, Anastasi F, Grotto R, Abeti M, Messeri A. Interactive Music as a Treatment for Pain and Stress in Children During Venipuncture: A Randomized Prospective Study. *J Dev Behav Pediatr*. 2007;28(5):399-4033.
9. Hendon C, Bohon LM. Hospitalized children's mood differences during play and music therapy. *Child Care Health Dev*. 2008; 34(2):141-144.
10. Froehlich MA. A comparison of the effect of music therapy and medical play therapy on the verbalization behavior of pediatric patients. *J Music Ther*. 1984;21(1):2-15.
11. Brodsky W. Music therapy as an intervention for children with cancer in isolation rooms. *Music Ther*. 1989;8:17-34.
12. Lazarus RS. *Emotion and Adaptation*. London: Oxford University Press; 1991.
13. Rennick JE, Johnston CC, Dougherty G, Platt R, Ritchie J. Children's psychological responses after critical illness and exposure to invasive technology. *Dev Behav Pediatr*. 2002;23(3):133-144.
14. Zatorre R, Peretz I, eds. *The Biological Foundations of Music*. New York: New York Academy of Science; 2001.
15. Peretz I, Zatorre R, eds. *The Cognitive Neuroscience of Music*. Oxford: Oxford University Press; 2003.
16. Nettl B. An ethnomusicologist contemplates universals in musical sounds and musical cultures. In: Wallin NL, Merker B, Brown S, eds. *The Origins of Music*. Cambridge, MA: MIT Press; 2000: 463-473.
17. Mithen S. *The Singing Neanderthals*. London: Orion Books; 2005.
18. Lamont A. Musical identities and the school environment. In: MacDonald R, Hargreaves DJ, Miell D, eds. *Musical Identities*. Oxford: Oxford University Press; 2002:49-55.
19. Hargreaves DJ, North AC, eds. *The Social Psychology of Music*. Oxford: Oxford University Press; 1997.
20. Miell D, MacDonald R, Hargreaves DJ, eds. *Musical Communication*. Oxford: Oxford University Press; 2005.
21. North AC, Hargreaves DJ. *The Social and Applied Psychology of Music* Oxford: Oxford University Press; 2008.
22. Bronfenbrenner U. *The Ecology of Human Development*. Cambridge, MA: Harvard University Press; 1979.
23. Cohen L, Manion L. *Research Methods in Education*. London: Routledge; 1995.
24. Yin RK. *Case Study Research: Design and Methods*. Thousand Oaks, California: SAGE; 1994.
25. Reading S, Richie C. Documenting changes in communication behaviours using a Structured Observation System. *Child Language Teaching Ther*. 2007;23:181-200.
26. Strauss A, Corbin J. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. London: Sage; 1990.
27. Atlas.ti. ATLAS.ti Scientific Software Development. 2005; GmbH. <http://www.atlasti.de>. Accessed October 23, 2010.
28. Welch GF, Himonides E, Saunders J, et al. *Researching the second year of the National Singing Programme in England: An ongoing impact evaluation of children's singing behaviour and identity*. London: Institute of Education, University of London; 2009.
29. Robb S. The effect of therapeutic music interventions on the behavior of hospitalized children in isolation: Developing contextual support model of music therapy. *J Music Ther*. 2000;37:118-146.
30. Cross I. Music, cognition, culture, and evolution. In: Zatorre R, Peretz I, eds. *The Biological Foundations of Music*. New York: NY Academy of Sciences; 2001:42-56.
31. Gabriellson A. Emotion in strong experiences with music. In: Juslin P, Sloboda J, eds. *Music and Emotion*. New York: Oxford University Press; 2001:431-449.
32. Papousek M. Intuitive parenting: a hidden source of musical stimulation in infancy. In: Deliège I, Sloboda J, eds. *Musical Beginnings*. Oxford: Oxford University Press; 1996: 88-112.
33. Freeman W. A neurobiological role of music in social bonding. In: Wallin NL, Bjorn M, Brown S, eds. *The Origins of Music* Cambridge, MA: MIT Press; 2000:411-424.
34. Schaffer R. *Introducing Child Psychology*. Oxford: Blackwell Publishing; 2004.
35. Menke EM. School-aged children's perception of stress in the hospital. *Child Health Care*. 1981;9(3):80-86.
36. Hockenberry MJ, Bologna-Vaughan S. Preparation for intrusive procedures using non invasive techniques in children with cancer: State of the arts vs. new trends. *Cancer Nursing*. 1985;8:97-102.
37. Ockelford A. Music in the education of children with severe or profound learning difficulties: Issues in current UK provision.

- A new conceptual framework, and proposal for research. *Psychol Music*. 2000;28:197-217.
38. Green L. *How Popular Musicians Learn: A Way ahead for Music Education*. Aldershot: Ashgate; 2001.
39. Green L. *Music, Informal Learning and School: A New Classroom Pedagogy*. Aldershot: Ashgate; 2008.
40. Aasgaard T. A suspiciously cheerful lady. A study of a song's life in the paediatric oncology ward, and beyond. *British Journal of Music Therapy*. 2000;14:70-82.
41. Aasgaard T. A pied piper among white coats and infusion pumps: community music therapy in a paediatric hospital setting. In: Pavlicevic MAG, ed. *Community Music Therapy*. London: Jessica Kinglsey Publishers; 2004:147-166.

### Bios

**Costanza Preti**, PhD, MA, MRes, Dip Mus, is a postdoctoral student at iMerc, Institute of Education, University of London.

**Graham F. Welch**, PhD, MA, BEd(Hons), CertEd, is the established Chair of Music Education at the Institute of Education, University of London.