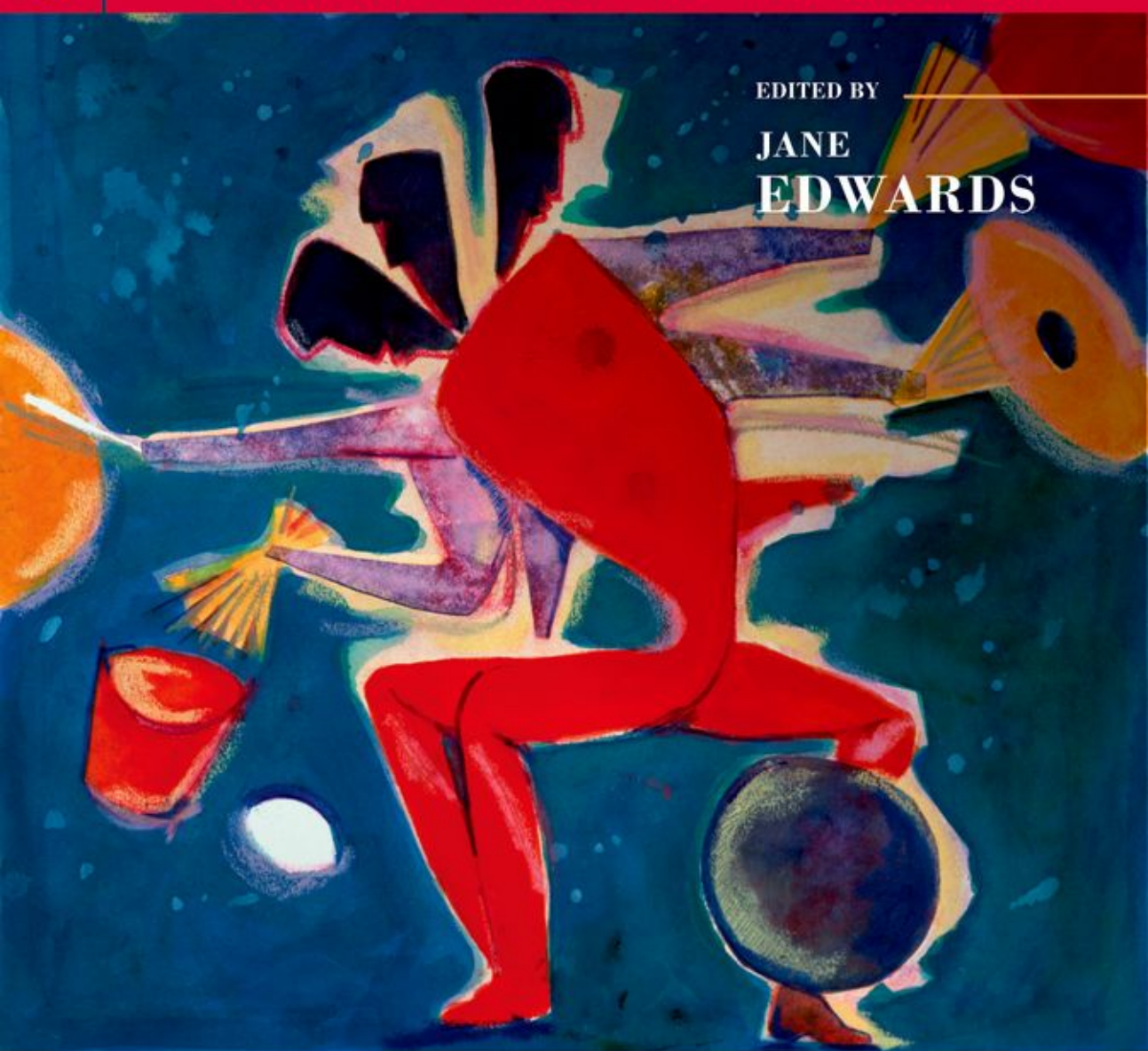


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JANE
EDWARDS



≡ The Oxford Handbook of
**MUSIC
THERAPY**

THE OXFORD HANDBOOK OF
MUSIC THERAPY

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MUSIC
THERAPY

Edited by

JANE EDWARDS

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This book is dedicated to all students of music therapy;
past, present, and future.

FOREWORD

.....

After the pleasures which arise from gratification of the bodily appetites, there seems to be none more natural to man than Music and Dancing. ... Without any imitation, instrumental Music can produce very considerable effects ... : by the sweetness of its sounds it awakens agreeably, and calls upon the attention; by their connection and affinity it naturally detains that attention, which follows easily a series of agreeable sounds, which have all a certain relation both to a common, fundamental, or leading note, called the key note; and to a certain succession or combination of notes, called the song or composition. ... Time and measure are to instrumental Music what order and method are to discourse; they break it into proper parts and divisions, by which we are enabled both to remember better what has gone before, and frequently to foresee somewhat of what is to come after: the enjoyment of Music arises partly from memory and partly from foresight.

Adam Smith (1777). Of the nature of that imitation which takes place in what are called the imitative arts. In: *Essays on Philosophical Subjects* (eds W.P.D Wightman and J.C. Bryce), Indianapolis: Liberty Fund, 1982.

THE psychiatrist Daniel Stern gave us a new scientific appreciation of the vital foundations of verbal or representational intelligence in the spontaneous impulses of human communication, including the imitative arts of music and dance. Stern studied the power of twins a few months old to share consciousness and feelings with a mother in play (Stern 1971), and he related this understanding to enrich psychoanalytic therapy for emotional distress in relationships (Stern 2000). He proposed that the source of our sense of relating emotionally with other persons is the unspoken “vitality dynamics” of our actions-with-awareness—the “how” we move, not the articulate “why” or “what” of our purpose or the object we choose (Stern 2010). Stern describes the expressive qualities of movement as “forms of feeling” engaged with emotional “attunement,” and he draws special attention to the organization of movements through time in “proto-narrative envelopes.” These powers need no words to engage hearts and minds in therapy for depressed emotions and to relieve suffering from social isolation (Trevarthen and Malloch 2000).

In the introduction to the second edition of his book *The Interpersonal World of the Infant*, Stern wrote, “One consequence of the book’s application of a narrative perspective to the non-verbal has been the discovery of a language useful to many psychotherapies that rely on the non-verbal. I am thinking particularly of dance, music, body, and movement therapies, as well as existential psychotherapies. This observation came as a pleasant surprise to me since I did not originally have such therapists in mind; my thinking has been enriched by coming to know them better.” (Stern 2000, p. xv).

Advances in movement psychology over the last century have brought to medical science the realization that prospective control of movements requires, not training to assemble thoughtless reflex reactions to stimulating events, but exploration of creative motor plans through consciously guided measures of time, with emotions that control economy of the

energy required to sustain well-being in the body. Charles Sherrington (1906) discovered *proprioception*, the feelings of muscle action, which he called the “felt Me,” and was led by exploration of the neural foundations of agency to a more humane medical concern for disorders of the will, which he presented in his Gifford Lectures entitled *Man on His Nature* (Sherrington 1955). In that book he articulated a rich conception of evolution and development of a human person from a fertilized ovum as an epigenetic creation of organic vitality, concluding: “It would be imagination rather than memory which we must assume for the ancestral cell; memory could not recall experience it never had.” (Sherrington 1955, Chapter 4, *The Wisdom of the Body*, pp. 103–104). This remains as a firm reminder that our actions and experience, and our affective states and the expressions of our personality, cannot be attributed to a “gene code.” They are inventive products of the processes of an effort of the whole organism to live in relations, which have powers to regulate how our genes are expressed.

Rigorous proof of the power of the brain to imagine consequences of motor action was obtained by Nikolai Aleksandrovich Bernstein, a Russian scientist in Moscow's Central Institute of Labor in the 1930s who developed microscopic analysis of films, of athletes running, of workers using tools and of young children mastering toddling, walking, and running, to prove that the remarkable efficiency of our powerful or delicate motor actions requires precise prospective planning by a dynamic and rhythmic “image” in the brain, which assembles complexes of muscle activity throughout the body to function adaptively (Bernstein 1967). Bernstein's work inspired the science of *kinesics*, how postures and gestures exchanged in live conversation “orchestrate” and “conduct” the meaning specified in words. Film studies of how movements of the whole body accompany conversational use of words, enriching meaning and resolving ambiguities of understanding (Condon and Ogston 1966; Birdwhistell 1970), inspired Stern's research with infants. Condon and Sander (1974) showed that hand gestures of a newborn infant can translate shared experience in synchrony with a spoken message of an adult. All the parameters of personal motor control—the *kinematics* or rhythm, the *energetics* or effort, and the *physiognomics* or form—are enhanced and coordinated in proto-conversations and games with babies as adult and child use face, hands, eyes, and voice (Trevvarthen 1986). They are giving emotionally charged purpose to sensory-motor organs that are already formed in the human foetus for communicating states of mind (Trevvarthen and Delafield-Butt 2013). Their expressive actions in proto-conversational engagements and games have natural properties of “communicative musicality” (Malloch 1999; Malloch and Trevvarthen 2009).

Now, motion capture technology gives rich confirmation of the discoveries of Sherrington and Bernstein, supporting a mathematical model of the foresightful process by which the brain takes up or “assimilates” perceptions of being alive in the world by mastering well the resources of a heavy body (Lee 2005). This account of prospective motor control gives us a richer appreciation of how we sense feelings of life in other persons to share awareness and meaning, and it is inspiring a new brain science of intersubjective communication (Ammaniti and Gallese 2014). The power of language to make reference to goals for action and to tell stories depends upon using the musicality of movement in convivial ways, and instinctive concern for the experience of others with “affective attunement,” and this ancient dependence is revealed to be an essential resource for all rational and technical mastery of

collective work in ambitious modern culture, and for representation of its knowledge and conventions in artificial media (McGilchrist 2009).

Spoken language has evolved as a way of symbolizing the memory and imagination of precise experiences. It is a traditional cultural code learned to enrich the primary intersubjective communication that comes to life in proto-conversations with infants (Bateson 1979; Trevarthen 1979). Music expresses a more ancient and more intimate way of sharing the meaning of life (Blacking 1976; Cross and Morley 2009; Trevarthen 2012). It has special power to enrich and sustain trusting relationships in large and busy human communities, to define personal identity, and to make calm understanding of stressful experiences and imagining (Brandt 2009). All human cultures depend on a fellowship of artful creativity that celebrates the pulse of life, with what Victor Turner calls “the human seriousness of play” (Turner 1982), and with the imaginative talents Jerome Bruner attributes to us as “story-making animals” (Bruner 1990). With music and dance we celebrate community in ritual ceremonies, and individuals who lead these in artful ways are responded to with admiration and their inventions are imitated and remembered as treasures of culture (Dissanayake 2009)

The grace and efficiency of any activity is determined by feelings for the rhythms of life, the dynamic transitions between serial projects of motor activity (Trevarthen 2013). Emotional states are primarily concerned with the anticipation of the risks and benefits of our actions. Stern related his theory of Vitality Dynamics to the process philosophy of Susan Langer who wrote of “forms of feeling,” as in a melody, that combine physiological events of embodied experience and the compositions of narrative and thought. “There are certain aspects of the so-called ‘inner life’—physical or mental—which have formal properties similar to those of music—patterns of motion and rest, of tension and release, of agreement and disagreement, preparation, fulfillment, excitation, sudden change, etc.” (Langer 1942, p. 228). Music has power to influence the well-being of the self by directly engaging with the autonomic nervous system to relieve the damaged spirit of traumatized individuals (Osborne 2009).

Jaak Panksepp, a leading researcher on the emotional systems of the brain and their neurochemistry, applies his knowledge to develop “affective neuroscience” and “neuro-psychoanalysis.” He interprets emotions in music as follows: “Through unfathomed neurochemical responses in the brain, the sounds of music can bring joy and dull the jab of pain, as endogenous opioids and many other affective chemistries are recruited in musically entrained minds.” (Panksepp and Trevarthen 2009, p. 105). Thus music becomes a medium for engaging with “primary affective consciousness” (Solms and Panksepp 2012). There is a growing science of the deep consciousness of vitality in the body and of its sympathetic communication at all stages of life in community, from the prenatal relation of the fetus with the mother’s vitality through all stages of companionship in learning how to live well through “higher level” consciousness of meaning and who to share it with. This attributes a more lively intelligence with its own measures of self-feeling consciousness and sense of relating to the mysterious “unconscious” of Freud, and leads to development of different, less explicit or more intuitive, methods of psychoanalysis and of therapy. The philosopher Barbara Goodrich, in an article entitled “We do, therefore we think: time, motility, and consciousness” reviews work of two leading scientists Rodolfo Llinás and GyörgyBuzsáki who study motor control and rhythms of the brain, to support the conclusion that “playing music—one of the most cognitively and emotionally demanding of all human activities, arguably one

of the most definitively ‘human’ of all activities—is founded in carefully, creatively guided movement—not thought alone” (Goodrich 2010, p. 339).

Jane Edwards’ book offers us a rich review of current understanding how guided practice in sharing musical performance can relieve the shame of loss of self-confidence in relationships and the fear of acting in communication. As current President of the International Association for Music and Medicine, she has recruited an impressive group of experienced music therapists from many countries who review how music therapy has developed for work to help persons of all ages and with different needs for help with self-confidence, communication, social engagement, and expression of feelings. Different models of practice are compared and different levels of training and qualification are considered. Most importantly methods of research in music therapy are reviewed to explain the nature of the treatment and the beneficial effects it has.

As with the sciences of movement psychology and of communication in infancy, reliable knowledge of the natural process of music therapy has come from detailed case studies with special methods of observation, recording, and analysis, rather than from experimentation with large numbers of subjects using limited measures and statistical analysis. Both “validation” and “reliability” of descriptions of human behavior and experience, and of their emotional regulation between subjects and in groups, require open acceptance of the intrinsic dynamics of the motivation and regulation of agency and the movements that express them. Standardized clinical trials that measure effects of prescribed treatments may not be sufficiently sensitive to the essential causes and controls. This book is a major contribution to the rich and growing practice of music therapy for all ages.

Colwyn Trevarthen, 30 June, 2014

REFERENCES

- Ammaniti, M. and Gallese, V. (2014). *The Birth of Intersubjectivity: Psychodynamics, Neurobiology, and the Self*. New York: Norton.
- Bateson, M.C. (1979). The epigenesis of conversational interaction: A personal account of research development. In: M. Bullowa (ed.), *Before Speech: The Beginning of Human Communication*, pp. 63–77. London: Cambridge University Press.
- Bernstein, N. (1967). *Coordination and Regulation of Movements*. New York: Pergamon.
- Birdwhistell, R. (1970). *Kinesics and Context*. Philadelphia: University of Pennsylvania Press.
- Blacking, J. (1976). *How Musical is Man?* London: Faber and Faber.
- Brandt, P.A. (2009). Music and how we became human—a view from cognitive semiotics: Exploring imaginative hypotheses. In: S. Malloch and C. Trevarthen (eds), *Communicative Musicality: Exploring the Basis of Human Companionship*, pp. 31–44. Oxford: Oxford University Press.
- Bruner, J.S. (1990). *Acts of Meaning*. Cambridge, MA: Harvard University Press.
- Condon, W.S. and Ogston, W.D. (1966). Sound film analysis of normal and pathological behavior patterns. *Journal of Nervous and Mental Diseases* 143(4): 338–457.
- Condon, W.S. and Sander, L.S. (1974). Neonate movement is synchronized with adult speech: Interactional participation and language acquisition. *Science* 183: 99–101.

- Cross, I. and Morley, I. (2009). The evolution of music: Theories, definitions and the nature of the evidence. In: S. Malloch and C. Trevarthen (eds), *Communicative Musicality: Exploring the Basis of Human Companionship*, pp. 61–81. Oxford: Oxford University Press.
- Dissanayake, E. (2009). Bodies swayed to music: The temporal arts as integral to ceremonial ritual. In: S. Malloch and C. Trevarthen (eds), *Communicative Musicality: Exploring the Basis of Human Companionship*, pp. 533–544. Oxford: Oxford University Press.
- Goodrich, B.G. (2010). We do, therefore we think: Time, motility, and consciousness. *Reviews in the Neurosciences* 21: 331–361.
- Langer, S.K. (1942). *Philosophy in a New Key: A Study in the Symbolism of Reason, Rite, and Art*. Cambridge MA: Harvard University Press.
- Lee, D.N. (2005). Tau in action in development. In: J.J. Rieser, J.J. Lockman, and C.A. Nelson (eds), *Action as an Organizer of Learning and Development*, pp. 3–49. Hillsdale, NJ: Erlbaum.
- Malloch, S. (1999). Mother and infants and communicative musicality. In: I. Deliège (ed.), *Rhythms, Musical Narrative, and the Origins of Human Communication. Musicae Scientiae, Special Issue, 1999–2000*, pp. 29–57. Liège, Belgium: European Society for the Cognitive Sciences of Music.
- Malloch, S. and Trevarthen, C. (eds). (2009). *Communicative Musicality: Exploring the Basis of Human Companionship*. Oxford: Oxford University Press.
- McGilchrist, I. (2009). *The Master and His Emissary: The Divided Brain and the Making of the Western World*. New Haven and London: Yale University Press.
- Merker, B. (2009). Ritual foundations of human uniqueness. In: S. Malloch and C. Trevarthen (eds), *Communicative Musicality: Exploring the Basis of Human Companionship*, pp. 45–60. Oxford: Oxford University Press.
- Osborne, N. (2009). Music for children in zones of conflict and post-conflict: A psychobiological approach. In: S. Malloch and C. Trevarthen (eds), *Communicative Musicality: Exploring the Basis of Human Companionship*, pp. 331–356. Oxford: Oxford University Press.
- Panksepp, J. and Trevarthen, C. (2009). The neuroscience of emotion in music. In: S. Malloch and C. Trevarthen (eds), *Communicative Musicality: Exploring the Basis of Human Companionship*, pp. 105–146. Oxford: Oxford University Press.
- Sherrington, C.S. (1906). *The Integrative Action of the Nervous System*. New Haven: Yale University Press.
- Sherrington, C.S. (1955). *Man on His Nature*. (The Gifford Lectures, 1937–1938). Harmondsworth: Penguin Books.
- Smith, A. (1777). Of the nature of that imitation which takes place in what are called the imitative arts. In: W.P.D. Wightman and J.C. Bryce (eds), *Essays on Philosophical Subjects*. Indianapolis: Liberty Fund, 1982.
- Solms, M. and Panksepp, J. (2012). The “Id” knows more than the “Ego” admits: Neuropsychanalytic and primal consciousness perspectives on the interface between affective and cognitive neuroscience. *Brain Sciences* 2: 147–175.
- Stern, D.N. (1971). A micro-analysis of mother-infant interaction: Behaviors regulating social contact between a mother and her three-and-a-half-month-old twins. *Journal of American Academy of Child Psychiatry* 10: 501–517.
- Stern, D.N. (2000). *The Interpersonal World of the Infant: A View From Psychoanalysis and Development Psychology*. 2nd Edn, with new Introduction. New York: Basic Books.
- Stern, D.N. (2010). *Forms of Vitality: Exploring Dynamic Experience In Psychology, the Arts, Psychotherapy, and Development*. Oxford: Oxford University Press.

- Trevarthen, C. (1979). Communication and cooperation in early infancy. A description of primary intersubjectivity. In: M. Bullowa (ed.), *Before Speech: The Beginning of Human Communication*, pp. 321–347. London: Cambridge University Press.
- Trevarthen, C. (1986). Development of intersubjective motor control in infants. In: M.G. Wade and H.T.A. Whiting (eds), *Motor Development in Children: Aspects of Coordination and Control*, pp. 209–261. Dordrecht: MartinusNijhof.
- Trevarthen, C. (2012). Born for art, and the joyful companionship of fiction. In: D. Narvaez, J. Panksepp, A. Schore, and T. Gleason (eds), *Evolution, Early Experience and Human Development: From Research to Practice and Policy*, pp. 202–218. New York: Oxford University Press.
- Trevarthen, C. (2013). Chronobiology or Biochronology. In: K. Kirkland (ed.), *International Dictionary of Music Therapy*, pp. 22–23. Hove/New York: Routledge.
- Trevarthen, C. and Delafield-Butt, J. (2013). Biology of shared experience and language development: Regulations for the inter-subjective life of narratives. In: M. Legerstee, D. Haley, and M. Bornstein (eds), *The Infant Mind: Origins of the Social Brain*, pp. 167–199. New York: Guildford Press.
- Trevarthen, C. and Malloch, S. (2000). The dance of wellbeing: Defining the musical therapeutic effect. *The Nordic Journal of Music Therapy* 9(2): 3–17.
- Turner, V. (1982). *From Ritual to Theatre: The Human Seriousness of Play*. New York: Performing Arts Journal Publications.

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INTRODUCTION

CONCEPTUALIZING MUSIC THERAPY

Five Areas that Frame the Field

JANE EDWARDS

Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.

Article 27 of the Universal Declaration of Human Rights, 1948

INTRODUCTION

ANSWERING the question “what is music therapy?” briefly and comprehensively can be challenging for new students entering training. Most seasoned practitioners can present a few short sentences to sum up their work but when starting out it can feel awkward and confronting having chosen a wonderful profession to encounter difficulty in explaining it to others. Loewy (2001) has advised that responding to questions is part of our everyday lives as music therapists. She wrote, “we have to explain and show rather than roll our eyes, hide or become introverted” (p. 4) reflecting that many practitioners learn how to explain music therapy to others by describing a recent event from their practice in which the use of music made a difference; supporting or helping a client in some way.

This chapter presents a discussion of definitions of music therapy, along with five constructs relevant to music therapy internationally that are represented in the *Oxford Handbook of Music Therapy*. These framing constructs are; music therapy contexts and populations across the lifespan, music therapy models and approaches, music therapy methods, music therapy research, and music therapy training and professional issues. These are discussed in turn with reference to chapters presented in the *Oxford Handbook of Music Therapy*.

THE OXFORD HANDBOOK OF MUSIC THERAPY

The music therapy profession is consolidating its role in education, community, and health care services internationally. The Oxford Handbook of Music Therapy has provided the opportunity to bring together some of the major practice, research, and training features and activities by which the profession of music therapy is known worldwide. This text seeks to provide twenty-first-century students and practitioners in music therapy with a snapshot of activities and practices that make up the field across a range of countries.

This book represents some of the major research, practice, and theory in music therapy, primarily in the English-speaking world but also more widely with further chapters from authors in Europe and Scandinavia. To gain a deeper understanding of the field it is important to observe practitioners, attend conferences, and read widely in the research literature. This text points the reader to key developments in music therapy across countries in the English-speaking world and beyond. The authors are based in nine countries: Australia, Canada, Finland, Germany, Ireland, Israel, Norway, the UK, and the USA. It would be impossible to read the book cover to cover in a single sitting so the chapter list and the index are useful to the reader in finding what they need. Students seeking further information are encouraged to use the reference list in each chapter to guide their reading.

Music therapy is increasingly a highly diverse community of practitioners, with many models and approaches, techniques, and methods. Summing up this breadth in a single text would be impossible, and has not been attempted. New practices emerge in response to new dilemmas and needs in communities, and new methods emerge as technologies change and develop. The ways people access music making, learning, and music listening in their lives is dependent on many factors, and this diversity and interdependence of factors influences music therapy practice.

MUSIC THERAPY PRACTICE DEFINITIONS

Music therapy is a relational therapy involving the use of music in therapeutic processes with individuals and groups by a qualified practitioner who has undertaken appropriate training and undertakes ongoing professional development. It is a unique way of working in which the dynamic capacities of music and musical relating are harnessed to serve the needs of the client, family, or group who is seeking help. Many people have observed responses to music by people who have for example, some kind of altered state of consciousness, a developmental difficulty, illness, or some kind of dementia. These responses to music can seem miraculous and astounding leading people to believe they have witnessed a music therapy process when instead they have observed a music response. More personally, almost every human being has been touched by music's emotional power. Remembering a favorite song of a loved one after they have passed can evoke tears. Hearing a romantic song, or *our song* meaningful to one's intimate relationship can bring a smile and feelings of tenderness. Relating these experiences of the wonder of music and everyday human experience to the practice of music therapy is easy, but explaining the differences between these observed effects of music's highly evocative capacities and the practice of music therapy can be challenging.

One of the reasons that music therapy can be difficult to define and explain to others is because music therapy is highly dependent on the context of practice and the needs or opportunities of the people attending programmes to rationalize what it is and how it works. For example, two children's hospitals may have completely different music therapy services. In one, the music therapists may have developed their services in response to the needs of hospitalized children who have a psychological disturbance related to illness, injury, or other events in their lives. Therefore the music therapy service provides one to one confidential sessions with the children in a designated music therapy space equipped with instruments. In another hospital music therapy is offered to support the needs of children who are in pain, or who are attending painful procedures. In this hospital music therapy is offered in medical treatment rooms and at bedside with no dedicated music therapy space for sessions and often with other professionals present along with family members. These examples reveal that every music therapy service is offered in a context in which the development of the service has been responsive to the needs of the people being served. With greater experience of the contexts in which music therapy is practiced, defining music therapy becomes easier.

Definitions of music therapy

Bruscia (1998) has located the problem with defining music therapy as relating to many complexities including that the agreed definitions for both of the words *therapy* and *music* are problematic. He devised a frequently cited definition as follows:

Music therapy is a systematic process of intervention wherein the therapist helps the client to promote health, using music experiences and the relationships that develop through them as dynamic forces of change.

Bruscia 1998, p. 20

This definition emphasizes that the music therapist works in a systematic way, guided by foundational principles, using techniques for which training is required to ensure that these techniques are applied effectively, and working towards the development of a relational process between the group or client and the therapist. This relationship is built up through musical interactions that scaffold the formation of the client's trust, confidence, and agency.

Professional associations for music therapy around the world have each developed their own agreed definition, and these are regularly updated and refined. The World Federation for Music Therapy (WFMT), which is the international association for these professional bodies, has defined music therapy as follows:

Music therapy is the professional use of music and its elements as an intervention in medical, educational, and everyday environments with individuals, groups, families, or communities who seek to optimize their quality of life and improve their physical, social, communicative, emotional, intellectual, and spiritual health and wellbeing. Research, practice, education, and clinical training in music therapy are based on professional standards according to cultural, social, and political contexts.

WFMT 2015: <http://www.wfmt.info/WFMT/About_WFMT.html>.

The WFMT definition includes reference to the cultural and localized aspects of working in music therapy, and the need for the music therapist to be trained and sensitive when working

with people who are from cultural or social backgrounds that differ from their own. This definition also refers to professional standards which include a code of ethics, scope of practice guidelines, and standards of practice or competency to work in the field.

Is music therapy an intervention?

Some music therapists have indicated concern with the word *intervention* that is commonly used in therapeutics (for example Kenny this volume) and which appears in the definitions above. The word *intervention* can be helpful in explaining music therapy because it indicates that the therapy process is enacted with the intent to *do something* to change a client's state, and it references common terminology in health care. The word *intervention* can be perceived as problematic because it indicates the potential overriding of respectful collaboration between service users and therapists that is an essential part of relational therapy processes.

Using the word *intervention* implies that the therapeutic process is active rather than benign. This is important to remember when offering music because humans can close their eyes but hearing cannot be turned off. Some music therapists have recommended that this more contested aspect of practice, that is the potential intrusiveness of music therapy, should be better acknowledged (for example, Gardstrom 2008). Yet others have raised concerns that when music is promoted or perceived as only having potential for beneficence in music therapy and music education, practitioners can lose awareness of the ways in which music can be instrumentalized to serve political or social ends that might not be in the best interests of an individual or group (Edwards 2011). In acknowledging that music can also have disturbing or disruptive capacities, the music therapist helps colleagues to choose music thoughtfully, collaboratively, and respectfully when supporting music listening choices for clients.

The structure of music therapy

Music therapy work with clients is framed by the structure of the programme overall, and the processes within sessions. The structure of the programme usually involves a period during which assessment of the needs of the client or group is undertaken, followed by the implementation of the programme with reference to the aims and objectives for the client(s); that is, the intent of the programme in relation to meeting the needs of the individual or group. Evaluation of the aims and objectives can be undertaken as the programme progresses or towards the end. During the programme conclusion phase careful attention is paid to how the final sessions are advised, negotiated, and managed with the client. Most music therapy work is reported to colleagues or a team verbally or in writing, for example in the client's case notes on file. In some contexts reporting is required after each session, in others reporting by exception is the norm, and others can have feedback requirements at key points during the year, for example in some school-based services.

Processes within sessions can mirror the overall structure of the programme. At the start of a session the therapist tunes in to the client's current state and needs, then the work moves towards formulating how the session will meet those needs, followed by the working phase of the session with a conclusion that is neither too extended nor too brief, allowing the client to prepare for the conclusion of music therapy and to transition into the next part of their day.

During music therapy sessions the therapist uses deep reflective listening to try and understand the client's experiences. The therapist listens to and observes the client, the client's playing, and the music that the client and therapist co-create. This sensitive listening includes attention to the somatic experiences, or sensations in the body, of the therapist and to other thoughts and impressions that arise. These impressions are not censored in the way they might be in social interactions in everyday life but are allowed to be experienced and felt, coming into conscious awareness so they can be thought about and reflected upon in order to increase awareness of clients' experiences. With many clients these experiences of the therapist are not able to be relayed back to them in words because they may not be able to comprehend language, or these experiences are not able to be discussed because the client may not be able to understand or reflect on these impressions. Therefore these experiences are discussed in supervision sessions, and are used by the therapist to deepen their awareness of the life world of the client, and the thoughts, impressions, and experiences of that world.

Music therapy embraces multiple practices developed uniquely in each region of the world. The agreed definition of the field in one region or country might not be the same as that of another. Different authors writing about practice and research describe music therapy in ways that reflect their training context, their practice context, and the relevant region in which they practice. Although highly context dependent, a unifying characteristic of music therapy internationally is the application of music therapy across the lifespan. Music therapy practitioners can work with pregnant women, with infants and young children and their parents and carers, with older children and adolescents, and with people at all stages of adult life. Increasingly music therapists work with families (Edwards and Abad this volume; Oldfield this volume), within community practice contexts, as well as in hospitals, clinics, and schools.

MUSIC THERAPY CONTEXTS AND POPULATIONS ACROSS THE LIFESPAN

When describing music therapy practice, relaying information about the populations music therapists serve can help build a picture of the work. Populations are groups who share similar characteristics or needs, for example, adults diagnosed with depression or teenagers who have eating disorders. Some client groups receive treatment in a specialized service therefore the music therapist's knowledge includes information about the relevant diagnosis and subsequent needs in general while learning about the individual client more specifically. Additionally, information about the contexts for practice can help to inform the listener about music therapy services. Contexts are the situations in which music therapy services are provided such as a community day programme or a hospital. Some contexts serve diverse populations, for example a special school which may have students with a range of needs and diagnoses, and others are highly specified, such as a neonatal intensive care unit (NICU).

Each practice context has its own culture which includes the principles and values, also described as the *ethos*, of the organization. This ethos has explicit and implicit dimensions. The explicit aspects can be found in public materials such as mission statements and strategic

planning documents. Hidden features of the ethos of the organization can be difficult to uncover or understand until one has worked in the organization for some time. These might relate to how organizational policies are interpreted in practice, or the everyday processes by which work is conducted. These are only possible to know through observing others or being mentored by an experienced colleague within the organization.

Developing an understanding of both the context and the population served is key to effective implementation of music therapy programmes. It is also one of the ways in which translation of music therapy models and services between countries can be problematic. That is, an ethos consistent with a practice in one country may not be relevant or easily understood in another. For example, countries which have *socialized* or equal access to medical care for all may be able to develop services for refugee populations who have experienced trauma and who have no capacity to pay for the service, but these might not be typical service user populations in other countries where pay per service or through individualized or workplace health insurance is the norm. A further example is that one country might have extensive and highly developed services for children with disabilities and their families which are paid for by the government, while another country relies on families setting up support networks, and charity funding to receive such services.

References to workplace practices in music therapy must be contextualized otherwise they run the risk of producing research and techniques that when implemented elsewhere are either ineffective or run the risk of causing harm. The new music therapist, and the student must take care to ensure they understand as much as possible about the population, the services, and the wider political context of funding support before translating research findings or the techniques described in case studies or research reports into their own emergent practice. Learning how to concisely summarize the context of practice and the services offered when presenting music therapy practice accounts can help others to understand the work and appreciate its impact and effectiveness.

MUSIC THERAPY MODELS AND APPROACHES

It is highly beneficial to the development of the profession that so many music therapy models and approaches have been developed across the world. Most have distinctive sole founders or founding collaborators, and some models are named after these founders, such as Nordoff-Robbins music therapy (Guerrero et al. this volume). Many of the models were developed in specific locations and then were adapted and expanded as other regions and services engaged the model. The distinction between models and approaches is useful to the purposes of this chapter and the *Oxford Handbook of Music Therapy*, however in practice many music therapists use the terms *model* and *approach* interchangeably.

Music therapists undertake their work based on a model of practice where methods and techniques specific to music therapy are implemented such as in Nordoff-Robbins' Music Therapy, or they base their work on a music therapy approach in which music therapy methods and techniques are overlaid across a model or theoretical framework from another area, such as in the case of Developmental Music Therapy, or Analytical Music Therapy. Many

of the founders of contemporary models of music therapy were influenced by existing theoretical or practice perspectives but then developed and refined their model to create a discrete music therapy approach. The 11 approaches and models presented in the *Oxford Handbook of Music Therapy* were chosen because they have an established literature base, and one or more training programmes exist that are based on the model. Four of the models and approaches are briefly described below to show the diversity of contemporary practices in the field.

Nordoff-Robbins music therapy

The Nordoff-Robbins music therapy model was founded through the experiences of Paul Nordoff and Clive Robbins providing music sessions in special education services (Nordoff-Robbins 1977; Guerrero et al. this volume). Paul Nordoff was a composer for 25 years before he became a pioneer in the field of music therapy (De'Ath 2013). Clive Robbins was a special educator working with children with disabilities when they began their collaboration (Hadley 2003). As Guerrero et al. this volume have explained, the co-work between them occurred over many years starting with a collaboration in special education:

Their partnership began in 1959 at Sunfield Children's Homes in Worcestershire, England, and they worked together for approximately 16 years in Europe and the United States. In 1975, formal training in Nordoff-Robbins music therapy began at the newly opened Nordoff-Robbins Music Therapy Centre in London. In the same year, Clive Robbins formed a new music therapy team with his wife Carol Robbins (1942–1996). The Robbinses continued to develop and disseminate the Nordoff-Robbins approach to music therapy, and in 1990 established the Nordoff-Robbins Center for Music Therapy at New York University's Steinhardt School of Culture, Education, and Human Development.

(p. x, this volume)

A feature of the model is that it is primarily *music-centred* (Aigen 2014). Aigen has explained that “in music-centered music therapy, the mechanisms of music therapy process are located in the forces, experiences, processes, and structures of music” (Aigen 2014, p. 18). Many countries offer training based on the Nordoff-Robbins model, and training workshops for qualified practitioners from other approaches are also offered internationally.

Feminist perspectives in music therapy

The feminist approach in music therapy (Hadley and Hahna this volume) has been elaborated by many practitioners and theorists (for example, Baines 2013; Curtis 2012; Edwards and Hadley 2007; Hadley 2006). In this approach the foundational principles of feminism are used to understand contexts of practice and the ways in which peoples' needs are defined and framed in such contexts. Because feminism arose from concerns about the social and political subjugation of women, there is a common misconception that only women can be feminists, but feminism is a way of perceiving the world and the needs of communities that can be productively shared and embraced by people of any gender (Edwards and Hadley 2007).

Although there are multiple perspectives within feminism, many theorists and activists are concerned with relations of power in social and political domains. A feminist sensibility promotes the idea that many groups in society, especially those marginalized by stigma relating to disease or disability, are severely disadvantaged in relation to dominant groups that conform to societal norms and have access to unseen privilege (McIntosh 1998). The music therapist working within the feminist approach is an activist and advocate for the groups with whom she or he works (Baines 2013). The role of music therapy is not simply to invite participation and to offer support to clients, but to also enable their emancipation (Hadley 2006).

Carolyn Kenny's field of play

The Field of Play is a model of music therapy developed by Carolyn Kenny (Kenny this volume), a practitioner and researcher in music therapy who is also well known for her contribution and research in the area of indigenous studies. She has described the field to which the title of the model refers as a:

... river that constantly flows beneath our various methods of practice, we can accept the grounded energy of the river, which flows without effort. Too often, we take the river for granted or forget about it entirely. This river of being holds the greatest gifts for our patients and clients because it is our presence, our being, and our very existence. If we accept this river, then we can do or try our work as part of a natural process in an ecology of being.

Kenny this volume

This ecology of practice is reliant on the practitioner accepting the importance of self-awareness, not just of one's psychological state including feelings and moods, but of the cultural and social context in which one resides and to make effort to understand the values one holds because of that context. It is important that therapists suspend their judgement as to what a life should be like (Kenny 2003). Valuing the need of therapists to reach their own potential provides a pathway to journeying with clients as they reach theirs. As Carroll has indicated in her reflection on the applicability of the *Field of Play* in music therapy education:

We all have an inner drive to know and reach our potential. I envision inner drive as a spark that needs to be fuelled through meaningful activity that is goal-oriented, resource-rich, culturally sensitive and socially-mediated.

Carroll 2010, np

The *Field of Play* has applications for every music therapy practitioner even if they do not employ it as their primary model of practice. For the mature practitioner, revisiting the *Field of Play* every once in a while can offer further riches through prompting consideration of the self and other in interaction towards integration.

Community music therapy

Community Music Therapy has been described as *resisting* definition (Ansdell and Stige this volume; Pavlicevic and Ansdell 2004). Nonetheless a broad definition has been proposed

by Stige and Aarø (2011), who wrote that “Community music therapy encourages musical participation and social inclusion, equitable access to resources, and collaborative efforts for health and wellbeing in contemporary societies” (p. 5).

Community Music Therapy represents dissatisfaction with some aspects of twentieth century music therapy traditions and practices, as well as one in which new or emergent practice is fostered (Stige 2002). Stige (2002) related the foundation of the model to multiple developments across four decades in Germany, Norway, and the UK. One of the founding reference points for Community Music Therapy is German music therapist Schwabe’s Social Music Therapy (Stige 2002) which emphasizes the communal rather than individual nature of human experience in society. Some common misperceptions include that it is a model that refers to work in community or non-clinical contexts (Ansdell and Stige this volume). Stige has described *community* as conceptualized within Community Music Therapy as “no longer being just a context to work *in* but also a context to work *with*” (Stige 2002, np).

Some early proponents of Community Music Therapy anticipated an adversarial relationship between the model and what was described as the *consensus model* of music therapy. Minimal critique was afforded to the polarising of Community Music Therapy against the proclaimed *consensus model*. This perhaps slowed the understanding of Community Music Therapy as a unifying clarion call to music therapists navigating new healthcare service contexts where the music therapy models founded on an older institutional and pathology-treatment perspective were found wanting when new and dynamic perspectives entered mainstream healthcare. Community Music Therapy has agitated, excited, and infuriated many in the music therapy world. This has been immensely useful as a process by which further consideration of what it is we do in music therapy, and why, has been fostered.

MUSIC THERAPY METHODS

Music therapists use music in various ways depending on the context and the needs of the clients with whom they work. Music can be co-created between the therapist and the client, or the client or the therapist can be engaged in solo music making while the other listens. Known songs can be sung together, improvisations can be initiated and followed through, songs can be written by individuals or in group contexts, music soundscapes can be developed to accompany new or existing stories, and sometimes clients sing or accompany tunes on a keyboard or guitar. Music therapists also use music technology to support music making or composing, some music therapists’ focus on learning music together as an opportunity for clients to build specific music based skills and capacities, and there are music therapists who perform music with their clients or encourage recordings and performances as part of the work.

Bruscia (1998) described four categories of methods in music therapy; improvisation, re-creation, composition, and receptive. The main improvisatory methods in his schema are instrumental play between the therapist and client but this can also include such techniques as vocal improvisation, and improvised songs. Re-creative techniques include song singing, or playing pre-composed music. Composition primarily refers to song writing, and receptive techniques focus on experiences of music listening.

The primary goal of music making in music therapy is to address the needs of the client or group. In some music therapy traditions certain techniques or methods are predominant, for example the British Association for Music Therapy defines practice as involving improvised music created between the therapist and client as follows:

Attentive listening on the part of the therapist is combined with shared musical improvisation using instruments and voices so that people can communicate in their own musical language, whatever their level of ability.

BAMT fact sheet 2015

By comparison the Australian Music Therapy Association described that “a range of music making methods” are used <<http://www.austmta.org.au/content/what-music-therapy>>. It is not clear why some traditions emphasize the use of all kinds of musical interactions in the work while others favor specific kinds of music making—further historical research about the development of music therapy could offer illumination on this issue. However, unless it is understood that certain traditions have a different view of the scope of music used in therapy then misunderstandings can occur when people from different regions try to collaborate and share knowledge.

Music therapy is offered in one to one sessions or in group configurations, including work with families, or small groups of people with similar issues and difficulties that are seeking support and change through music therapy services. Since music making is a potentially socially unifying experience, using music in group therapy processes can create highly dynamic and productive experiences for participants.

Historically some music therapists have categorized methods as either *active* or *passive* (for example, Montello and Coons 1998). This distinction is used less frequently in music therapy as contemporary knowledge of how the brain processes music indicates that music is a whole brain activity engaging large neural networks outside of the auditory area (Alluri et al. 2012). One can be sitting quietly listening to music and hence be perceived in behavioral observation terms as participating *passively*, but the process of listening is activating multiple brain regions. Therefore all music therapy methods are considered active, and are potentially activating for clients.

MUSIC THERAPY RESEARCH

Research is a process of making new discoveries through the systematic applications of rigorous methods. Music therapy research has involved the use of traditional methods of inquiry for health care practice including a range of controlled study methods such as the Randomized Controlled Trial, as well as case study methods, qualitative method studies using approaches such as Grounded Theory (Corbin and Strauss 2008), and mixed methods. At the training stage music therapy students need to know how to read and understand research papers and learn how the findings can be usefully and ethically applied in practice. Usually the music therapy course curriculum includes some attention to research skills training and a small research study is also completed. This helps the student to engage in the knowledge community in music therapy and to understand the processes of research.

Practitioners similarly need to use these skills of reading and understanding to remain up to date with the research in the field and to be able to apply key new findings in their practice. Many practitioners engage in regular evaluations of their programmes. Some service evaluations can be described as research, but not all. A research study must have ethical clearance from a relevant statutory body and it must be guided by an understanding of the system of knowledge creation to which its method refers, called *epistemology* (see further in Edwards 2012), whereas evaluation is an ethical imperative for every practitioner. Professional associations have a responsibility to support practitioner knowledge development through events such as conferences and seminars, and through providing journal publications funded through the membership dues.

Music therapy research is often urged to demonstrate the effectiveness of treatments but there are further responsibilities for research activities. Descriptive qualitative research can help us to understand client experiences, and reading these studies can increase practitioner empathy. Theoretical qualitative research in which theory building is the goal can help to promote an understanding of mechanisms of change in therapeutic processes, and support deeper knowledge of the music therapy experiences and effects for clients. Audits that determine how practitioners use techniques, or what types of work they are doing and with whom provide information about the scope of professional practice whether the audit is in a local setting or undertaken internationally. Research which includes the service user's voice is also needed in order that music therapy practice honours clients' experiences of music therapy services, and that research can demonstrate music therapists' commitment to client-centred practices.

MUSIC THERAPY TRAINING AND PROFESSIONAL ISSUES

In spite of the multiple training courses around the world and the many thousands of people practising there are relatively few studies of music therapists' professional experiences, and the experiences of students in training courses. In the *Oxford Handbook of Music Therapy* a range of topics relevant to this topic are explored including music therapists' work in developing new positions in healthcare facilities (Ledger this volume), self-care for music therapists (Trondalen this volume), as well as training requirements (Hanser this volume), and accreditation requirements (Nocke Ribeaupierre this volume).

Training is highly context-dependent. Each country has their own training systems and courses including procedures for recognition of courses. Some countries have undergraduate trainings while others, such as Ireland and the UK, only have postgraduate training programmes. Most music therapy courses are offered through universities or higher education systems of accreditation. Many countries have professional associations which accredit courses, and these associations also have professional development requirements that graduates must follow. Most music therapy ethical codes emphasize the necessity for personal development of the practitioner to ensure safe and efficacious professional practice.

However, the processes by which this development is encouraged for the individual student, and then the practitioner, is applied differently across the world.

CONCLUSION

According to Article 27 of the Universal Declaration of Human Rights “Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.” Music therapists around the world uphold human rights when they celebrate the human capacity for music making and music appreciation with their clients.

Music therapy as a twenty-first-century profession is constantly updating, upskilling, and refining its approaches and techniques. At the same time practicing music therapy involves the use of the dynamic medium of music which has been part of every culture and every community since ancient times, possibly even before the human era (Mithen 2005). Navigating the historical and future capacities of music to bring comfort, joy, enlightenment, and solace to those in distress, pain, or who are seeking further opportunities for growth is the wondrous task of every student and practitioner. Music therapy needs leaders, competent practitioners, innovators, and questioners. Bringing oneself fully and wholly into the profession requires a commitment to ongoing self-awareness, and insight about ones capacities and interests in order to grow and serve within the music therapy community internationally. A book such as the *Oxford Handbook of Music Therapy* can serve as a reference point for navigating new practice and research terrains to enhance the quality of music therapy internationally, but nothing can replace the value of everyday learning through spending time with clients and their families and discovering and relating within their musical world.

REFERENCES

- Aigen, K. (2014). Music-centered dimensions of Nordoff-Robbins Music Therapy. *Music Therapy Perspectives* 32(1): 18–29.
- Alluri, V., Toiviainen, P., Jääskeläinen, I.P., Glerean, E., Sams, M., and Brattico, E. (2012). Large-scale brain networks emerge from dynamic processing of musical timbre, key and rhythm. *Neuroimage* 59(4): 3677–3689.
- Baines, S. (2013). Music therapy as an anti-oppressive practice. *The Arts in Psychotherapy* 40: 1–5.
- Bruscia, K.E. (1998). *Defining Music Therapy*. Gilsum, NH: Barcelona Publishers.
- Carroll, D. (2010). The Field of Play in music therapy education. *Voices: A World Forum for Music Therapy* 10(2).
- Corbin, J. and Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory*, 3rd ed. Los Angeles, CA: SAGE.
- Curtis, S.L. (2012). Music therapy and social justice: A personal journey. *The Arts in Psychotherapy* 39: 209–213.
- De’Ath, L. (2013). “A sun among men”: The EE Cummings songs of Paul Nordoff. *Journal of Singing* 69: 307.

- Edwards, J. (2011). A music and health perspective on music's perceived "goodness." *Nordic Journal of Music Therapy* 20: 90–101.
- Edwards, J. (2012). We need to talk about epistemology: Orientations, meaning, and interpretation within music therapy research. *Journal of Music Therapy* 49: 372–394.
- Edwards, J. and Hadley, S. (2007). Expanding music therapy practice: Incorporating the feminist frame. *The Arts in Psychotherapy* 34: 199–207.
- Gardstrom, S.C. (2008). Music therapy as noninvasive treatment: Who says? *Nordic Journal of Music Therapy* 17(2): 142–154.
- Hadley, S. (2003). Meaning making through Narrative Inquiry: Exploring the Life of Clive Robbins. *Nordic Journal of Music Therapy* 12(1): 33–53.
- Hadley, S. (ed.) (2006). *Feminist Perspectives in Music Therapy*. Gilsum, NH: Barcelona Publishers.
- Kenny, C.B. (2003). Beyond this point there be dragons: Developing general theory in music therapy. *Voices: A world forum for music therapy* 3(2).
- Loewy, J.V. (2001). Building bridges in team centred care. *Australian Journal of Music Therapy* 12: 3–12.
- McIntosh, P. (1998). White privilege: Unpacking the invisible knapsack. *Race, class, and gender in the United States: An integrated study* 4: 165–169.
- Mithen, S.J. (2005). *The Singing Neanderthals: The Origins of Music, Language, Mind, and Body*. Harvard University Press.
- Montello, L. and Coons, E.E. (1998). Effects of active versus passive group music therapy on preadolescents with emotional, learning, and behavioral disorders. *Journal of Music Therapy* 35(1): 49–67.
- Nordoff, P. and Robbins, C. (1977). *Creative Music Therapy: Individualized Treatment for the Handicapped Child*. New York: John Day Company.
- Pavlicevic, M. and Ansdell, G. (eds), (2004). *Community Music Therapy*. London: Jessica Kingsley Publishers.
- Stige, B. (2002). The relentless roots of community music therapy. *Voices: a world forum for music therapy* 2(3). <https://voices.no/index.php/voices/article/view/98>
- Stige, B. and Aarø, L.E. (2011). *Invitation to Community Music Therapy*. London: Routledge.
- UN General Assembly, *Universal Declaration of Human Rights*, 10 December 1948, 217 A (III), available at: <<http://www.refworld.org/docid/3ae6b3712c.html>> [accessed 21 October 2014].

SECTION ONE

MUSIC THERAPY
CONTEXTS AND
POPULATIONS
ACROSS THE LIFE
SPAN

CHAPTER 1

MUSIC THERAPY

An Evidence-based Allied Health Service Applicable Through the Life Span

JANE EDWARDS

Art shows us how to be more than we are. It is heightened, grand, an act of effrontery. It is a challenge to the confines of the spirit. It is a challenge to the comfortable pleasures in everyday life Once encountered, art will get a response ...

Jeanette Winterson, *Art Objects: Essays on Ecstasy and Effrontery*, p. 94
London: Vintage, 1994

INTRODUCTION

IN music therapy the complexity of music meets the complexity of the patient or client with fluidity, grace, and inspiration. The therapist plays many roles during music therapy including as a responder in music making, and as the person who reflects upon and processes what is happening for themselves and between themselves and the client as the music therapy sessions evolve. The music therapist is responsible for devising the music therapy procedures in consultation with the client where possible, engaging the process of therapy, and evaluating and reporting the outcomes of the therapy to other members of the team, to the client, and to the family and carers where applicable. The skills of the music therapist in communicating and relating with the client in therapy practice, and advising and reporting the outcomes is key to developing and maintaining practice competence.

This chapter considers how the context of music therapy practice, the place where the services are provided, as well as the population, that is the people who come to music therapy, can be useful points of reference when communicating about music therapy. Descriptions of the ways evidence are used to inform practice are provided.

Most accounts of music therapy are written by music therapists therefore the dominant dialogic refers to music therapists' accounts of what occurred and their experience of the therapy process. A music therapist might find it perfectly natural that a room or trolley full of instruments should be provided to a person and then music making ensue as part of a music therapy session. When people receiving health and education services who are referred for

music therapy enter a room containing many instruments for the first time, or are greeted by the arrival of a person wheeling a trolley of instruments into the space they occupy it can be an exciting, puzzling, or even daunting experience. Navigating and responding to the client's first impressions and then interacting and supporting with the evolving verbal and musical responses is part of the skilled repertory of the music therapy practitioner.

POPULATIONS AND CONTEXTS

Explaining music therapy eloquently to others is a requirement for all practitioners in the field. Describing the needs of the clients they seek to help along with a description of the service or context in which the music therapy programme is provided are useful starting points for conveying this information. This builds a picture for the listener as to where and how the work of music therapy is provided. In this chapter, *populations* are groups of people attending music therapy who share similar characteristics or needs, for example, adults who have cancer (O'Callaghan and Magill this volume), or infants with life-threatening medical conditions (Shoemark this volume). Some client groups receive treatment in a specialized service, therefore the music therapist's knowledge includes information about the relevant diagnosis and subsequent needs in general while learning about the individual client more specifically.

For the purposes of this chapter *contexts* are considered to be the situations in which music therapy services are provided, such as a community day programme, special education facility, or a residential service. Some contexts serve diverse populations, for example a special school may provide services for students with a range of needs, ages, and diagnoses. Other contexts are highly specified, such as a neonatal intensive care unit (NICU). The service always exists within a wider health care culture that requires attention and reflection. As Rolvsjord and Stige (2015) have advised:

Any health care system, in turn, is situated in a larger context of society and culture, of social economy, and political systems. These broader social, cultural, and political contexts influence a person's health and the practice of therapy in complex ways (e.g. as contributing causes for illness and health, provision of health services, social support, stigmatization, and demoralization). p. 52

Information about the contexts for practice can help to inform the listener about music therapy services. Each practice context has its own culture which includes the *ethos* of the organization, comprising explicit and implicit dimensions. Mission statements and strategic planning documents provide information about the explicit ethos of the service or institution. Hidden features of the ethos of the organization can be difficult to uncover or understand until one has worked in the organization for some time. These might relate to how organizational policies are interpreted in practice, or the everyday processes by which work is conducted. Many of the idiosyncratic aspects of a service are only possible to know through observation of the ways in which people within the organization make decisions and negotiate, and through receiving mentoring from an experienced colleague within the organization.

Developing an understanding of the dynamics of the context, along with the needs of the population that can be addressed through music therapy, contributes to effective implementation of music therapy programmes. References to workplace practices in music therapy must be contextualized otherwise they run the risk of producing research and techniques that when implemented elsewhere can be ineffective or might result in harm. The new music therapist, and the student must take care to ensure they understand as much as possible about the population, the services, and the wider political context of funding support in the place where they are providing services before translating research findings or the techniques described in case studies or research reports to their own emergent practice.

POPULATIONS

The Oxford Handbook of Music Therapy (Edwards 2015) seeks to represent the life span age range served in music therapy providing examples of work with infants (see Edwards and Abad, this volume), children (Barry this volume), adults (McCaffrey this volume), and older adults (Clair this volume). One day in the future it is possible that each of the areas of practice outlined in this volume will have their own OUP handbook representing the diversity of approaches and techniques that are employed in the field.

While all people attending music therapy sessions have capacities that can be described using such terms as cognition, sensory, language, communication, mobility, psychosocial and so forth the main capacities with which the authors in this volume are concerned are with how people referred for music therapy can be provided with opportunities to use music's capacities in restorative and growth oriented ways. Working with the client to honor and support their strengths is a great privilege of the work of the music therapist.

CONTEXTS

In the *Oxford Handbook of Music Therapy* (Edwards 2015) four contexts are considered: (1) medical, (2) developmental and educational, (3) mental health, and (4) community. The chapters in the contexts and populations section of the book are loosely grouped around these topics as they cannot be considered fixed settings for service delivery (see Figure 1.1). Some services provide support in some or all of these contexts. For example, a drug and alcohol service may provide medical treatment for symptoms of withdrawal, offer psycho-education and mental health supports, and be delivered in a community setting. Not every type of work situation would fit into these four broad categories, for example music therapy provided within prison services. Nonetheless these contexts are presented here as offering a way to consider how music therapy services are provided and to whom.

Services provided by hospitals and medical services can be offered to all age groups and a wide range of needs. *Medical contexts* have unique features and have sometimes been criticized as behaving within "silos of specialism" (James et al. 2013, p. 296). Specialism is important because highly trained, highly qualified medical personnel are needed to treat specific

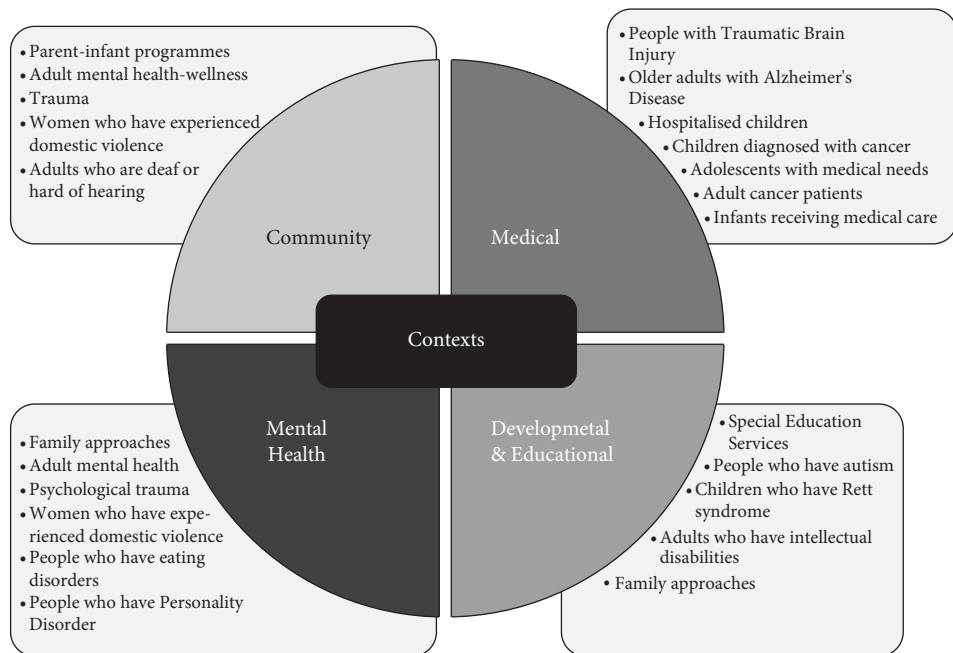


FIGURE 1.1 Contexts and populations.

conditions expertly. The salient point made by James et al. (2013) is that when a patient has complex needs, services can become disjointed and unhelpful. For example, if an orthopedic team keep expertly treating an older man who falls frequently by setting his broken arm, or repairing his fractured spine at what point will the reason for the fall be investigated? The music therapist has a role to play in such a specialized system. For example, if a child with autism (see Bergmann this volume) is admitted to hospital for a tonsillectomy, the music therapist can use their knowledge of working with families, alternative communication systems, and neuro-diversity to facilitate greater understandings for the child, the family, and the team, and to work with the patient's regular music therapist to help plan for the difficult parts of treatment which might involve planning and facilitating transitions between the ward and surgical area, and on awakening from anesthetic.

A description of how a music therapist can engage with the complexity encountered in hospital based music therapy practice is outlined in a case example by Dr Joanne Loewy. She described working with a drug dependent mother who gave birth to her son prematurely. The mother, Tasha was subsequently admitted to the psychiatric services because she advised that she intended to harm herself. Dr Loewy moved between Tasha, awaiting admission and Daniel, in the Neonatal Intensive Care Unit (NICU) whom Tasha did not yet feel she had the strength to visit. A lullaby song was composed by the mother with Dr Loewy's support and prompting. Dr Loewy was then able to sing to the baby in the NICU (Loewy 2011). She described this process as follows:

Providing nurturance through favorite lullabies designed for parents is critical at this time. Initiating a point of contact using a lullaby is highly personal. Beginning from playing in a familiar meter and moving into a holding meter, and then to a rubato style, music's ability to

contain, and gradually withhold the need for a fixed predictable meter can assist in the creation of a relaxation effect, which can be achieved in a very short period of time.

Loewy 2011, p. 188

Developmental and educational contexts refer to services which are offered to support educational attainment, such as special schools (see Hayes this volume), and early intervention services (see Oldfield this volume). One example is provided by Kelly (2011) who described the development of a parent-infant programme in a school setting in one of the most socially disadvantaged regions of Ireland. Music therapy sessions were offered in a group format for children of three to four years of age and their caregivers over one academic year. Kelly presented a series of child and caregiver interactions that occurred during the programme. The music therapy sessions were perceived by teachers and caregivers to achieve greater cohesion and relating between caregivers and children. Children were reported by caregivers to have grown in confidence, and caregivers were perceived by teachers as being less anxious in engaging with the school during sessions but also at other times.

Mental health contexts include any services with the primary aim of promoting and supporting optimal mental health. These contexts can include services to adults with mental health diagnoses (see McCaffrey this volume), and to infants (see Edwards and Abad this volume). One example can be seen in the work of McCaffrey et al. (2011) where the music therapist (Triona) worked with a 40-year-old service user “Kevin” supporting him to re-engage his musical interest that had been dormant since his diagnosis of schizophrenia in his mid-20s. Through the supportive relationship offered by the music therapist Kevin composed songs, and developed keyboard skills contributing to his sense of mastery and pride with positive effects for his self-concept and confidence.

Community contexts are settings in which music therapy services are provided to people in their own homes or in a community based context such as a community health center, or in a community based service that may move through different locations within a geographical location. Leaders in Community Music Therapy (see Ansdell and Stige this volume) caution against confusing community contexts of practice with the purposes of Community Music Therapy. One example of a community context where music therapy is provided is by Toni Day, a music therapist and Helen Bruderer, a social worker (2011). They developed a support service for women who were mothers or pregnant and had been abused as children. Music making opportunities were facilitated through song writing and recording the compositions in groups. The goal of the programme was to facilitate resolution of the past trauma and support safe and effective parenting. The women shared the song recordings with friends and family to educate them about their experiences, and to receive additional support. The women reported that participating in the programme gave them a stronger sense of pride and achievement about their lives.

THE DEVELOPING EVIDENCE BASE FOR MUSIC THERAPY SERVICES

Many authors in the *Oxford Handbook of Music Therapy* (Edwards 2015) have presented research evidence that indicates the value of music therapy to meet clients’ needs. Evidence

takes various forms and can include findings from randomized controlled trials, from controlled studies, from the findings of qualitative studies, or from case series, and expert opinion. Research studies provide an indicator of the likely outcomes that will be achieved in music therapy, and afford reassurance that no harmful effects will occur. The best place to find evidence for music therapy services is in the refereed journal literature. There are also useful collations of research findings available in the Cochrane library <<http://www.cochranelibrary.com/>>.

Some published studies undertaken in hospitals and community contexts where music is used as a therapeutic agent for some kind of change such as increased relaxation or pain relief, have not employed music therapists either as the service delivery expert or as an adviser. Therefore it is important when looking at studies how the music was conceptualized as part of the research. Sometimes music is studied as if it is similar to a pharmacological medication and the researchers have not adequately considered whether the participant has heard the music before, or whether they like the music (Vaajoki et al. 2012). Additionally some research studies have described the use of music listening as *music therapy* even when there is no qualified music therapist involved with the study (for example, Karagozoglu et al. 2013). Improving the ongoing dialogue between practitioners in music therapy and health and social care is the ideal way to address these issues. This has led to music therapy researchers advising reporting guidelines for the inclusion of music in research studies (Robb et al. 2011) which are now used by several journals in the field. Additionally, some researchers advise that *music medicine* should be the term used when medical practitioners and nurses provide music listening opportunities to health care recipients (for example Bradt et al. 2013). Students and new practitioners who are collating evidence should make sure these guidelines have been followed in the papers they present.

CONCLUSION

Music therapists' work involves consideration and reflection on the needs of individuals and groups with reference to the wider cultural and societal influences on the context in which the service is provided. Describing the needs of clients in relation to the context for service provision in which music therapy is offered is a useful way to communicate about work in the field. The *Oxford Handbook of Music Therapy* presents a range of populations with whom music therapists work and discusses the evidence base and the theoretical principles on which music therapy practice is based. Readers are encouraged to follow up their interest in chapters in the relevant sections through consulting the reference list, and following the author's additional contributions to the field.

REFERENCES

- Bradt, J., Dileo, C., and Shim, M. (2013). Can music interventions replace sedatives for reduction of preoperative anxiety? *PubMed Health*. Available at: <<http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0056745/>>.

- Day, T. and Bruderer, H. (2011). Music therapy to support mothers who have experienced abuse in childhood. In: J. Edwards (ed.), *Music Therapy and Parent-infant Bonding*, pp. 141–158. Oxford: Oxford University Press.
- Edwards, J. (ed.) (2015). *Oxford Handbook of Music Therapy*. Oxford: Oxford University Press.
- James, D.M., Hall, A., Phillipson, J., McCrossan, G., and Falck, C. (2013). Creating a person-centred culture within the North East Autism Society: Preliminary findings. *British Journal of Learning Disabilities* 41(4): 296–303.
- Karagozoglu, S., Tekyasar, F., and Yilmaz, F.A. (2013). Effects of music therapy and guided visual imagery on chemotherapy-induced anxiety and nausea/vomiting. *Journal of Clinical Nursing* 22(1–2): 39–50.
- Kelly, K. (2011). Supporting attachments in vulnerable families through an early intervention school-based group music therapy programme. In: J. Edwards (ed.), *Music Therapy and Parent-infant Bonding*, pp. 101–114. Oxford: Oxford University Press.
- Loewy, J.V. (2011). Music therapy for hospitalized infants and their parents. In: J. Edwards (ed.), *Music Therapy and Parent-infant Bonding*, pp. 179–192. Oxford: Oxford University Press.
- McCaffrey, T., Edwards, J. and Fannon, D. (2011). Is there a role for music therapy in the recovery approach in mental health? *The Arts in Psychotherapy* 38: 185–189.
- Robb, S.L., Burns, D.S., and Carpenter, J.S. (2011). Reporting guidelines for music-based interventions. *Music and Medicine* 3(4): 271–279.
- Rolvjord, R. and Stige, B. (2015). Concepts of context in music therapy. *Nordic Journal of Music Therapy* 24(1): 44–66.
- Vaajoki, A., Pietilä, A.M., Kankkunen, P., and Vehviläinen-Julkunen, K. (2012). Effects of listening to music on pain intensity and pain distress after surgery: an intervention. *Journal of Clinical Nursing* 21(5–6): 708–717.

CHAPTER 2

MUSIC THERAPY IN THE MEDICAL CARE OF INFANTS

HELEN SHOEMARK AND TRISH DEARN

INTRODUCTION

THE expected gestational age for a healthy full-term infant is 40 weeks calculated from the mother's last menstrual period. As dates can sometimes be difficult to establish, full-term infants are considered those born from 37 weeks gestation onwards. Very preterm infants (<32 weeks) and extremely preterm (<28 weeks) have a range of medical complications associated with being born with immature physiological and neurological systems. Moderately or late preterm birth (33 to 36 completed weeks of gestation) is increasingly understood to bring its own unique set of problems (Bakewell-Sachs 2007). Post-term infants (>42 weeks) may also experience complex problems (Gardner and Hernandez 2011).

In the neonatology context the terms *low risk* and *high risk* refer to the complexity of the infant's medical condition and therefore indicate a possible clinical pathway or treatment. Low risk does not indicate an absence of risk but rather a more linear progression of problem, treatment, and recovery. High risk suggests that the recovery is marred by infection or other deterioration, and an escalating array of treatments which need to be introduced to address those changes. The term *medically complex* is sometimes used to refer to high risk infants who have chronic life threatening conditions which require complex medical care or dependency on technology (such as ventilators or respirators). These infants can be born with or develop a diverse range of medical complications which means that they are a heterogeneous group and are difficult to research.

Why is a baby hospitalized at birth? Preterm infants often have lungs that are not yet sufficiently developed to expand in air rather than amniotic fluid (Gardner et al. 2011). In the Neonatal Intensive Care Unit (NICU) they receive essential respiratory support from a ventilator (or respirator). Most will be unable to maintain adequate body temperature due to lack of body fat and will be cared for in a humidicrib (also known as an incubator or isolette) until sufficiently mature to do this for themselves (Brown and Landers 2011). Infants do not develop a coordinated breathe-suck-swallow action until at least 32 weeks gestation

(Mizuno and Ueda 2003) and therefore need supported feeding systems such as nasogastric feeding directly into the stomach. These key issues are likely to be part of the care of all preterm infants, including those considered to be low risk. If complications arise however, infants can move quickly from a low to high risk classification.

Full-term infants are hospitalized for a range of problems including congenital heart defects (CHD), lung conditions, congenital diaphragmatic hernia (CDH) and other abdominal wall conditions, Hypoxic Ischemic Encephalopathy (HIE), metabolic disorders, and medical issues associated with congenital anomalies. For many of these infants, surgery will be conducted on day one of life to reverse malformations or to provide temporary solutions, such as a gastrostomy tube to feed a baby directly to the infant's stomach. While the full term infant may have neurological and physiological maturity, their complex medical issues may also cause further issues which require a long hospitalization.

It is now understood that while the medical and nursing teams attend to the medical issues of the infant, infant development and family well-being must be supported to ensure that trauma for all is minimized, and healthy development of the infant is maximized (Coppola et al. 2007; Laing et al. 2010).

NEURODEVELOPMENT OF THE HOSPITALIZED INFANT

Even though survival for preterm infants has improved over the past few decades, they are at increased risk of neurodevelopmental impairments arising from the loss of typical brain development in utero and neonatal brain injury (Spittle et al. 2010; Zwicker and Harris 2008). Preterm infants have a significantly higher incidence of learning difficulties as children, including visual motor problems and attention difficulties including impaired memory, delayed language skills and executive dysfunction (Daily et al. 2011; Mathur and Inder 2009).

The generally accepted model of infant development is currently that of psychobiologist Robert Lickliter (2000) who used dynamics systems theory to propose that early development is co-actional or multidimensional, meaning that no one component will determine the developmental outcome. Early development is experience-dependent, context sensitive, and strongly influenced by the immediate surroundings. There is a "critical window" for sensory systems development and particularly that the early introduction of light or unusual vestibular stimulation can impact on auditory development (Lickliter and Bahrick 2001).

The key time points in the development of auditory processing (see Table 1.1) are vital to understanding the potential of music as a supportive experience for infant development.

It is understood that preterm infants are at greater risk of auditory processing deficits putting later language abilities at risk (Bisiacchi et al. 2009). Key et al. (2012) reported that there is a combined effect of gestational age and postnatal age on auditory processing in the temporal region of the brain where language and music are both processed. Such emergent research gives strength to the potential of music to preserve neural functioning in key areas of the brain.

Table 1.1 Key milestones in fetal auditory processing development

Gestational age in weeks	Auditory processing
19	Earliest response to sound in utero (Hall 2000)
28	Consistent response to sound (American Academy of Pediatrics 1997)
32	Afferent pathways to auditory cortex complete (Graven and Browne 2008)
33	Activation in the primary auditory cortex (Jardri et al. 2008)
36	Reliable response to sound of mother's voice (Moon and Fifer 2000)

HISTORICAL DEVELOPMENT INTERNATIONALLY

The idea that music can be used with newborn babies is something which most people easily understand. We can readily imagine parents humming lullabies or singing play songs. However, the hospital environment is highly technological and focused on medical treatment and music can seem out of place. While a few studies in the 1970s and 80s reported the application of music with newborn infants (Chapman 1978; Owens 1979), it was Professor Jayne Standley at Florida State University, USA who forged the speciality known as “NICU Music Therapy” where NICU stands for Neonatal Intensive Care Unit. The study undertaken by Standley’s student Janel Caine in 1991 introduced a new context of practice for music therapy. Thus NICU music therapy can be understood as a relatively new practice area which parallels the development of the relatively new medical field of neonatology.

Music therapy in neonatology further developed in different parts of the world from the late 1990s onwards. In Germany, Dr Monika Nöcker-Ribaupierre from the University Children’s Hospital, Munich championed the ways in which a music psychotherapy program could address the needs of the mother-infant dyad (Nöcker-Ribaupierre 1999), and Dr Joanne Loewy at the Louis Armstrong Centre for Music and Medicine at Beth Israel Hospital in New York honored the infant in the ecological world of the womb, the family and culture (Loewy 2000). Dr Helen Shoemark from The Royal Children’s Hospital Melbourne Australia, broadened the application of music therapy to encompass work with medically complex full-term infants (Shoemark 2006). The subsequent expansion of this area of music therapy practice still includes the NICU but has moved into a wider range of medical contexts in which newborns are supported. In order to embrace music therapy practices with preterm and full-term infants, the broader term Newborn Music Therapy (NbMT) will be used in this chapter.

In most instances NbMT clinical work and research has been emerging in countries where the broader profession of music therapy is well established (USA, Australia, Germany, Switzerland, Sweden, United Kingdom, Canada, Israel). In countries such as China (including Taiwan), Japan, Singapore, Thailand, music therapy is not recognized by the government or families must pay for the service, there is obvious interest but little growth in services has been observed. However limited growth has occurred in places with nationalized health care such as the UK, and France, perhaps reflecting lack of congruence between the medical models and music therapy training.

The observed growth in NbMT research has been bolstered by many studies undertaken by non-music therapists who are often members of the nursing profession. The two

landmark and most often quoted early studies (Caine 1991; Collins and Kuck 1991) reported that when compared to ambient noise, listening to recorded music improved weight gain, reduced length of stay and provided overall behavioral stability for the preterm infant. This was important evidence for music therapists to start NbMT programmes. Recorded music was shown to decrease agitation and minimize time spent in high arousal and promote improved behavioral regulation in preterm infants (Collins and Kuck 1991; Kaminski and Hall 1996; Lorch et al. 1994). Some studies have reported no effect of recorded music on infants (Calabro et al. 2003) however none have reported negative outcomes. This coincided at the time with research which indicated that many types of auditory stimuli resulted in better health outcomes for infants than silence (Coleman et al. 1997; Lorch et al. 1994; Standley and Moore 1995). Recent research has renewed this concern with the low auditory stimulation for preterm infants in single rooms responsible for poorer communication outcomes in preterm infants (Jobe 2014).

Variability in the cohorts, protocols, and measures between studies mean that they do not rate well when subjected to systematic review (Allen 2013; Hartling et al. 2009; Hodges and Wilson 2010; Neal and Lindeke 2008), but through meta-analyses and integrative reviews more meaning can be derived (Haslbeck 2012; Hodges and Wilson 2010; Standley 2002, 2012).

MEDICAL MUSIC THERAPY

While NbMT clinical practice encompasses family-centered practice (Shoemark 2011a), the research to date with newborn infants has usually been child focused because it is more straightforward. Recorded lullaby music has been the most common stimulus researched. This may be because it can be more easily defined as a research stimulus than live music, is cheap and easy to implement and does not require musical skills. Therefore it can be applied by nurses, some of whom have conducted a significant number of studies. There are few studies that report use of live music as a sole stimulus in the NICU and only two of these reported significant effects on the physiological or behavioral responses of the infant (Arnon et al. 2006; Teckenberg-Jansson et al. 2011). There is however an important stream of research where live singing or humming is used within a multimodal protocol and this will be discussed a little later in the chapter.

Recorded music

The majority of research with preterm and medically fragile infants to date has investigated the infant's immediate physiological and behavioral response to recorded lullaby music with sedative intent. Multiple studies examining the effect of sedative recorded music on stable preterm infant self regulation have reported positive outcomes for heart rate, oxygen saturation, and behavioral state response to sedative music. Several studies have reported a significant decrease in mean heart rate (more recently, Garunkstiene et al. 2014, Tramo et al. 2011) and a positive effect on oxygen saturation levels (Calabro et al. 2003; Cassidy and Standley 1995; Chou et al. 2003; Collins and Kuck 1991). In addition, several studies have reported a positive effect of recorded music on behavior, most often reported as an increase in quiet

sleep states, or a decrease in arousal (more recently, Butt and Kisilevsky 2000; Keith et al. 2009; Lai et al. 2006; Tramo et al. 2011; Bo and Callaghan 2000; Whipple 2008).

Further studies have reported positive effects of recorded music on preterm infant weight gain and earlier discharge (Standley 2003), increased non nutritive sucking (Standley 2000, 2003; Standley et al. 2010; Cevasco and Grant 2005; Whipple 2008), faster recovery times and minimized arousal during painful procedures (Bo and Callaghan 2000; Butt and Kisilevsky 2000; Chou et al. 2003; Johnston et al. 2009; Johnston et al. 2007; Joyce et al. 2001), less crying (Keith et al. 2009), decreased energy expenditure (Lubetzky et al. 2010), and improved infant sleep cycles (Olischar et al. 2011).

Maternal voice

Newborn infants are sensitive to the characteristics of their own mother's voice (Kisilevsky et al. 2009) making it a relevant stimulus for NbMT. While studies have shown some mixed results, the renewed emphasis on using the maternal voice in practice means it is important to report here. While term newborns do not have the same ability to discriminate tones as adults do (Werner 2007), they can recognize their mothers' voice (DeCasper and Fifer 1980; Kisilevsky et al. 2009) and some characteristics of their native language as well (Bertoncini et al. 1989; Nazzi et al. 1998).

Bergeson and Trehub (2002) demonstrated that mothers' singing is more consistent in rendition than their speech, thus providing their infant with a predictable stimulus for establishing a safe and familiar experience.

In many studies the mother's recorded voice has often been compared to instrumental music, or a recording of the mother singing lullabies. Recorded spoken maternal voice has been compared to lullaby music (Chapman 1978; Standley and Moore 1995) and routine care (Bozzette 2008; Katz 1971) with infants of different gestational ages to account for the neurodevelopmental stage of the preterm infant (Cevasco 2008; Krueger 2010). Recorded spoken maternal voice has also been compared to a stranger's voice (deRegnier et al. 2000; Thieren et al. 2004) maternal singing (Cevasco 2008) and mother's voice filtered through amniotic fluid (Doheny et al. 2012; Johnston et al. 2007). Of these studies, positive effects on the infant include turning to hear the voice of their mother (Malloy 1979), weight gain (Chapman 1978), tolerance for stimulation (Katz 1971; Segall 1972), increase in stability behaviors and less movement (Bozzette 2008) and earlier discharge (Cevasco 2008).

Krueger (2010) suggested that the lack of statistically significant findings in many studies of maternal voice could be due to the wide age range of the preterm infant participants and the related neurodevelopmental variability over that time. She also suggested that had the mother actually been physically present, infants may have responded differently (Krueger 2010). Loewy et al. (2013) found that the intentional use of live sound, including soft musical instruments and parent-preferred lullabies, provided a range of significant physiological and behavioral changes for the infant and lowered parental stress. In a study of first exposure to recorded music, Dearn and Shoemark (2014) reported that infants exhibited significantly higher oxygen saturation in the presence of the mother even when the mother spent 65 percent of the time not actively make noise or touching her infant.

Recorded music and pain

Recorded music has been examined as a strategy to ameliorate the response of preterm infants to painful procedure or intervention. Pain can cause elevated heart rate, respiratory rate, and increased oxygen consumption, which consume calories needed for growth and healing (Gardner et al. 2011). Most studies investigating the impact of recorded music on pain response have examined the preterm infant's physiological and behavioral response after a heel prick (also known as heel stick or lance). Studies comparing recorded music to ambient sound reported significantly decreased heart rate (Bo and Callaghan 2000; Butt and Kisilevsky 2000; Tramo et al. 2011). Other research has examined the infant's response to recorded music after suctioning (Chou et al. 2003) and during circumcision (Joyce et al. 2001; Marchette et al. 1989, 1991) with no negative outcomes reported and positive physiological outcomes including lowered heart rate, improved oxygen saturation and improved stress behaviors.

Recorded music within the Developmental Care framework

Recognition that sensory stimulation can overwhelm preterm infants and increase physiologic signs of stress has led to attempts to reduce noise and lighting in NICUs as part of the Developmental Care strategy (Gardner and Goldson 2011). More recently, developmentally appropriate soothing sensory input has been recommended to avoid sensory deprivation (Graven and Browne 2008; McMahon et al. 2012). While clinical work is being undertaken in this field, to the knowledge of the authors there are no studies to date that have examined the adapted and layered use of recorded music as a neurodevelopmental strategy for the hospitalized infant.

Recorded music combined with Kangaroo Care

Kangaroo Care (KC) emerged from the Developmental Care framework because close physical contact with the mother encourages physiological and behavioral stability in the preterm infant (Ludington-Hoe and Hosseini 2005; Westrup 2005). Recorded music has been combined with Kangaroo Care in an attempt to improve attachment and enhance physiological and behavioral stability (see Family during hospitalization section below). The comparison of KC alone to KC combined with recorded music has reported no significant differences in physiological or behavioral outcomes (Lai et al. 2006; Johnston et al. 2007, 2009). A recent study by music therapist Teckenberg-Johannsen et al. (2011) investigated the addition of live female voice and lyre (stringed instrument) to KC rather than recorded music, over a series of six sessions. They found a significant improvement in mean and systolic blood pressure and positive improvements in respiration, calmer infants and positive parental response in infants who had received KC and live music combined when compared to KC alone.

Recorded music for non-nutritive sucking

Several studies have utilized recorded music as a reinforcement for learning. A key component in a preterm infant's development is the suck-swallow reflex (Gardner and Hernandez 2011). If the preterm infant is still having difficulty feeding by 35 weeks gestation, interventions such as physical manipulation of the baby's mouth and posture are used to encourage feeding (Standley and Walworth 2010). Standley (2000, 2003, Standley et al. 2010) devised a Pacifier Activated Lullaby system (PAL). This is a system by which a plastic teat or nipple is placed in the baby's mouth and the baby is rewarded with a short burst of recorded music when sucking rates are at a certain rate and pressure. In order to continue to listen to the music the infant must continue to suck. Standley reported that non nutritive sucking significantly increased with the PAL and concluded that at 35 weeks, preterm infants seemed to be capable of learning and therefore the PAL was a potential clinically useful tool to promote weight gain (Standley 2000). In a second study evaluating this device, Standley assessed feeding rate instead of sucking rate and found a significant increase in oral feeding rates (Standley 2003). The most recent study (Standley et al. 2010) reported improved feeding length and faster nipple feeding transition. In two other studies using the PAL, authors also reported an increase in non nutritive sucking (Cevasco and Grant 2005; Whipple 2008) and significantly fewer stress behaviors when used as a supportive strategy during a heel prick (Whipple 2008).

Recorded music and breastfeeding

Mothers of hospitalized infants experience stress and fatigue, separation from their infant, and shortened pregnancy in the case of preterm infants, all of which can cause decreased breast milk volumes. In a study of mothers using an electric pump to express breast milk, Keith et al. (2012) compared standard support to initiate and maintain breast milk production with a recorded spoken relaxation and guided imagery protocol, and the same protocol with the addition of recorded guitar lullabies or photos of the infant. Results showed a significant increase in milk volume and fat content over six days for all three versions of the relaxation and imagery protocol, with the best results for the protocol combined with guitar lullabies and photos of the participant's own infant.

Vianna et al. (2011) measured breastfeeding rates at the time of discharge and follow-up 60 days later for mothers of preterm infants. They reported a significantly higher breastfeeding rates for the experimental group which had received a combination of improvisational and receptive music therapy provided three times a week during the admission.

Live singing/humming

Early intervention can improve the neurobehavioral development of preterm infants (Spittle et al. 2010; Vanderveen et al. 2009). Making live music may establish and reinforce neural pathways integral for communication and social interaction (Malloch et al. 2012). McMahon et al. (2012) suggested that vocal music is a suitable stimulus for newborn infants

because it contains a large spectrum of intonations which are both rhythmic and melodic (Trehub 2001) which serves the infant well when the mother's voice is not available live (Loewy 2000).

Live singing and humming must be structured to safely stimulate the post 32 week gestation infant with full attention to infant cues of engagement and disengagement. Founded in mother-infant attachment theory, singing for the full-term infant provides core experience for the primary infant-adult relationship (de l'Etoile 2006; Loewy 2000; O'Gorman 2006; Stewart 2009).

The inclusion of live singing within the multi-modal stimulation was established by Standley and others in a series of seminal studies with preterm infants (Standley 1998; Whipple 2000). The original protocol known as the Audio Tactile Visual Vestibular (ATVV) protocol was developed by Rosemary White-Traut and her team as a neurodevelopmental strategy in which sensory stimulation was progressively layered to increase tolerance for stimulation (Burns et al. 1994; White-Traut et al. 1987). The results indicated a positive trend towards improved weight gain and shorter hospital stay for the preterm participants. Standley (1998) included humming instead of the unspecified talking because sung voice had been found to be more predictable and consistent than the spoken voice (Coleman et al. 1997; Standley and Moore 1995). This resulted in significantly earlier discharge from hospital compared to standard care. Whipple (2000, 2005) employed the modified multi-modal stimulation protocol to facilitate infant parent bonding by teaching the parents the steps involved and reported decreased length of stay and improved weight gain per day, although this was not statistically significant.

Shoemark adapted this protocol to safely stimulate reciprocal interaction for medically complex newborn infants rather than preterm infants (Shoemark 1999). Shoemark used the decision tree strategy from the multi-modal stimulation to safely layer improvised singing (or contingent singing, see Methods section) to stimulate active interplay while maintaining physiologic and behavioral parameters within safe ranges. The infants who received contingent singing, framed by the ATVV protocol, showed significantly better neurobehavioral development than infants who received standard care (Malloch et al. 2012). Shoemark's subsequent microanalysis of the interplay (Shoemark and Grocke 2010) produced a taxonomy of infant and therapist behaviors which has stimulated further categorization of infant-therapist interplay (Haslbeck 2012, 2013).

MUSIC IN THE NICU AUDITORY ENVIRONMENT

A review of research in medical music therapy with hospitalized infants would not be complete without a discussion regarding the parallel significant body of research examining noise in the NICU and the impact of noxious sound on the preterm infant. This is a critical first step when adding another form of stimulation to the environment of the preterm infant.

Without the attenuation of sound provided by the uterus, the preterm infant is exposed to a much wider range of frequencies than their ears are ready to process (Graven and Browne 2008). The NICU environment contains unpredictable and sudden noise sources,

fluctuations in sound levels and constant noise (Bremmer et al. 2003; Lasky and Williams 2009). Immediate behavioral changes in response to noise can include state transition from alertness, quietness or sleep to fussing and crying (Wachman and Lahav 2011). Negative short term physiological changes can include apnoea and bradycardia, elevated heart rate, blood pressure, and respiratory pattern, gastrointestinal motility, oxygenation, intestinal peristalsis and glucose consumption, increased intracranial pressure, and interference with sleep (Gardner and Goldson 2011; Wachman and Lahav 2011; Gray and Philbin 2004; Maschke et al. 2000). Longitudinal studies of preterm infants exposed to constant noise in the NICU have reported long-term interference with development of frequency discrimination including problems with sound pattern recognition (Bamiou et al. 2001), sound localization and speech intelligibility (Gray and Philbin 2004; Luoma et al. 1998), deficits in auditory discrimination and temporal processing (Lister et al. 2002) and potential hearing loss (Williams et al. 2007).

There are key historical precedents for the use of music in NICU which are now generating further investigation. Because of the positive findings of early music therapy studies, music therapy and nursing researchers concentrated on comparing recorded music to the ambient sound or to other sounds with the underlying assumption that music provided a stable sound, which was preferable to the unpredictable NICU sounds. Standley and Walworth (2010) stated the accepted construct that “recorded music can be used to provide auditory respite from noise induced stress” (p. 84). This assumption comes from the understanding that that attention to music can cause the other sound (background noise) to fade from the infant’s immediate sense of perception (Standley and Walworth 2010). The other premise was that music has different acoustical properties to noise; the sound waves of music are regular with consonant frequency and harmonic overlay compared to irregular patterns of dissonant harmonies (Jourdain 2002). Music contains a range of sounds combined to form a larger organized context creating expectations, resolutions and predictability (Zatorre et al. 2007).

Importantly and perhaps a key argument for adding recorded music into the environment of the preterm infant is that music and noise are processed differently in the brain (Peretz and Zatorre 2005). Over the last decade, several studies investigating music processing in the brain have illustrated that music is not processed in the same part of the brain as noise and that different elements of music such as pitch and rhythm, are processed in separate parts of the auditory cortex (Griffiths 2003; Patterson et al. 2002; Peretz and Zatorre 2005). A detailed review of music psychology and cognitive neuroscience studies is beyond the scope of this chapter however, the discoveries made in these music psychology studies could potentially explain why preterm infants do not respond in the same way to noise and music.

While there is evidence to illustrate that music is processed differently from noise, we also now understand that an infant has less capability to differentiate one tone from another in an ambient environment (Werner 2007; Werner and Boike 2001) and therefore may find it difficult to discriminate music from the ambient background noise. If this is the case, why then are there many studies which have shown positive and no negative effect to recorded music on the preterm infant? This question has not been answered unequivocally with large randomized control trial studies and further multi-disciplinary research needs to be done in collaboration with neuroscience and auditory specialists. Despite this debate, the practice of using recorded music by both nurses and music therapists continues

because positive physiological and behavioral results have been reported along with no negative responses.

THE FAMILY DURING HOSPITALIZATION

A meta-synthesis by Aargaard and Hall (2008) revealed five metaphors that captured the mothers' experiences of their newborn's hospitalization. These metaphors centered on reciprocal relationships that consisted of mother-baby relationship (from "their baby" to "my baby"), maternal development (striving to be a real, normal mother), the turbulent neonatal environment (from foreground to background), maternal care giving and role reclaiming strategies (from silent vigilance to advocacy), and mother-nurse relationship (from continuously answering questions through chatting to sharing of knowledge). Families need support to sustain role as primary nurturer and advocate; acknowledgement of the complex situation they face, and strategies to cope (Harris 2005; Peebles-Kleiger 2000).

Family centered care (FCC) is defined as "an approach to the planning, delivery, and evaluation of health care that is grounded in mutually beneficial partnerships among health care providers, patients, and families" (Institute for Family-Centered Care 2007). Instead of the professional staff making decisions and then informing families, or therapists working with infant and then explaining progress to the families, in FCC families are in active partnership with staff to confirm plans and actions in a timely fashion. FCC not only informs the way in which the therapist interacts with the family but in how he/she thinks about the infant. The simple framework of ecological theory (Bronfenbrenner 1979) helps to understand infant in the context of family. The infant is "nested" into the family which provides an inner circle of safety (Dunst et al. 1988). Outside that family circle, are the extended family and other community support for the family. Therefore all interventions while in hospital should seek to preserve the family's capacity to nurture and bond with their baby. However, in hospital that inner circle can be easily disrupted as healthcare teams provide medical care to the infant. The full-term infant's relationship with parents is compromised (Laing et al. 2010) and the infant can become wary of adults and interaction (Malloch et al. 2012). In a family centered care setting, the healthcare teams can work with the family to make all decisions and promote a routine of care which honors the family role.

Whipple (2000) found that parents taught to use music modified multi-modal stimulation ($N = 10$) displayed significantly fewer stress behaviors, appropriateness of parents actions and responses were significantly greater, and that parents spent significantly more time visiting their infants. However Shoemark (2013) observed that parents may feel exposed by being asked to sing aloud. Therefore, singing may be an additional stressor rather than something which empowers them to engage meaningfully with their baby. In a study to investigate the contingent effect of maternal singing on feeding, Blumenfeld and Eisenfeld (2006) found that fewer than 20 percent of mothers who had agreed to sing to their infants as part of the study were actually able to complete the task. Mothers reported feeling "excessive anxiousness" (p. 68) and shyness or inhibition about singing in the hospital. By preparing mothers to sing and use their voice in recording, Cevasco (2008) found that mothers of full-term and preterm infants were able to understand and value the importance of music for their babies' well-being.

In a survey of 60 mothers in a newborn surgical unit, Shoemark and Arnup (2014) found that of the mothers who reported they had not sung to their infant in the NICU, 54 percent (13) were too embarrassed, 42 percent (10) felt too obvious, 33 percent (8) said they could not sing, and 25 percent (6) felt too strange. However 60 percent (36) had actually sung to their infant. Previous experience of learning a musical instrument or making music in a choir or band had a weak association with singing. This association reflected other research showing a significant association between American mothers' and fathers' experience of learning and playing music and singing to their healthy infants (Custodero and Johnson Green 2008).

PRACTICAL ISSUES IN PROVIDING CLINICAL SERVICES

Models of service delivery

There is a direct relationship between the models of practice that music therapists use, the care team to which they belong, the reasons for referral and the goals and objectives of the music therapy service. When a music therapist is employed to work in a NICU or other medical unit caring for sick newborn infants, it is most likely that they will or should seek to be aligned with one of the care teams. In a perinatal center in a maternity or general hospital that includes nurseries the most likely team will be a *Developmental Care* team which focuses on optimising all care for the infant based on the infant's demonstrated capacities to cope with stimulation, including physical care and interpersonal contact. Usually a team will include other allied health practitioners such as physical therapy, occupational therapy, speech therapy or pathology, psychology, a nursing care manager, and a member of the medical staff. In this team, the music therapist is likely to receive referrals from other team members to either provide direct services to help an infant regulate their state and therefore to improve sleep and minimize irritability, or work with family to maximize attachment and thereby improve neurodevelopment. In a pediatric hospital setting the music therapist might be involved in a neurodevelopment team which is concerned with the long-term consequence of complex medical conditions and long-term hospitalization. This team might include neurologists, neuropsychologists, and allied health clinicians who assess the infant's developmental status, treat any immediate concerns which may have long-term consequences, and refer infants for early intervention or follow up in outpatient clinics. The music therapist might receive a referral from within this team to create appropriate opportunities for healthy development, and to help to educate families about how to safely and productively meet the infant's needs for interaction.

Despite the logistical difficulties involved in providing individualized infant-centered care at all times, the culture in the NICU and Special Care Nurseries in hospitals in the developed world has largely adopted the principals of Developmental Care for preterm infants (Als et al. 2004). Developmental Care strategies aim to optimize neurological, physiological, behavioral, and psychological development in the preterm infant. Developmental Care promotes reduced handling, adapted positioning to optimize physical development, reduced environmental stimuli to minimize overstimulation, and minimized interruption of sleep to promote self-habitation and growth (Gardner and Goldson 2011). Music therapy services

are highly congruent with Developmental Care principles (Hanson-Abromeit 2003), which is perhaps why many of the studies involving music and preterm infants have been conducted by nurses.

In wards operating without a team structure or service delivery model, bedside nurses and doctors may refer directly to the music therapy service. The music therapist should provide regular education for these staff to ensure referrals are appropriate to the service the music therapist is skilled to provide. Families who value music or have heard about music therapy may self-refer and this provides an optimal starting point as music already has an intrinsic value for the family.

FOUNDATIONS OF PRACTICE FOR ALL METHODS

Before treatment begins, there are some key issues that need to be considered regarding the context of the infant.

Ambient sound environment

NICU music therapists have a responsibility to measure the sound environment of the infant before adding any other kind of stimulation. Sound level meters are relatively affordable and easy to use. The better quality devices with data logging capacity are connected to software programs which analyse levels over time. Given that many NICUs exceed the recommended sound levels (American Academy of Pediatrics 1997; White et al. 2013) it is preferable to establish a general overall sound level of the infant's environment at different times of the day. It is important to remember that different beds in the same NICU can have different sound levels due to variation in equipment provided such as number of staff, ventilation and pumps, and proximity to doors, telephone, nursing desk, etc. It is therefore important to monitor the sound level at the individual bed to make a decision about suitable times for music or music therapy. The optimal time is when it is quiet, and times which are busy with human activity (medical rounds, nursing hand-over) should be avoided.

Age to commence service

While music was thought to be a safe stimulus for infant 26 weeks gestation and beyond in the early 1990s, more recent evidence of neurological processing (see Table 2.1) and capabilities in the preterm infant issues caution about the potential long-term damage of early over-stimulation (Aucott et al. 2002; Graven and Browne 2008). It is the opinion of these authors that prior to 28 weeks gestation, only a trained and experienced clinician should apply any auditory stimulation as a treatment. Services which require the infant to use cortical processing (multi-modal stimulation, PAL) should wait until the infant is 33 weeks gestation when the preterm infant may be sufficiently mature to recognize and learn auditory information (Krueger et al. 2004) and regulate the heart rate in response to an external

stimulus (Gardner and Goldson 2011; Groome et al. 1999; White-Traut et al. 2009). At any point the music therapist can use her extensive knowledge of music, auditory processing and infant development to educate and support the parents to understand their infant's cues, and use their own voices to nurture their infant.

Physical context

In addition to considerations of the ambient sound environment, the music therapist must attend to the type of bed and the infant's position in the bed. The preterm or medically fragile infant may be placed into an incubator which is an enclosed environment in which sound reverberates and therefore the volume of the music needs to be checked and decreased as needed. In any type of bed, the infant may be surrounded by a nest of towels and blankets to help the infant feel secure and promote self-regulation. Prone positioning decreases heart rate variability, improves oxygenation, and decreases energy expenditure resulting in more quiet sleep (Kassim et al. 2007; Kurlak et al. 1999). Positioning therefore needs to be taken into consideration when evaluating physiological and behavioral response during music.

Timing

Timing of the intervention can be critical to the infant's capacity to respond. If the infant has had a change in ventilatory support it can take several hours to adapt and music risks overstimulation. Music should only be considered if it is already a standard part of that infant's care regime. The infant may not respond to the music as he/she had previously done, and therefore the music therapist should closely monitor the effect of the music on the infant. If the infant has had a procedure or other intervention his/her responses might be different from other times. He/she may be fatigued and not able to tolerate as much stimulation as other times, or conversely may be unsettled and need additional support to facilitate sleep. Handling such as diaper change, a wash or bath, assessments, feeding, or procedures can fatigue the infant therefore during and afterwards the infant may have less tolerance for musical stimulation.

Cautions

There are some phenomena which indicate that music therapy is contraindicated or should be delayed:

- Extra Corporeal Membrane Oxygenation (ECMO) and oscillating ventilators produce noise which is already louder than the recommended sound level. To make the music audible to the infant it would need to be played at a much louder level than is safe and therefore music is contraindicated.
- The introduction of music to infants who have had a significant number of apnea or bradycardia episodes on that day should be carefully assessed and cautiously applied or left until another time.

- Infants with some conditions should not have music therapy unless the clinician is part of a treating team and has consent from medical team. This includes infants with grade 3 or 4 intra-ventricular hemorrhages, or hypoxic ischemic encephalopathy (HIE) because of the infant's altered capabilities to respond, temporary hearing loss, and because it is not yet understood how music will be processed neurologically in infants with brain injury.
- Caution is needed in interpreting responses from infants receiving sedatives, caffeine citrate, or antibiotics which can impact physiological state and/or auditory processing.
- When an infant is born to a drug-addicted mother, he/she is likely to have Neonatal Abstinence Syndrome which requires the music therapist to be educated in specific considerations.
- When a mother has a significant mental health issue or is drug addicted, the music therapist will only commence work in collaboration with the mental health team.

TREATMENT METHODS

The preterm infant's main task of achieving homeostasis can be assessed through their capacity to experience good quality sleep. Sleep interruption and disturbance can affect the development of the neurosensory and motor systems, the creation of memory and long-term memory circuits, and the maintenance of brain plasticity (Arditi-Babchuk et al. 2009; Graven and Browne 2008; Graven 2006). Recorded music may be cautiously used to ameliorate the environment and potentially facilitate improved sleep outcomes and physiological and behavioral stability.

If recorded music is used with this population, it is imperative that the music therapist considers the current guidelines regarding duration and frequency of presentation (Standley and Walworth 2010), frequency spectrum of musical elements and appropriate sound levels (Cassidy and Ditty 1998), and understanding that recorded music played free field will not completely mask the ambient noise.

Despite the many different types of music being compared, including maternal heart beat, womb sounds, recorded mother's voice, and live music, no one clear stimulus has risen above the others consistently to achieve both behavioral and physiological organization. Given this, it is difficult then to state definitively which music is best for preterm infants and under which conditions.

Recommendations for music selections for preterm infants include simplicity, gentle rhythms, flowing and lyrical melodies, simple harmonies, and a soft tone color. The tempo should be slow (60 to 82 beats per minute) regular, monotonous, and repetitive, while a lower pitch promotes relaxation (Standley and Walworth 2010; Schwartz 2003). Standley and Walworth (2010) recommended using soothing, constant, stable, and relatively unchanging sounds with a light and constant rhythm sung by a female voice alone or only one accompanying instrument to reduce alerting responses of the infant.

Choosing music in the lower frequency range best heard by the preterm infants (500–1000 Hz) can maximize the potential for the preterm infant to differentiate the auditory stimulus from the background noise (Cassidy and Ditty 1998; Wightman et al. 2003).

Recorded music to lower arousal and facilitate Quiet Sleep

The research evidence is as yet unable to fully support any practical proven steps to provide recorded music to promote sleep. Olischar et al. (2011) reported a trend towards more mature sleep-wake cycling in healthy infants at 32 weeks or more gestational age exposed to a recording of Brahms' Lullaby, suggesting that there might be a small effect of music on quiet sleep in newborns.

Beyond the music itself, it is also important to establish a presentation protocol. The music therapist should conduct a baseline assessment of the infant's behavioral and physiological status including heart rate, oxygen saturation, and behavioral state both with and without music. The music therapist should include results of the assessment and the recommended presentation protocol in the infant's medical file so staff can confirm this for parents. When nurses use the recorded music in the absence of the music therapist, usage and response should be documented in the medical record. This allows the music therapist to make adaptations to the program, including length of exposure as the infant gets older.

Where possible, the initial use of music to support sleep should be implemented by parents as primary carers to support their "normal" role as parents and for which they value the opportunity to feel useful (Dearn 2005).

Recorded music for learning

As infants approach term age, recorded music can be used to provide supplementary opportunities for stimulation or interaction with infants in a Quiet Alert state. The music therapist can work with the family to create a music listening library of simple familiar songs or new songs they find enjoyable. Music selections can be drawn from the family's own collection particularly when they are beyond the music therapist's own resources. Selections honor the family's own experience, and may acknowledge the cultural background.

The music library can be used as a framework for interaction. With the music playing, family and staff can be encouraged to sing along with lyrics, add some playful touch or even add traditional actions, for example twinkling fingers for *Twinkle Twinkle Little Star*.

The music library becomes an extension of familiar experience for the infant when families are absent from the NICU because they have other children, work, or live a long distance from the hospital. Given that infants have a preference for maternal language at birth (Granier-Deferre et al. 2011), vocal music may also provide a source of familiarity and exposure to the family's language when it is different from the staff in the NICU.

Recorded music to support the mother during Kangaroo Care

Kangaroo Care is the opportunity for a parent to hold the baby in skin-to-skin contact on their chest. While this is a cherished time, transferring baby from bed to chair can be stressful. The parent may fear they will hurt or over-tax her fragile baby and can therefore struggle to relax and enjoy the experience. In collaboration with the bedside nurse, pre-chosen

relaxing music may be played once they are settled to assist in relaxation. The music is played quietly so it does not increase stimulation to the infant or intrude on the dyad's experience of each other.

Recorded music for pain

While there are no published clinical protocols for using recorded music for pain, there is a body of research that supports the use of music for pain management. The music therapist can create a programmed music list for use after a procedure to support the infant's effort to recover. This needs to be done in collaboration with the bedside nurse and needs to be followed up regularly to ensure that it continues to be effective. This would not be suitable for infants less than 33–34 weeks gestation because of immature auditory processing and autonomic nervous system.

There is legitimate concern that over time the infant may learn to associate the music with the painful procedure but at this stage there is no research to suggest this association. In clinical practice, music therapists recommend that music is introduced when an infant is in a Quiet Alert, Transition, or sleep state (Thoman and Ingersoll 1999) to build a positive association between music and state. This positive association should be maintained so that the application of music to ameliorate pain or distress is the smaller experience of music in an otherwise positive association.

Recorded maternal voice for infant stability and parent connectedness

Recent evidence has shown that maternal voice can facilitate short-term physiological stability (Doheny et al. 2012, Picciolini et al. 2014). Often parents in the NICU find it hard to leave the baby when it is time to go home and feel they would like to leave something of themselves with the baby. Recorded parental voice is a strategy where the music therapist provides an opportunity for parents to record their voice for their baby. Parents can be supported to sing some favorite simple songs/lullabies, or if this is not viable, they can read, say nursery rhymes or simply talk to their baby. This resource is then used in a similar way to recorded music.

Contingent interaction to support neurodevelopment

Live singing is perhaps the most obvious and readily implemented music therapy program in a clinical program and can influence the infant's neurodevelopment (Malloch et al. 2012). Songs represent a range of cultural phenomena which can be replicated by anyone who is part of, or who has access to, that culture. Underpinned by sociological models of attachment and dynamics systems theory, the songs that families know and love, "songs of kin" are a celebration of their culture (Loewy 2000). Depending on gestational age at birth, the infant may have heard the mother's song preferences while in utero, which may now also be useful

as familiar song repertoire. This use of pre-existing experience may draw on the strengths of the family into this time of crisis.

Contingent singing (Shoemark 2008) is a therapeutic method derived from the naturally occurring patterns of successful adult-infant communication. Contingent singing is guided by the infant's availability for social engagement and is therefore not appropriate with pre-term infants less than 36 weeks gestation. During wakeful periods around feed time, the infant may be sufficiently alert to engage with the parent or therapist. Most commonly used with medically complex newborn infants, this method requires the music therapist to primarily use voice, but also facial expression, posture and gesture to entice, respond to and direct the infant (Shoemark 2011b). Before 12 weeks of age, the infant will primarily use facial expression, gesture and posture in combinations that are quiet or active, to show whether he is available or not (for a full exposition of these behaviors see Shoemark and Grocke 2010). Around 12 weeks the infant will also begin to use voice, however the vocal cords may be temporarily weakened by long-term ventilation, or other airway and muscular problems, and this should be confirmed before setting up an expectation in parents.

The critical feature of contingent singing is the smooth transition between infant-directed speech and singing. The music therapist can teach the parent or others involved in the infant's care a procedure for contingent singing (Shoemark and Grocke 2010; Shoemark 2013) as follows. The adult partner uses a time of silence to observe the infant's state and readiness to respond in the interaction. Such a "space" allows the infant time to formulate a response or even initiate something new for the interplay. Between silence and singing there are several possible steps. The attuned partner can use the highly intonated infant-directed speech or "half-singing" to entice the infant into the interplay. A type of chanting such as repeating a single word like "sh-sh" or "there there" can be used to soothe or provide modest stimulation. The next slightly more active step is "sing and wait" in which the adult sings just a phrase or line of melodic motif and waits for the infant to demonstrate a response of acceptance or rejection before repeating or extending it. Finally if the infant has shown acceptance or enjoyment of some of the modest singing steps, the adult partner might sing a song (or half a song) to provide an ongoing context for interaction. This step-wise progression from silence to speech to singing provides a bridge for the infant to take the first tentative steps of communication and extend these attempts all the while being supported by the adult. The resulting nuanced interaction acknowledges and supports the infant to extend his or her capabilities safely.

Multi-modal stimulation

In multi-modal stimulation, the therapist uses a sequence of carefully structured sensory experiences to expose the infant to a progressively more demanding series of stimulation, without over-stimulating. The premise for multi-modal stimulation is that systematically layered sensory stimulation at the infant's threshold for coping promotes an increasing capacity to cope with stimulation. The use of a decision tree mechanism enables the therapist to explicitly assess the infant's response and constantly modify what they offer according to the infant's status. The intention is to safely arouse the infant and help them to organize their behaviors so they can more easily engage in social interaction (White-Traut and Hutchens Pate 1987).

The therapist holds the infant in her arms thereby providing tactile stimulation. Just allowing oneself to be held can be taxing for an infant. If the infant is awake there may also be visual stimulation at this point. Systematically the therapist adds stroking (see Burns et al. 1994 for the full sequence) and introduces humming or singing. The therapist carefully watches for the infant's cues of disengagement and removes sensory modalities in response. That is, in response to the infant's subtle changes in physiologic signs, within the individual's safe limits, or cues of behavioral disengagement such as hiccapping or yawning, the therapist pauses the stimulation for 15 seconds. If the infant cue abates, the stimulus is recommenced and the prescribed routine continued. If, however, the cue remains the same, that portion of the stimulus is immediately concluded and the next step is commenced. If the infant cue becomes more potent, such as crying, whining, fussing, cry face, spitting/vomiting, or hand held up in stop-like gesture, or a physiologic sign such as heart rate or oxygen saturation moves outside the infant's safe range, each modality is withdrawn, and containing care is offered until the infant is again stable (Burns et al. 1994). The infant's progress and any adverse events during the multi-modal stimulation protocol should be documented in the medical file. The method has been tested with medically fragile infants (Malloch et al. 2012) and with neurologically compromised infants (White-Traut et al. 1999). When working with infants who have had surgery or have major medical care such as intravenous drips or a central line, the stroking component may not be acceptable to the infant. It is likely there will be continuing discomfort and tissue tenderness, and the possibility that touch in these areas threatens rather than reassures. Nutrition via intravenous lines inserted into veins in the back of hands, feet, arms, or head means that stroking of limbs and head could also be unwelcome.

Family musicality to support attachment and early development

The intention of family-centered intervention is to support and facilitate the family's capability to provide their infant with a stable and nurturing context during the hospital admission. Shoemark and Dearn (2008) championed the significance of the parents' experience in family-centered music therapy in hospital. They highlighted the pivotal role of the music therapist as partner with parents in understanding their infant as a "baby" and not a patient. The music therapist can stimulate and facilitate family music making to generate an expanded sense of each other.

Shoemark and Dearn (2008) proposed seven characteristics for an effective clinical service:

1. The music therapist must be poised so the family can have confidence in her capacity to help them. For new practitioners this may seem daunting but is really only a matter of respecting the family in this extraordinary time. The key to poise is preparation. Before meeting a family, the therapist must think through what she can bring to the family. This does not need to include everything, but some touchpoints of likely knowledge she will need, and the skills she can bring. She should discuss with other staff a suitable time to approach the family to minimize over-taxing them or experiencing

refusal of service. The family may not be ready to consider music therapy because they are fatigued and stressed and may not have the reserve to consider a new service. Arrangements can be made to return at a more suitable time. The music therapist should be prepared to ask the family about their needs, and to be ready to respond to any cues of fatigue or stress by making a decision to continue or schedule a return visit at another time.

2. Music therapy is a triadic relationship which acknowledges that the music therapist works with the infant and the family.
3. The hospital admission may be one of endurance involving steps of relapse and recovery. The music therapist ensures continuity of service to the family through each stage of this journey. That continuity may mean more or less direct service, but should assure the family that the music therapist remains available to them.
4. Parents experience joy watching their baby enjoying him/herself during music therapy.
5. Music therapy acknowledges the “whole” developing child—we are not trying to “fix” something but rather to enjoy and celebrate the infant’s capacities.
6. The contingent relationship between the infant and the parents is supported.
7. A whole life—it is important to honor this phase of the baby’s life so that parents do not feel that this time has been “lost.” The music therapist helps to create moments of joy which can be cherished and remembered in counter-balance to the medical journey of the infant.

In family-centered music therapy, the music therapist works firstly with the parents to determine the acceptability and usefulness of music as a medium for their family and their child within the family. In music therapy sessions, family-centered practice means relinquishing the role of being the primary music-provider, and taking up the role as facilitator and music modeller for the parents as needed. The music therapist brings to the family’s consciousness their own musical potential, re-engaging them with their uses of music with their other children or calling on their own childhood experiences of song-singing and playing music. Then the resulting music is shared with the infant to co-create a new and meaningful dimension to their relationship (Tronick 2007).

Family-centered practice is suited to infants of all ages and regardless of the medical condition. The focus of the work can be to sustain the family’s experience of their infant as a baby, and can also lay the foundation for the infant’s future development.

Mothers’ singing/presence

Mothers in the NICU often feel disempowered to nurture or do something for their child. For high risk infants, mothers may not be able to hold or rock their baby and therefore it is vital that other opportunities to feel connected to their infant are provided. By engaging a mother in her own existing musicality, the music therapist can help the mother understand her own capabilities and the value she has to her baby’s sense of safety and wellbeing. Mothers value this information as it allows them to be *normal* in this abnormal situation and promotes a sense of doing something *helpful* for their baby at a time when they may feel disempowered. It is also helpful for the music therapist to explain that there is evidence to show

that the infant benefits simply from the mother's presence beside the bed even if she feels that she does not know what to do (Dearn and Shoemark 2014).

Individual songbooks/recorded music library

The music therapist is only available to families for relatively brief periods of time during the day while conducting sessions. Therefore providing the family with resources to enhance their opportunities for interaction with the baby between sessions can be important. A recorded music library can be generated within the safe parameters described in previously. The music therapist can work with the parents to determine their music style preferences, and then combine this with knowledge about the dimensions of music needed to make it a safe modality.

A songbook can be made by identifying key songs of the family's culture in collaboration with the parents, including lullabies, and play songs, and printing these into a songbook with the baby's name on it to keep at the bedside. These ongoing resources assure the family that the therapist holds them in mind beyond the moments they are there, sustaining the sense of support particularly in the evenings and weekends.

Supporting the family transitioning home

A music therapy service can also assist families with the transition home. When families go home, sometimes a music therapist will provide a follow up consultation discussing the use of music at home. Often families return to the hospital for medical follow up and music therapy may be provided as an outpatient service to provide developmentally appropriate recorded music or other required resources and links with music services in the community. In the event that an infant dies, sometimes a music therapist will provide music services for the funeral. This is dependent on a number of issues which may be specific to the hospital. Most commonly this would only be offered where a relationship between the music therapist and the family had been developed during the admission. The participation in the funeral is a continuation of the service previously established. Further consideration are funding issues, and number hours per week of music therapy paid for by the hospital as time away from the hospital to attend means other families miss out.

EVALUATION AND REPORTING

Evaluating the effectiveness of a music therapy program is a key responsibility. This can be done in many ways and is dependent on the intention of the services provided. If the intention is to facilitate more stable physiological and behavioral state, an assessment form completed after the first session can be re-done at regular intervals to assess infant response or tolerance for recorded music. This is particularly important in the case where the recorded music is being used in the absence of the music therapist by the family or the bedside nurse.

Evaluation of the program may be required when the treatment has been proposed by the team of specialists, be it psychosocial or neurodevelopmental and it is important to report all considerations in infant response. The ability to describe the intention of the program is critical when discussing the progress within non music therapy teams. It is recommended that NICU music therapists consider additional training in standardized scales of infant development in order to be able to evaluate the development of the infant in terms understood by the neonatal team.

The reporting required is usually determined by the funding body paying for the service whether a philanthropic trust or a healthcare provider. It is sometimes difficult to explain the intricacies of a music therapy program and it is recommended that the music therapist in this setting should regularly document case studies, and with permission collect other artifacts such as photographs and videos. As a part of the clinical program, the music therapist should adopt the larger scale requirements of other allied health or appropriate professionals to create evidence which is valued by the hospital. Small pilot studies to monitor the effect of clinical protocols will provide simple but effective evidence to argue for continuing or expanding services. Larger studies are needed with this population but require significant funding and therefore smaller studies are easier to conduct within regular clinical work. Necessary cautions are required regarding clinical intention versus research when working with families, it is nonetheless possible to do both within a clinical program.

CONCLUSION

Clinical work with hospitalized infants is an intricate and complicated dance. Music therapists need to attend to the complexities of an infant's medical status, the infant's behavioral state, and the family dynamics in order to be able to effectively assist both the infant and the family within the acute medical context of the NICU or other type of care service for newborns. An understanding of the hospital environment is required alongside the ability to articulate music therapy protocols within a team of allied health and medical specialists to facilitate opportunities for the infant during this critical time. As this work expands across the world, there will be many instances where music therapy will be introduced by a music therapist working in the area for the first time. As experienced practitioners who have developed programmes in hospital settings, the authors' advice is to align the program with an appropriate team such as the neurodevelopment or psychosocial team. Belonging to such a team will provide a theoretical underpinning, secure a stream of referrals, focus the intention of the program, and guide the knowledge and skills required to provide the service.

More research is required to substantiate the clinical protocols being used around the world and standardized music therapy protocols need to be further researched and developed around recorded music presentation, particularly type of music, duration, frequency, and volume. Clinical music therapy in the NICU has developed in parallel with other fields including neuroscience, auditory processing, and music psychology and needs to continue to address newfound knowledge when evaluating effectiveness or appropriateness of clinical/research protocols.

REFERENCES

- Aargaard, A. and Hall, E. (2008). Mothers' experiences of having a preterm infant in the neonatal care unit: A meta-synthesis. *Journal of Pediatric Nursing* 23(3): e26–e36.
- Allen, K. (2013). Music therapy in the NICU: Is there evidence to support integration for procedural support? *Advances in Neonatal Care* 13(5): 349–352.
- Als, H., Duffy, F.H., McAnulty, G.B. et al. (2004). Early experience alters brain function and structure. *Pediatrics* 113: 846–857.
- American Academy of Pediatrics (1997). Noise: A hazard for the fetus and newborn. *Pediatrics* 100(4): 724–726.
- Arditi-Babchuk, H., Feldman, R., and Eidelman, A.I. (2009). Rapid eye movement (REM) in premature neonates and developmental outcome at 6 months. *Infant Behavior and Development* 32(1): 27–32.
- Arnon, S., Shaps, A., Forman, L. et al. (2006). Live music is beneficial to preterm infants in the Neonatal Intensive Care Unit Environment. *Birth* 33: 131–136.
- Aucott, S., Donohue, P.K., Atkins, E. et al. (2002). Neurodevelopmental care in the NICU. *Mental Retardation and Developmental Disabilities Research Reviews* 8: 298–308.
- Bakewell-Sachs, S. (2007). Near-term/late preterm infants. *Newborn and Infant Nursing Reviews* 7(2): 68–71.
- Bamiou, D., Musiek, F., and Luxon, L. (2001). Etiology and clinical presentation of auditory processing disorders: A review. *Archives of Diseases in Childhood* 85: 361–365.
- Bergeson, T. and Trehub, S. (2002). Absolute pitch and tempo in mothers' songs to infants. *Psychological Science* 13(1): 72–75.
- Bertoncini, J., Morais, J., Bijeljac-Babic, R. et al. (1989). Dichotic perception and laterality in newborns. *Brain and Language* 37: s591–s605.
- Bisiacchi, P., Mento, G., and Suppiej, A. (2009). Cortical auditory processing in preterm newborns: An ERP study. *Biological Psychology* 82: 176–185.
- Blumenfeld, H. and Eisenfeld, L. (2006). Does a mother singing to her premature baby affect feeding in the neonatal intensive care unit? *Clinical Pediatrics* 45(1): 65–70.
- Bo, L.K. and Callaghan, P. (2000). Soothing pain-elicited distress in Chinese neonates. *Pediatrics* 105: E49.
- Bozzette, M. (2008). Healthy preterm infant responses to taped maternal voice. *Journal of Perinatal and Neonatal Nursing* 22(4): 307–316.
- Bremmer, P., Byers, J.F., and Kiehl, E. (2003). Noise and the premature infant: physiological effects and practice implications. *Journal of Obstetric, Gynecologic, and Neonatal Nursing* 32: 447–454.
- Bronfenbrenner, U. (1979). *The Ecology of Human Development: Experiments by Nature and Design*. Cambridge, MA: Harvard.
- Brown, V.D. and Landers, S. (2011). Heat balance. In: S. Gardner, B. Carter, M. Enzam-Hines, and J. Hernandez (eds), *Merenstein And Gardner's Handbook of Neonatal Intensive Care*, 7th edn., pp. 113–133. St. Louis: Mosby.
- Burns, K., Cunningham, N., White-Traut, R. et al. (1994). Infant stimulation: Modification of an intervention based on physiologic and behavioral cues. *Journal of Obstetric, Gynecologic, and Neonatal Nursing* 23(7): 581–589.
- Butt, M.L. and Kisilevsky, B.S. (2000). Music modulates behaviour of premature infants following heel lance. *Canadian Journal of Nursing Research* 31(4): 17–39.

- Caine, J. (1991). The effects of music on the selected stress behaviors, weight, caloric and formula intake, and length of hospital stay of preterm and low birth weight neonates in a newborn intensive care unit. *Journal of Music Therapy* 28(4): 180–192.
- Calabro, J., Wolfe, R., and Shoemark, H. (2003). The effects of recorded sedative music on the physiology and behaviour of premature infants with a respiratory disorder. *Australian Journal of Music Therapy* 14: 3–19.
- Cassidy, J.W. and Ditty, K.M. (1998). Presentation of aural stimuli to newborns and premature infants: an audiological perspective. *Journal of Music Therapy* 35: 70–87.
- Cassidy, J.W. and Standley, J.M. (1995). The effect of music listening on physiological responses of premature infants in the NICU. *Journal of Music Therapy* 32(4): 208–227.
- Cevasco, A. (2008). The effect of mothers' singing on fullterm and preterm infants and maternal and emotional responses. *Journal of Music Therapy* 45(3): 273–306.
- Cevasco, A.M. and Grant, R.E. (2005). Effects of the pacifier activated lullaby on weight gain on premature infants. *Journal of Music Therapy* 42(2): 123–139.
- Chapman, J.S. (1978). Influence of varied stimuli on development of motor patterns in the preterm infant. *Birth Defects: Original Article Series* 15(7): 61–80.
- Chou, L., Wang, R., Chen, S., and Pai, L. (2003). Effects of music therapy on oxygen saturation in premature infants receiving endotracheal suctioning. *Journal of Nursing Research* 11(3): 209–215.
- Coleman, J.M., Pratt, R.R., Stoddard, A., Gerstmann, D.R., and Abel, H.H. (1997). The effects of the male and female singing and speaking voices on selected physiological and behavioral measures of premature infants in the intensive care unit. *International Journal of Arts Medicine* 5(2): 4–11.
- Collins, S. and Kuck, K. (1991). Music therapy in the neonatal intensive care unit. *Neonatal Network* 9(6): 23–26.
- Coppola, G., Cassibba, G., and Costantini, A. (2007). What can make a difference? Premature birth and maternal sensitivity at 3 months of age: The role of attachment organization, traumatic reaction and baby's medical risk. *Infant Behavior and Development* 30: 679–684.
- Custodero, L.A. and Johnson-Green, E.A. (2008). Caregiving in counterpoint: reciprocal influences in the musical parenting of younger and older infants. *Early Child Development and Care* 178(1): 15–39.
- Daily, D.K., Carter, A., and Carter, B.S. (2011). Discharge and follow-up of the neonatal intensive care unit infant. In: S. Gardner, B. Carter, M. Enzam-Hines, and J. Hernandez (eds), *Merenstein And Gardner's Handbook of Neonatal Intensive Care*, 7th edn., pp. 938–961. St. Louis: Mosby.
- de l'Etoile, S. (2006). Infant-directed singing: A theory for intervention. *Music Therapy Perspectives* 24(1): 22–29.
- Dearn, T. (2005). *Music therapy in the NICU: pilot program*. Mercy Hospital for Women. Melbourne. Unpublished report.
- Dearn, T. and Shoemark, H. (2014). The effect of maternal presence on premature infant response to recorded music. *Journal of Obstetric, Gynecological, and Neonatal Nursing* 43: 341–350.
- DeCasper, A.J. and Fifer, W.P. (1980). Of human bonding: Newborns prefer their mothers voices. *Science* 208: 1174–1176.
- deRegnier, R.A., Nelson, C.A., Thomas, K.M., Wewerka, S., and Georgieff, M.K. (2000). Neurophysiologic evaluation of auditory recognition memory in healthy newborn infants and infants of diabetic mothers. *Journal of Pediatrics* 137: 777–784.

- Doheny, L., Hurwitz, S., Insoft, R., Ringer, S., and Lahav, A. (2012). Exposure to biological maternal sounds improves cardiorespiratory regulation in extremely preterm infants. *Journal of Maternal-Fetal and Neonatal Medicine* 25: 1591–1594.
- Dunst, C., Trivette, C., and Deal, A. (1988). *Enabling and Empowering Families: Principles and Guidelines for Practice*. Cambridge, MA: Brookline Books.
- Gardner, S.L. and Goldson, E. (2011). The neonate and the environment: impact on development. In: S. Gardner, B. Carter, M. Enzam-Hines, and J. Hernandez (eds), *Merenstein And Gardner's Handbook of Neonatal Intensive Care*, 7th edn., pp. 270–332. St. Louis: Mosby.
- Gardner, S.L. and Hernandez, J.A. (2011). Initial nursery care. In: S. Gardner, B. Carter, M. Enzam-Hines, and J. Hernandez (eds), *Merenstein And Gardner's Handbook of Neonatal Intensive Care*, 7th edn., pp. 78–112. St. Louis: Mosby.
- Gardner, S., Enzam-Hines, M., and Dickey, L.A. (2011). Pain and pain relief. In: S. Gardner, B. Carter, M. Enzam-Hines, and J. Hernandez (eds), *Merenstein And Gardner's Handbook of Neonatal Intensive Care*, 7th edn., pp. 223–269. St. Louis: Mosby.
- Garunkstiene, R., Buinauskiene, J., Uloziene, I., and Markuniene, E. (2014). Controlled trial of live versus recorded lullabies in preterm infants. *Nordic Journal of Music Therapy* 23(1): 71–88.
- Granier-Deferre, C., Bassereau, S., Ribeiro, A., Jacquet, A-Y., and DeCasper, A.J. (2011). A melodic contour repeatedly experienced by human near-term fetuses elicits a profound cardiac reaction one month after birth. *PLoS ONE* 6(2): e17304.
- Graven, S.N. (2006). Sleep and brain development. *Clinics in Perinatology* 33: 693–706.
- Graven, S.N. and Browne, J. (2008). Auditory development in the fetus and infant. *Newborn and Infant Nursing Review* 8(4): 187–193.
- Gray, L. and Philbin, M.K. (2004). Effects of the neonatal intensive care unit on auditory attention and distraction. *Clinics in Perinatology* 31: 243–260.
- Griffiths, T.D. (2003). Functional imaging of pitch analysis. *Annals of the New York Academy of Sciences* 999: 40–49.
- Groome, L.J., Mooney, D.M., Holland, S.B., Sith, L.A., Attenbury, J.L., and Dykman, R.A. (1999). Behavioral state affects heart rate response to low-intensity sound in human foetuses. *Early Human Development* 54: 39–54.
- Hall, J.W. (2000). Development of the ear and hearing. *Journal of Perinatology* 20(8 Pt 2): S12–S20.
- Hanson-Abromeit, D. (2003). The Newborn Individualized Developmental Care and Assessment Program (NIDCAP) as a model for clinical music therapy interventions with premature infants. *Music Therapy Perspectives* 21: 60–68.
- Harris, J. (2005). Critically ill babies in hospital—Considering the experience of mothers. *Infant Observation* 8(3): 247–258.
- Hartling, L., Shaik, M. S., Tjosvold, L. et al. (2009). Music for medical indication in the neonatal period: a systematic review of randomized controlled trials. *Archives of Disease in Childhood-Fetal and Neonatal Edition* 94: F349–F354.
- Haslbeck, F.B. (2012). Music therapy for premature infants and their parents: an integrative review. *Nordic Journal of Music Therapy* 21(3): 203–226.
- Haslbeck, F. (2013). Creative music therapy with premature infants: An analysis of video footage. *Nordic Journal of Music Therapy*, DOI:10.1080/08098131.2013.780091.
- Hodges, A.L. and Wilson, L.L. (2010). Preterm infants' responses to music: An integrative literature review. *Southern Online Journal of Nursing Research* 10(3): 72–73.
- Institute for Family-Centred Care (2007). Available at <<http://www.ipfcc.org/>>.

- Jardri, R., Pins, D., Houfflin-Debarge, V. et al. (2008). Fetal cortical activation to sound at 33 weeks of gestation: A functional MRI study. *NeuroImage* 42: 10–18.
- Jobe, A. (2014). A risk of sensory deprivation in the Neonatal Intensive Care Unit. *Journal of Pediatrics* 164: 1265–1267.
- Johnston, C.C., Filion, F., and Nuyt, A.M. (2007). Recorded maternal voice for preterm neonates undergoing heel lance. *Advances in Neonatal Care* 7(5): 258–266.
- Johnston, C.C., Filion, F., Campbell-Yeo, M. et al. (2009). Enhanced kangaroo mother care for heel lance in preterm neonates: a crossover trial. *Journal of Perinatology* 29: 51–56.
- Jourdain, R. (2002). *Music, the Brain, and Ecstasy*. New York: Harper Collins Publishers.
- Joyce, B.A., Keck, J.F., and Gerkenmeyer, J. (2001). Evaluation of pain management interventions for neonatal circumcision pain. *Journal of Pediatric Health Care* 15: 105–114.
- Kaminski, J. and Hall, W. (1996). The effect of soothing music on neonatal behavioral states in the hospital newborn nursery. *Neonatal Network* 15(1): 45–54.
- Kassim, Z., Donaldson, N., Khetriwal, B. et al. (2007). Sleeping position, oxygen saturation and lung volume in convalescent, prematurely born infants. *Archives of Disease in Childhood—Fetal and Neonatal Edition* 92: 347–350.
- Katz, V. (1971). Auditory stimulation and developmental behavior of the premature infant. *Nursing Research* 20: 196–201.
- Keith, D.R., Russell, K., and Weaver, B.S. (2009). The effects of music listening on inconsolable crying in premature infants. *Journal of Music Therapy* 46(3): 191–203.
- Keith, D.R., Weaver, B.S., and Vogel, R.B. (2012). The effect of music-based listening interventions on the volume, fat content, and caloric content of breast milk produced by mothers of premature and critically ill infants. *Advances in Neonatal Care* 12(2): 112–119.
- Key, A., Lambert, W., Aschner, J., and Maitre, N. (2012). Influence of gestational age and postnatal age on speech sound processing in NICU infants. *Psychophysiology* 49: 720–731.
- Kisilevsky, B.S., Hains, S.M., Brown, C.A. et al. (2009). Fetal sensitivity to properties of maternal speech and language. *Infant Behavior and Developmental Psychobiology* 32: 59–71.
- Krueger, C. (2010). Exposure to maternal voice in preterm infants: A review. *Advances in Neonatal Care* 10(1): 13–18.
- Krueger, C., Holditch-Davis, D., Quint, S., and DeCasper, A. (2004). Recurring auditory experience in the 28- to 34-week-old foetus. *Infant Behavior and Development* 27: 537–543.
- Kurlak, L.O., Ruggins, N.R., and Stephenson, T.J. (1999). Effects of nursing position on incidence, type and duration of clinically significant apnoea in preterm infants. *Archives of Disease in Childhood—Fetal and Neonatal Edition* 71: F16–F19.
- Lai, H.L., Chen, C.J., Peng, T.C. et al. (2006). Randomized controlled trial of music during kangaroo care on maternal state anxiety and preterm infants' responses. *International Journal of Nursing Studies* 43: 139–146.
- Laing, S., McMahon, C., Ungerer, J., Taylor, A., Badawi, N., and Spence K. (2010). Mother–child interaction and child developmental capacities in toddlers with major birth defects requiring newborn surgery. *Early Human Development* 86: 793–800.
- Lasky, R.E. and Williams, A.L. (2009). Noise and light exposures for extremely low birth weight newborns during their stay in the neonatal intensive care unit. *Pediatrics* 123: 540–546.
- Lickliter, R. (2000). Atypical perinatal sensory stimulation and early perceptual development: Insights from developmental psychobiology. *Journal of Perinatology* 20: S45–S54.
- Lickliter, R. and Bahrick, L. (2001). The salience of multimodal sensory stimulation in early development: Implications for the issue of ecological validity. *Infancy* 2(4): 451–467.

- Lister, J., Graven S., and Graven, M. (2002). *Auditory processing and effects associated with preterm birth*. Paper presented at the Physical and Developmental Environment of the High-Risk Infant, Clearwater, FL.
- Loewy, J. (ed.) (2000). *Music Therapy in the Neonatal Intensive Care Unit*. New York: Satchnote.
- Loewy, J., Stewart, K., Dassler, A.-M., Telsey, A., and Homel, P. (2013). The effects of music therapy on vital signs, feeding, and sleep in premature infants. *Pediatrics* 131(5): 902–918.
- Lorch, C.A., Lorch, V., Diefendorf, A.O., and Earl, P.W. (1994). Effect of stimulative and sedative music on systolic blood pressure, heart rate, and respiratory rate in premature infants. *Journal of Music Therapy* 31(2): 105–118.
- Lubetzky, R., Mimouni, F.B., Dollberg, S., Reifen, R., Ashbel, G., and Mandel, D. (2010). Effect of music by Mozart on energy expenditure in growing preterm infants. *Pediatrics* 125(1): e24–e28.
- Ludington-Hoe, S.M. and Hosseini, R.B. (2005). Skin-to-skin contact analgesia for preterm infant heel stick. *AACN Clinical Issues* 16(3): 373–387.
- Luoma, L., Herrgard, E., Martikainen, A., and Ahonen, T. (1998). Speech and language development of children born at < or = 32 weeks' gestation: A 5-year prospective follow-up study. *Developmental Medicine and Child Neurology* 40(6): 380–387.
- Malloch, S., Shoemark, H., Črnčec, R. et al. (2012). Music therapy with hospitalised infants—the art and science of intersubjectivity. *Infant Mental Health Journal* 33: 386–399.
- Malloy, G.B. (1979). The relationship between maternal and musical auditory stimulation and the developmental behavior of premature infants. *Birth Defects Original Article Series* 15: 81–98.
- Marchette, L., Main, R., and Redick, E. (1989). Pain reduction during neonatal circumcision. *Pediatric Nursing Research* 15: 207–208.
- Marchette, L., Main, R., Redick, E., Bagg, A., and Leatherland, J. (1991). Pain reduction interventions during neonatal circumcision. *Nursing Research* 40: 241–244.
- Maschke, C., Rupp, T., and Hech, K. (2000). The influence of stressors on biochemical reactions—a review of present scientific findings with noise. *International Journal of Hygiene And Environmental Health* 203: 45–53.
- Mathur, A. and Inder, I. (2009). Magnetic resonance imaging—Insights into brain injury and outcomes in premature infants. *Journal of Communication Disorders* 42: 248–255.
- McMahon, E., Wintermark, P., and Lahav, A. (2012). Auditory brain development in preterm infants: The importance of early experience. *Annals New York Academy of Science* 1252: 17–24.
- Mizuno, K. and Ueda, A. (2003). The maturation and coordination of sucking, swallowing, and respiration in preterm infants. *Journal of Pediatrics* 142: 36–40.
- Moon, C. and Fifer, W. (2000). Evidence of transnatal auditory learning. *Journal of Perinatology* 20: 37–44.
- Nazzi, T., Bertoncini, J., and Mehler, J. (1998). Language discrimination by newborns: Toward an understanding of the role of rhythm. *Journal of Experimental Psychology: Human Perception and Performance* 24: 756–766.
- Neal, D.O. and Lindeke, L.L. (2008). Music as a nursing intervention for preterm infants in the NICU. *Neonatal Network* 27(5): 319–327.
- Nöcker-Ribaupierre, M. (1999). Short and long-term effects of the maternal voice on the behaviours of very low birth weight infants and their mothers as a basis for the bonding process. In: R. Rebollo-Pratt and D. Erdonmez (eds), *MusicMedicine* 3, pp. 153–161. Melbourne: University of Melbourne.

- O'Gorman, S. (2006). Theoretical interfaces in the acute pediatric context: A psychotherapeutic understanding of the application of infant-directed singing. *American Journal of Psychotherapy* 60: 271–283.
- Olischar, M., Shoemark, H., Holton, T., Weninger, M., and Hunt, R.W. (2011). The influence of music on aEEG activity in neurologically healthy newborns >32 weeks' gestational age. *Acta Paediatrica* 100: 670–675.
- Owens, L. (1979). The effects of music on the weight loss, crying, and physical movement of newborns. *Journal of Music Therapy* 16(2): 83–90.
- Patterson, R.D., Uppenkamp, S., Johnsrude, I.S., and Griffiths, T.D. (2002). The processing of temporal pitch and melody information in auditory cortex. *Neuron* 36: 767–776.
- Peebles-Kleiger, M. (2000). Pediatric and neonatal intensive care hospitalization as traumatic stressor: Implications for intervention. *Bulletin of the Menninger Clinic* 6(2): 257–280.
- Peretz, I. and Zatorre, R.J. (2005). Brain organization for music processing. *Annual Review of Psychology* 56: 89–114.
- Picciolini, O., Matteo Porro, M., Meazza, A. et al. (2014). Early exposure to maternal voice: Effects on preterm infants development. *Early Human Development* 90: 287–292.
- Schwartz, F.J. (2003). Music and sound effect on perinatal brain development and the premature baby. In: J.V. Loewy (ed.), *Music Therapy in the Neonatal Intensive Care Unit*, 2nd edn., pp. 9–19. New York: Satchnote.
- Segall, M.E. (1972). Cardiac responsivity to auditory stimulation in premature infants. *Nursing Research* 21(1): 15–19.
- Shoemark, H. (1999). Indicators for the inclusion of music therapy in the care of infants with Bronchopulmonary Dysplasia. In: T. Wigram and J. De Backer (eds), *Clinical applications of music therapy in developmental disability, paediatrics and neurology*, Vol. 1, pp. 32–46. London: Jessica Kingsley.
- Shoemark, H. (2006). Infant-directed singing as a vehicle for regulation rehearsal in the medically fragile full-term infant. *Australian Journal of Music Therapy* 17: 54–63.
- Shoemark, H. (2008, July). Infant-directed singing as a vehicle for regulation rehearsal in the medically fragile full-term infant. In *Voices: A world forum for music therapy* 8(2).
- Shoemark, H. (2011a). Translating “infant-directed singing” into a strategy for the hospitalised family. In: J. Edwards (ed.) *Music therapy and parent-infant bonding*, pp. 162–178. London: OUP.
- Shoemark, H. (2011b). Contingent singing: The musicality of companionship with the hospitalized newborn infant. In: Baker, F. and S. Uhlig (eds), *Therapeutic Voicework in Music Therapy*, pp. 229–249. London: Jessica Kingsley Publishers.
- Shoemark, H. (2013). Working with full-term hospitalized infants. In: J. Bradt (ed.), *Guidelines for Music Therapy Practice: Pediatric Care*, pp. 116–151. Philadelphia: Barcelona Publishers.
- Shoemark, H. and Arnup, S. (2014). A survey of how mothers think about and use voice with their hospitalized newborn infant. *Journal of Neonatal Nursing* 20: 115–121.
- Shoemark, H. and Dearn, T. (2008). Keeping parents at the centre of family centred music therapy with hospitalised infants. *Australian Journal of Music Therapy* 19: 3–24.
- Shoemark, H. and Grocke, D. (2010). The markers of interplay between the music therapist and the medically fragile newborn infant. *Journal of Music Therapy* 47: 306–334.
- Spittle, A.J., Anderson, P.J., Lee, K.J. et al. (2010). Preventive care at home for very preterm infants improves infant and caregiver outcomes at 2 Years. *Pediatrics* 126(1): e171–e178.
- Standley, J.M. (1998). The effect of music and multimodal stimulation on response of premature infants in neonatal intensive care. *Pediatric Nursing* 24(6): 532–538.

- Standley, J.M. (2000). The effect of contingent music to increase non-nutritive sucking of premature infants. *Pediatric Nursing* 26(5): 493–499.
- Standley, J.M. (2002). A meta-analysis of the efficacy of music therapy for premature infants. *Journal of Pediatric Nursing* 11: 107–113.
- Standley, J.M. (2003). The effect of music-reinforced nonnutritive sucking on feeding rate of premature infants. *Journal of Pediatric Nursing* 18(3): 169–173.
- Standley, J. (2012). Music Therapy Research in the NICU: An updated meta-analysis. *Neonatal Network* 31(5): 311–316.
- Standley, J.M. and Moore, R.S. (1995). Therapeutic effects of music and mother's voice on premature infants. *Pediatric Nursing* 21(6): 509–512.
- Standley, J.M. and Walworth, D. (2010). *Music Therapy with Premature Infants*, 2nd edn. Silver Spring: American Music Therapy Association, Inc.
- Standley, J.M., Cassidy, J., Grant, R. et al. (2010). The effect of music reinforcement for non-nutritive sucking on nipple feeding of premature infants. *Pediatric Nursing* 36(3): 138–145.
- Stewart, K. (2009). Patterns: A model for evaluating trauma in NICU music therapy: Part 1—Theory and design. *Music and Medicine* 1(1): 29–40.
- Teckenberg-Jansson, P., Huotilainen, M., Pölkki, T., Lipsanen, J., and Järvenpää, A.L. (2011). Rapid effects of neonatal music therapy combined with kangaroo care on prematurely-born infants. *Nordic Journal of Music Therapy* 20(1): 22–42.
- Thieren, J., Worwa, C., Mattia, F., and deRegnier, R. (2004). Altered pathways for auditory discrimination and recognition memory in preterm infants. *Developmental Medicine and Child Neurology* 46: 816–824.
- Thoman, E. B., and Ingersoll, E. W. (1999). Sleep/wake states of preterm infants: stability, developmental change, diurnal variation, and relation with caregiving activity. *Child Development* 70(1): 1–10.
- Tramo, M. J., Lense, M., Van Ness, C., Kagan, J., Settle, M. D., and Cronin, J. H. (2011). Effects of Music on Physiological and Behavioral Indices of Acute Pain and Stress in Premature Infants Clinical Trial and Literature Review. *Music and Medicine* 3(2): 72–83.
- Trehub, S.E. (2001). Musical predispositions in infancy. *Annals of the New York Academy of Science* 930: 1–16.
- Tronick, E. (2007). *The Neurobehavioral and Social-Emotional Development of Infants and Children*. New York: W.W. Norton and Co.
- Vanderveen, J.A., Bassler, D., Robertson, C.M., and Kirpalani, H. (2009). Early interventions involving parents to improve neurodevelopmental outcomes of premature infants: A meta-analysis. *Journal of Perinatology* 29: 343–351.
- Vianna, M., Barbosda, A., Carvalhaes, A., and Cuinha, A. (2011). Music therapy may increase breastfeeding rates among mothers of premature newborns: a randomized controlled trial. *Jornal de Pediatria* 87(3): 206–212.
- Wachman, E.L. and Lahav, A. (2011). The effects of noise on preterm infants in the NICU. *Archives of Disease in Childhood—Fetal and Neonatal Edition* 96: F305–F309.
- Werner, L.A. (2007). Issues in human auditory development. *Journal of Communication Disorders* 40(4): 275–283.
- Werner, L.A. and Boike, K. (2001). Infants' sensitivity to broadband noise. *Journal of the Acoustical Society of America* 109: 2101–2111.
- Westrup, B. (2005). Newborn individualized developmental care and assessment program (NIDCAP) family-centered developmentally supportive care. *NeoReviews* 6(3): e115–e122.

- Whipple, J. (2000). The effect of parent training in music and multimodal stimulation on parent-neonate interactions in the neonatal intensive care unit. *Journal of Music Therapy* 37(4): 250–268.
- Whipple, J. (2005). The effect of parent training in music and multimodal stimulation on parent-neonate interactions in the Neonatal Intensive Care Unit. *Journal of Music Therapy* 37(4): 250–268.
- Whipple, J. (2008). The effect of music-reinforced nonnutritive sucking on state of preterm, low birthweight infants experiencing heel prick. *Journal of Music Therapy* 45(3): 227–272.
- White, R., Smith, J., and Shepley, M. (2013). Recommended standards for newborn ICU design, eighth edition. *Journal of Perinatology* 33: S2–S16.
- White-Traut, R. and Hutchens Pate, C. (1987). Modulating infant state in premature infants. *Journal of Pediatric Nursing* 2: 96–101.
- White-Traut, R., Nelson, M., Silvestri, J. et al. (1999). Developmental intervention for preterm infants diagnosed with periventricular leukomalacia. *Research in Nursing and Health* 22: 131–143.
- White-Traut, R.C., Nelson, M.N., Silvestri, J.M. et al. (2009). Maturation of the cardiac response to sound in high-risk preterm infants. *Newborn and Infant Nursing Reviews* 9(4): 193–199.
- Wightman, F.L., Callahan, M.R., Lutfi, R.A., Kistler, D.J., and Oh, E. (2003). Children's detection of pure-tone signals: informational masking with contralateral maskers. *Journal of the Acoustical Society of America* 113(6): 3297–3305.
- Williams, A., Drongelen, W., and Lasky, R. (2007). Noise in contemporary neonatal intensive care. *Journal of the Acoustical Society of America* 121(5): 2681–2690.
- Zatorre, R.J., Chen, J.L., and Penhune, V.B. (2007). When the brain plays music: auditory–motor interactions in music perception and production. *Nature Reviews Neuroscience* 8: 547–558.
- Zwicker, J.G. and Harris, S.R. (2008). Quality of Life of formerly preterm and very low birthweight infants from preschool age to adulthood: a systematic review. *Pediatrics* 121: e366–e376.

CHAPTER 3

MUSIC THERAPY FOR HOSPITALIZED CHILDREN

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INTRODUCTION

Music therapy is a relational therapy in which the development of rapport and relationship can be facilitated quickly through musical interactions with children and their families in a hospital setting. Once this rapport is established the therapist can then support the child and family, meeting a child's needs relating to rehabilitation, pain management, psychosocial care, or family issues. Music therapists use musical improvisation, music listening, musical composition such as song stories, or writing of songs, and any other music interactions initiated by the child to support and attain positive changes in mood, psychological state, pain report, or social interaction with others (Bradt 2013; Edwards 2005; Edwards and Kennelly 2011; Loewy 1997; Robb 2003). The music therapist works with the child and family at bedside, in a specialist treatment room, or in a group context, depending on the needs of the child and family, and the type of work required.

Music therapy is provided to hospitalized children to support the treatment goals of all team members including those in the medical team and the psychosocial team. Along with the work of the music therapist, and the cooperation and participation of the child and their family, these goals support the attainment of optimal well-being of the child.

Although children's hospitals at one time used to keep family members away except for special visiting hours, better knowledge about children's needs has placed the family at the center of treatment and care in pediatric medical contexts (Jolley and Shields 2009). Music therapy is regularly offered within a family centered care model of services. Where it is possible and appropriate, family members are included in sessions and encouraged to take an interest in their child or sibling's music making and music listening needs outside of sessions.

THE CHILD IN HOSPITAL

When a child is admitted to a hospital it is a challenging time, for them and also for their family. If they are seriously ill they may not be able to understand everything that they are

hearing or seeing. If they have been injured they may be in pain and facing an uncertain future in relation to their physical functioning or mobility. If they have a chronic illness their admission to hospital may mark some difficulties in their current treatment, leading to uncertainty about whether or when they will be able to normalize their routines and how quickly they can return home. In all cases the child's everyday life will have been disrupted, along with those of their families. This means the music therapist must take special care to observe and understand the child's experience, and explore the child's understanding of their hospitalization in order to support them to cope and adjust to these changed circumstances.

In times past children in hospital were not permitted to be visited regularly by their parents. It took a long time to change this practice. It needed to be shown that in hospitals where infants were not cuddled or held because of fears of infection there were higher mortality rates, and that by changing practices, lower mortality rates could be proven to occur (van der Horst and van der Veer 2009). In UK hospitals during the 1940s parents were only permitted minimal contact with their child in hospital because:

... parents were seen as ignorant and noisy intruders who only criticized the staff and disturbed the quiet and disciplined course of events in the ward. Meanwhile, the parents themselves had few possibilities to change the existing situation. Even if they had been eloquent and knowledgeable enough and realized that something was awry, there was little that they could do to oppose the medical doctors who had allegedly introduced all those rules to the benefit of their child. In sum, the emotional problems of isolated children in hospital were not appreciated or considered serious enough.

van der Horst and van der Veer 2009, p. 124

Nowadays the problems that can be caused by separating children, especially very young children, from their parents or primary care giver are much better understood. In order to offer support to the child throughout their stay many hospitals have facilities for parents to sleep in the child's room or beside their bed on the ward.

Family-centered care for hospitalized children is ethical and appropriate (Jolley and Shields 2009). Music therapy's theoretical basis is strengthened by the discovery of *communicative musicality* (Malloch and Trevarthen 2009) which provides a basis for the relevance of musical work with families. The earliest interactions between parents and their infants are highly musical, contributing to the bonds of lifelong attachment (Edwards 2011).

THE MUSIC THERAPY TREATMENT PROCESS

In this section the referral and assessment process is described, and the ways in which the music therapist works with different groups of patients is presented. Depending on the environment, and the agreed role for the music therapist, the way in which music therapy is provided can vary with the general tenet that music therapy sessions are usually child led. This means that the therapist provides sensitive and responsive musical interactions. For example, when introducing song singing the therapist will ask whether the child has any song preferences, or favorite performers and will use the child's response to direct the choices made.

Robb (2003) demonstrated how a contextual model of support helps music therapists to structure treatment processes across a range of environments. Using theories of stress and coping she showed that that music can provide support and assist coping when the music therapist focuses on the ways in which music can provide: (1) Structure, (2) opportunities for the child to demonstrate autonomy, and (3) facilitate involvement, including enjoyment and interest (Robb 2003). These three aspects are important in facilitating the child's adjustment to hospital and their ability to cope.

The techniques used by the music therapist are attentive to the child and family and their interests, preference, and needs. Use of electronic music technology is expanding in music therapy practice (Whitehead-Pleaux et al. 2011). Students and practitioners need to be able to use a range of these technologies along with being able to sing, compose, accompany, and improvise using portable instruments such as guitar or keyboard. The process of assessment is important for understanding the needs and capacities of the child, and discovering how a music therapy process might best help them. Being open to all musical possibilities can be challenging in a busy ward environment, or when there are many children on the referral list for music therapy. However, it is important to keep in mind that the child will benefit when the music therapist makes time to focus on finding a useful way to collaborate meaningfully with the child and family in the music therapy process.

Although they demonstrated the capabilities of electronic music technology to provide multiple options for supporting a child's therapeutic needs in music therapy programmes, nonetheless Whitehead-Pleaux et al. (2011) also advised that:

... traditional music therapy interventions provide human-to-human connection that is so vital in treating trauma and providing reality orientation. Electronic music technologies can be less flexible, create a barrier between the music therapist and the patient, and have elements that can be disorienting.

p. 157

This does not mean that electronic media should not be used but there are cautions when using any type of technology whether a musical instrument or a music technology device. Sometimes children in a hospital can be highly fatigued and confused. Therefore, understanding instructions, or explanations, can be difficult for them. It is important to monitor musical interactions carefully, and be watchful for signs of exhaustion and stress.

Referral and assessment

Pediatric music therapy practice, whether individual or group focused, begins with a referral and assessment process. Patients can be referred to music therapy by professional healthcare staff, the child's family, or by the child; known as *self-referral*. The referral process may be formal such as by using a music therapy specific referral form, or communicated to the music therapist via ward rounds or multidisciplinary meetings. Criteria for referral to music therapy are based on the needs of the child which can be divided into the following areas: anxiety reduction and pain management; psychosocial care; rehabilitation, developmental skill attainment, and palliative care (Kennelly and Brien-Elliott 2002). This chapter provides a general overview of the music therapy role in addressing needs for children in medical

settings. Bradt (2013) has provided specific guidelines for music therapy practice in pediatric care, and therefore is recommended for further reading.

Music therapy assessment procedures vary depending on the needs of the child and their degree/type of injury or illness. For example, assessment of a child with burns in the acute stages of their injury may be complicated by the child's ability to communicate with the therapist whilst medicated for pain relief, therefore assessment may involve several sessions before programme goals are identified (Whitehead-Pleaux 2013). Assessment of a child receiving palliative care requires careful consideration of their emotional, physical, and spiritual states in order to understand their needs and determine goals and objectives (Lindenfelser 2013). The reasons for hospitalization, ranging from an initial admission, repeated multiple admissions or relapse during illness must also be considered by the therapist in order to conduct a comprehensive assessment process.

Reporting of programme outcomes is an important component of the music therapy treatment process. It allows for the communication of these outcomes to non-music therapy staff who are involved in the care of the child and contributes towards the multidisciplinary management of the child's needs. This reporting takes place through team meetings where the therapist verbally reports on the child's progress during music therapy sessions, and can also be documented in medical chart entries where specific written detail is provided in relation to the outcomes from each session.

Music therapy for anxiety reduction and pain management

When providing music therapy for pain management or anxiety reduction it is important to remember that children in pain are often highly anxious, and many ways in which children indicate distress are indistinguishable between pain and anxiety reactions (Edwards 2005). Therefore it is important to consider and address stress, anxiety, and pain issues when referred children who are in pain, or who need support during potentially painful procedures such as having injections, or having wound dressings changed.

Many practitioners in the children's hospital context offer music to manage pain and anxiety, not just music therapists. Studies have shown that recorded music played in the background or provided through headphones assists children to reduce their pain (Klassen et al. 2008). Some studies have distinguished between music provided by music therapists and the music provided by non-music therapists, such as a nurse providing music listening through headphones, by calling music therapy *active* music therapy, and music listening *passive* music therapy (Klassen et al. 2008). Although this is not a distinction used in the pediatric music therapy literature, it can be helpful to try to find ways to differentiate between music therapy practices and the uses of music by other therapy and medical practitioners in the hospital setting. Some researchers have used the term *music stimulation* to refer to other types of musical support provided for pain reduction and management other than music therapy (Bernatzky et al. 2011).

One criticism of the use of music by non-music therapy personnel is that music is often presented as useful to *distract* the child from their pain. Increasingly music therapists have turned away from this conceptualization of the function of music. One reason is given by Bradt (2013) as follows:

Distraction implies a quick diversion, one that can be easily interrupted by another distraction. When using music listening for pain management, it is important that the child's attention to the music can be sustained.

Bradt 2013, np.

If the pain experience is relatively brief such as when a needle-stick is being performed, music can be used to hold the child's attention while encouraging deep and slow breathing to assist anxiety reduction. When pain is present over a longer time either because of a longer procedure, or because of the presence of chronic pain, the music therapist must pay close attention to the child's capacity to be held musically. This is where the use of live music provided by the music therapist has its greatest potency. The music therapist's capacity to alter musical parameters such as tempo, volume, and accompaniment, allows flexibility in providing music as a procedural support.

Children who are supported during procedures are better able to cope with subsequent procedures. One of the main factors that improves outcomes for children is to be able to reduce "exaggerated negative memories of pain and anxiety" (Noel et al. 2010, p. 626). Presenting the findings of a study of children's experience of procedures and subsequent coping, Noel et al. (2010) suggested that "once exaggerated memories develop, they become a powerful predictor of children's pain and distress during subsequent exposures to the same painful experience" (p. 633). They have also indicated that poorly managed procedural pain in childhood can have lifelong effects such as medical treatment avoidance as an adult. Therefore it is important for the child to be appropriately supported during treatment procedures to reduce their pain experience, to promote coping, and to prevent long-term difficulties relating to treatment pain.

Although many music therapists have described how live music provided by the therapist during painful procedures can provide comfort and support (e.g. Edwards 1994; Edwards and Kennelly 2011) increasingly music therapy practitioners are also successfully using active music-making techniques to address pain (Bradt 2013).

Music therapy to promote psychosocial care of children in a hospital setting

Psychosocial care of children and their families includes minimising the psychological impact of hospitalization, and promoting well-being and coping, paying attention to the social context of the child's life experience to date. Where do they feel safe? Who cares for them? Who do they play and have fun with? Music therapy is used to strengthen connections between family members, and to support the child's coping by providing opportunities for expressing emotional states, reducing the stress response, and engaging in normal, every day fun and play.

When experiencing *stress* the human being uses *coping* to maintain equilibrium via a process of self-regulation. As Sajaniemi (2013) has explained:

The mobilization of the body's resources starts when emotional or physical threat destabilizes internal equilibrium. The mobilization of resources is always arousing, and is experienced as

a shift toward increasing stress. When equilibrium is regained, this is experienced as a shift toward decreasing stress.

P. 44

When children are sick and in pain their resources for coping can be compromised. When the stress system is “chronically activated” (Sajaniemi 2013, p. 44) the capacity to achieve equilibrium is no longer available and it can be difficult to turn off the stress response (Sajaniemi 2013). A constantly activated stress response impacts on behavior in multiple ways, and longer term effects also occur. As Sajaniemi (2013) has described, there is:

... growing evidence that the inability to regulate stress responses harms brain development in various areas, including the hippocampus and prefrontal cortex, both of which are known to be fundamentally important in learning, memory, and executive functions.

P. 45

Edwards and Kennelly (2011) have described a stress and coping framework for music therapy practice with children in hospital. Their framework involves consideration of four theoretical areas: (1) Theories of stress, coping, and adjustment, (2) transactional models of stress, (3) developmental theories, and (4) family-centered care. Integrating these aspects allows the widest consideration of the ways in which the stress of hospitalization and treatments may be compromising coping for children and their families. Providing music therapy to manage stress for hospitalized children must be culturally sensitive, musically appropriate, and family centered.

Music therapy and rehabilitation

The role of music therapy in pediatric rehabilitation is supported by a range of descriptive practice reports and research studies (Kennelly 2013). It is important for the student music therapist or new practitioner to source research evidence and descriptive reports when preparing to work within this field (Gilbertson 2009). Music therapy research in pediatric rehabilitation demonstrates the usefulness of receptive and re-creative processes to support, encourage, or change behaviors following posttraumatic amnesia (Bower 2010); the ability for creative music therapy techniques to promote communication (Gilbertson and Aldridge, 2008), and the consideration of age-related and developmental factors when using song writing with this population (Baker et al. 2005a,b,c). Non-music therapy techniques such as orientation, feedback, and humor are used by the music therapist during sessions to assist the attainment of clinical goals (Edwards and Kennelly 2004).

Music therapy programs in pediatric rehabilitation begin for many children in the intensive care unit (ICU). Children who sustain severe acquired brain injuries may initially present with various levels of consciousness and it is imperative that the therapist consult with the medical team before commencing any form of music therapy assessment. Depending on the child’s awareness state and assessment outcomes, program goals and methods during this stage of recovery may include music listening to promote arousal, entrainment of physiological functions and the encouragement of communication; and improvisation, song writing and song singing to promote family support and involvement (Townsend 2013; Kennelly and Edwards 1997).

As the child's awareness state improves and he or she becomes more oriented to the environment, programme goals will change and develop according to his needs. Moving from the acute phase of rehabilitation to the subacute phase requires reassessment of music therapy goals and methods (Kennelly 2013; Kennelly and Brien-Elliott 2001). During intensive rehabilitation, program goals can be divided into two broad areas: functional and psychosocial. Functional goals include areas of: (a) Communication such as improved intonation and articulation; (b) physical needs including improved gait, posture, balance, and muscle relaxation; and (c) cognition and behavior such as improved orientation, attention, and learning. Goals related to psychosocial needs include adjustment to the hospital environment and the injury, emotional support including feelings of anger, sadness, and frustration concerning the injury and time spent away from family, friends, and the home environment (Kennelly 2013). Music therapy methods used to address functional and psychosocial goals will depend on the age of the child and the extent of their injuries and resulting impairments. Receptive music therapy methods may be used to increase orientation and arousal, promote physical functioning, assist pain management, and aid relaxation. Instrumental improvisation can be used to reduce a child's verbal and behavioral perseverations and promote direction following. Song singing may be used to improve articulation and rate of speech and also gait rehabilitation while song writing can provide emotional support, opportunities for self-expression, and promote learning in relation to physical and cognitive tasks (Kennelly 2013).

The final phase of rehabilitation is the chronic phase where the child is prepared for discharge (Anderson et al. 2001). The previously described physical and psychosocial needs may be similar in this phase however the focus of discharge to home or a different rehabilitation setting will guide the music therapy goals and methods. The child may require support in relation to his communicative abilities within school and peer group settings. Additionally the thought of returning to the school and family home environment may create stressful feelings for the child and music therapy may be used effectively to address these concerns. Similarly to the subacute phase, song writing methods may be used to promote conversational skills and support the child emotionally as he prepares to re-engage with family and peers (Kennelly 2013).

Evaluation of music therapy programs will depend on the needs of the child, the goals and methods used within each session, the level of acquired brain injury and resulting impairment and the child's developmental age. Therefore it is beyond the scope of this chapter to include specific detail relating to the evaluation of all program goals. The music therapist may use a variety of formal and informal tools to measure and record responses as they relate to the program goals. Guidelines for music therapy evaluation specific to pediatric rehabilitation (Kennelly 2013), and medically fragile children in low awareness states (Townsend 2013) are recommended for further reading.

Music therapy and developmental skills attainment

When a child is hospitalized, care is taken by professional staff to assist the patient and family members in their adjustment towards the new environment and the child's illness/injury. However, the impact of these factors is known to affect the child's growth and development. Lengthy periods of hospitalization which take place during vital developmental growth stages, such as when children first learn to walk or communicate can significantly affect the

attainment of these milestones. Children who are receiving care while in ICU or in an isolation room because of their immunosuppressed state may also be subjected to environments with either little or excessive sensory stimulation (Kennelly and Edwards 1997; Kennelly 2001; Ghetti 2013). Therefore a planned approach towards the management of these developmental concerns is important in order for children to attain normal developmental milestones whilst living in hospital.

Children can benefit from a multidisciplinary approach which addresses the maintenance and improvement of developmental competencies. The music therapist can work individually or together with other allied therapists such as physiotherapists, occupational therapists, and speech pathologists to create developmental programs. These programs can focus on all areas of development, including motor, communication, behavioral, emotional, cognitive, and social skills (Kennelly 2000; Neugebauer 2013). Musical elements such as rhythm, timbre, melody, tempo, and dynamics can evoke and stimulate developmental functioning and thereby engage a child using more normalized tasks and activities (Kennelly 2000).

Music therapy goals differ according to the area of developmental need. The methods used to address these goals will also differ according to the developmental age of the child and their current skills, their illness/injury and the context of their hospitalization. Further reading specific to pediatric clinical guidelines which address developmental delay is recommended (Ghetti 2013; Neugebauer 2013). It is beyond the scope of this chapter to comprehensively cover all possible goal areas, however the following four developmental domains provide examples of suggested goals and music therapy methods:

1. Cognitive: cause and effect—improvised song such as an “in and out” song to engage the child with a game using small hand held percussion instruments to reinforce the concept (Neugebauer 2013).
2. Communication/Motor: oromotor stimulation—improvised song or song parody prompts a carer to use gentle tapping actions near the child’s mouth in preparation for songs which reinforce kissing or blowing actions (Kennelly 2000).
3. Motor: bringing hands to mid-line—improvised songs, known songs or song parodies to promote bilateral hand movement in order to grasp an instrument or perform an action such as clapping (Kennelly 2000; Neugebauer 2013).
4. Social: listening and following instructions—song parody where the lyrics reinforce and cue the child to recall and perform a particular action, for example a “good talking tips” song for school aged-children (Kennelly 2000).

Evaluation of the child’s responses during developmental sessions may involve the use of checklists which detail the number of times the child successfully demonstrates/initiates the required skill. Video footage of each session could also assist the therapist in their evaluation post-therapy and be useful in demonstrating the progress of a child’s developmental skill attainment using music therapy to non-music therapy staff.

Music therapy and palliative care

Music therapy practice for children receiving palliative care is based on a family-centered model which supports the needs of the child, as well as carers and siblings (Lindenfelser et al.

2012; Daveson and Kennelly 2000). The role of music therapy in this setting is to support and extend family interactions (Daveson and Kennelly 2000; Pavlicevic 2005); provide choice and control opportunities (Sheridan and McFerran 2004), emotional support and quality of life experiences (Hilliard 2003; Daveson and Kennelly 2000). Research to support music therapy practice in pediatric palliative care is slowly expanding. Findings have explored the experiences and perceptions of participants such as parents and carers (Lindenfelser et al. 2008, 2012; Knapp et al. 2009). Qualitative research supports the value and applicability of music therapy for bereaved parents including the importance of creative engagement during a time of stress and sadness (Lindenfelser et al. 2008, 2012).

Goals addressed within this setting predominantly focus on supporting psychosocial needs. These include providing opportunities for self-expression and alleviating fear and anxiety. An example of goals and methods used with this population include:

1. Supporting feelings and emotions in relation to illness and isolation from family/friends/home environment: music listening, improvisation, song singing, and composition (Lindenfelser 2013; Daveson and Kennelly 2000).
2. Providing opportunities for relaxation: music-guided imagery/music listening (Lindenfelser 2013).
3. Providing opportunities for choice and control (Sheridan and McFerran 2004).
4. Creating a legacy in memory of the child: composition/song writing (Lindenfelser 2013; Hilliard 2003; Aasgaard 2002).

Music therapy guidelines in relation to pediatric palliative care, end-of-life or hospice care, and children with life-limiting conditions have been developed (Lindenfelser 2013). Evaluation of music therapy programs in palliative settings include descriptive accounts of the child, carer's, and sibling's responses and interactions according to the session goals. Particular regard should be made to any medication used by the child to manage palliative needs and its potential influence on participation and the processing of musical stimuli (Lindenfelser 2013).

DEVELOPING MUSIC THERAPY SERVICES FOR HOSPITALIZED CHILDREN

Music therapy service development in children's hospitals requires special skills and strategies for successful and sustained programmes to be established (e.g. Edwards 2005; Loewy 2001; 2007), with a particular emphasis on entrepreneurship and creativity (Ledger et al. 2013). The services provided through music therapy are relevant to some areas of need in a hospital setting more than others, and music therapy resources are not always able to be stretched across every area of a hospital. The music therapist educates, informs, and supports other members of the team as they seek to discover the value and role of music therapy within the hospital context.

In a reflection on her work founding and then developing a music therapy service at a children's hospital in Australia, Edwards (2005) indicated that encouragement from staff

through frequent meetings with them about the needs on the ward was an important starting point in developing an effective service. She noted the way that her writing about the service was always much more logical and organized than the day-to-day reality of delivering the service in a complex and busy care environment. Even in her reflection written more than ten years after the service was developed she described the role of the music therapist as “emergent” (Edwards 2005, p. 43). It is difficult to predict the factors that show that music therapy has become *established* in any setting, although markers such as the programme continuing after the founders have left can be indicative. Continuing to publish and research about the need for music therapy in hospital environments contributes to the clearer identity of the music therapy role, and indicates the needs of children which can be met effectively.

The evidence base for music therapy with children in hospitals is increasing (Bradt 2013). Providing summaries of the available recent literature, building rapport with key figures in the hospital, ward, or unit, and explaining and demonstrating music therapy is key to building programmes and maintaining them over time (Ledger 2010). Loewy has shown how collaboration with key staff, use of staff in promotional films as advocates of music therapy, training music therapy students, and using music as part of the staff wellness programme can all be useful strategies in building the identity and value of the music therapy programme (Loewy 2001; 2007).

Ledger (2010) undertook an ethnographic study of music therapy service development following a new music therapy service being established in a large hospital. She observed the sole music therapist for three months during the implementation phase of the music therapy service. She identified five strategies that the music therapist used in her successful service development work. The first was *educating* where the therapist demonstrated, explained, and presented about her work. The second was *interprofessional working*. The music therapist worked collaboratively in many sessions with other allied health practitioners giving colleagues the opportunity to observe the work which increased their perception of its value. The further strategies she observed were *remaining flexible*, *generating evidence*, and *investing time and energy*. This research shows that the music therapist developing a new service has to be skilled in the entrepreneurial and development skills as well as in the skills of clinical music therapy service provision. Choosing successful mentors, building peer networks, and keeping track of the contemporary literature in the field are all essential to effectual programme building.

CONCLUSION

Music therapy for children hospitalized for injury or illness provides therapeutic support within a family centered and holistic approach individualized for each referral. Music therapy can be provided during treatment procedures such as dressing changes, or debridement, and can be used at bedside, in small groups, or as an interprofessional process supporting the work of other members of the care team. Music therapists need expertise in flexibly using music in a range of contexts and for an array of purposes. Live music making is the hallmark of the music therapist’s repertory of skills, although increasingly music technology is an added resource.

REFERENCES

- Aasgaard, T. (2002). *Song creations by children with cancer: Process and meaning*. Doctoral dissertation. Retrieved from: vbn.aau.dk/files/195251818/trygve_aasgaard_thesis_150909.pdf.
- Anderson, V., Northam, E., Hendy, J., and Wrennall, J. (2001). *Developmental Neuropsychology: A Clinical Approach*. Hove, East Sussex: Psychology Press.
- Baker, F., Kennelly, J., and Tamplin, J. (2005a). Song writing to explore identity change and sense of self/self concept following traumatic brain injury. In: F. Baker and T. Wigram (eds), *Song Writing Methods, Techniques and Clinical Applications for Music Therapy Clinicians, Educators and Students*, pp. 116–133. London: Jessica Kingsley Publishers.
- Baker, F., Kennelly, J., and Tamplin, J. (2005b). Adjusting to change through song: Themes in songs written by clients with TBI. *Brain Impairment* 6(3): 205–211.
- Baker, F., Kennelly, J., and Tamplin, J. (2005c). Themes in songs written by clients with traumatic brain injury: Differences across the lifespan. *Australian Journal of Music Therapy* 16: 25–42.
- Bernatzky, G., Presch, M., Anderson, M., and Panksepp, J. (2011). Emotional foundations of music as a non-pharmacological pain management tool in modern medicine. *Neuroscience & Biobehavioral Reviews* 35(9): 1989–1999.
- Bower, J. (2010). Music therapy for a 10-year-old child experiencing agitation during posttraumatic amnesia: An intrinsic mixed methods study. Master's thesis. Retrieved from: <http://repository.unimelb.edu.au/10187/8949>.
- Bradt, J. (2013). Pain management with children. In: J. Bradt (ed). (2013). *Guidelines for Music Therapy Practice in Pediatric Care*, Chapter 2, pp. 15–65. Gilsum, NH: Barcelona Publishers.
- Daveson, B.A. and Kennelly, J. (2000). Music therapy in palliative care for hospitalised children and adolescents. *Journal of Palliative Care* 16(1): 35–38.
- Edwards, J. (1994). The use of music therapy to assist children who have severe burns. *Australian Journal of Music Therapy* 5: 3–6.
- Edwards, J. (2005). A reflection on the music therapist's role in developing a program in a children's hospital. *Music Therapy Perspectives* 23(1): 36–44.
- Edwards, J. (2011). Music therapy and parent-infant bonding. In: J. Edwards (ed.), *Music Therapy and Parent-infant Bonding*, pp. 4–20. Oxford: Oxford University Press.
- Edwards, J. and Kennelly, J. (2004). Music therapy in paediatric rehabilitation: The application of modified grounded theory to identify techniques used by a music therapist. *Nordic Journal of Music Therapy* 13(2): 112–126.
- Edwards, J. and Kennelly, J. (2011). Music Therapy for children in hospital care: A stress and coping framework for practice. In: A. Meadows (ed). *Developments in Music Therapy Practice: Case Study Perspectives*, pp. 150–165. Gilsum, NH: Barcelona.
- Ghetti, C. (2013). Pediatric Intensive Care. In: J. Bradt (ed.), *Guidelines for Music Therapy Practice in Pediatric Care*, pp. 152–204. Gilsum, NH: Barcelona Publishers.
- Gilbertson, S. (2009). A reference standard bibliography: Music therapy with children who have experienced traumatic brain injury. *Music and Medicine* 1(2): 129–139.
- Gilbertson, S. and Aldridge, D. (2008). *Music Therapy and Traumatic Brain Injury: A Light on a Dark Night*. London: Jessica Kingsley Publishers.
- Hilliard, R. (2003). Music therapy in pediatric palliative care: Complimenting an interdisciplinary approach. *Journal of Palliative Care* 19(2): 127–132.
- Jolley, J. and Shields, L. (2009). The evolution of family-centered care. *Journal of Pediatric Nursing* 24(2): 164–170.

- Kennelly, J. (2000). The specialist role of the music therapist in developmental programs for hospitalized children. *Journal of Paediatric Health Care* 14(2): 56–59.
- Kennelly, J. (2001). Music therapy in the bone marrow transplant unit: Providing emotional support during adolescence. *Music Therapy Perspectives* 19: 104–108.
- Kennelly, J. (2013). Brain injuries and rehabilitation in children. In: J. Bradt (ed.), *Guidelines for Music Therapy Practice in Pediatric Care*, pp. 356–402. Gilsum, NH: Barcelona Publishers.
- Kennelly, J and Brien-Elliott, K. (2001). The role of music therapy in paediatric rehabilitation. *Paediatric Rehabilitation* 4(3): 137–143.
- Kennelly, J. and Brien-Elliott, K. (2002). Music therapy for children in hospital. *Educating Young Children—Learning & Teaching in the Early Childhood Years* 8(3): 37–40.
- Kennelly, J. and Edwards, J. (1997). Providing music therapy to the unconscious child in the paediatric intensive care unit. *The Australian Journal of Music Therapy* 8: 18–29.
- Klassen, J.A., Liang, Y., Tjosvold, L., Klassen, T.P., and Hartling, L. (2008). Music for pain and anxiety in children undergoing medical procedures: a systematic review of randomized controlled trials. *Ambulatory Pediatrics* 8(2): 117–128.
- Knapp, C., Madden, V., Wang, H., Curtis, C., Sloyer, P., and Shenkman, E. (2009). Music therapy in an integrated pediatric palliative care program. *American Journal of Palliative Medicine* 26(6): 449–455.
- Ledger, A. (2010). Am I a founder or am I a fraud? Music therapists' experiences of developing services in healthcare organizations. PhD dissertation, University of Limerick <<http://ulir.ul.ie/handle/10344/1131>>.
- Ledger, A., Edwards, J., and Morley, M. (2013). A change management perspective on the introduction of music therapy to interprofessional teams. *Journal of Health Organization and Management* 27(6): 714–732.
- Lindenfelser, K. (2013). Palliative and end-of-life care for children. In: J. Bradt (ed.), *Guidelines for Music Therapy Practice in Pediatric Care*, pp. 324–355. Gilsum, NH: Barcelona Publishers.
- Lindenfelser, K., Grocke, D., and McFerran, K. (2008). Bereaved parents' experiences of music therapy with their terminally ill child. *Journal of Music Therapy* 45(3): 330–348.
- Lindenfelser, K., Hense, C., and McFerran, K. (2012). Music therapy in pediatric palliative care: Family-centered care to enhance quality of life. *American Journal of Hospice and Palliative Medicine* 29(3): 219–226.
- Loewy, J.V. (ed.) (1997). *Music Therapy and Pediatric Pain*. Cherry Hill, NJ: Jeffrey Books.
- Loewy, J.V. (2001). Building bridges in team centred care. *Australian Journal of Music Therapy* 12: 3–12.
- Loewy, J.V. (2007). Developing music therapy programs in medical practice and healthcare communities. In: J. Edwards (ed.), *Music: Promoting Health and Creating Community in Healthcare Contexts*, pp. 17–28. Newcastle Upon Tyne: Cambridge Scholars Publishing.
- Malloch, S. and Trevarthen, C. (2009). *Communicative musicality: Exploring the basis of human companionship*. New York: Oxford University Press.
- Neugebauer, C. (2013). Children in general in patient care. In: J. Bradt (ed.), *Guidelines for Music Therapy Practice in Pediatric Care*, pp. 477–512. Gilsum, NH: Barcelona Publishers.
- Noel, M., McMurtry, C.M., Chambers, C.T., and McGrath, P.J. (2010). Children's memory for painful procedures: The relationship of pain intensity, anxiety, and adult behaviors to subsequent recall. *Journal of pediatric psychology* 35(6): 626–636.
- Pavlicevic, M. (ed.) (2005). *Music Therapy in Children's Hospices: Jessie's Fund in Action*. Philadelphia, PA: Jessica Kingsley.

- Robb, S.L. (2003). Designing music therapy interventions for hospitalized children and adolescents using a contextual support model of music therapy. *Music Therapy Perspectives* 21(1): 27–40.
- Sajaniemi, N. (2013). Brain development and the everlasting process of self-regulation. In: R. Laaksonen and M. Ranta (eds), *Introduction to Neuropsychotherapy: Guidelines for Rehabilitation of Neurological and Neuropsychiatric Patients throughout the Lifespan*, pp. 39–64. Psychology Press.
- Sheridan, J. and McFerran, K. (2004). Exploring the value of opportunities for choice and control in music therapy within a paediatric hospice setting. *Australian Journal of Music Therapy* 15: 18–32.
- Townsend, J. (2013). Medically fragile children in low awareness states. In: J. Bradt (ed.), *Guidelines for Music Therapy Practice in Pediatric Care*, pp. 442–476. Gilsum, NH: Barcelona Publishers.
- van der Horst, F. and van der Veer, R. (2009). Changing attitudes towards the care of children in hospital: a new assessment of the influence of the work of Bowlby and Robertson in the UK, 1940–1970, *Attachment & Human Development* 11: 119–142. DOI: 10.1080/14616730802503655.
- Whitehead-Pleaux, A. (2013). Burn care for children. In: J. Bradt (ed.), *Guidelines for Music Therapy Practice in Pediatric Care*, pp. 252–89. Gilsum, NH: Barcelona Publishers.
- Whitehead-Pleaux, A.M., Clark, S.L., and Spall, L.E. (2011). Indications and counterindications for electronic music technologies in a pediatric medical setting. *Music and Medicine* 3(3): 154–162.

CHAPTER 4

MUSIC THERAPY FOR CHILDREN AND ADOLESCENTS DIAGNOSED WITH CANCER

PHILIPPA REID

CHILDREN AND ADOLESCENTS WITH CANCER

Cancer types, treatments, and effects

CANCER is the term used to describe a broad group of diseases that involve abnormal cell growth. Cells divide and grow uncontrollably, forming tumors or spreading to different parts of the body. Each child or adolescent's cancer, treatment, and response to treatment is different. The most common types of pediatric cancers include: (a) Leukemia, (b) lymphoma, (c) solid tumors, and (d) central nervous system (CNS) tumors (Tomlinson and Kline 2010).

The primary types of cancer treatment include: (a) Chemotherapy, which is cytotoxic (cell-killing) drug therapy used to prevent malignant (cancerous) cell division and spread; (b) radiotherapy, the use of high-energy radiation to destroy cancer cells; (c) surgery, to take a biopsy (sample), remove a tumor mass, determine the location and extent of cancer, insert supportive care devices, or provide palliative surgery (to relieve symptoms, including pain, caused by tumors that have been unresponsive to treatment; Tomlinson and Kline 2010); and (d) hematopoietic stem cell transplantation (HSCT), to replace diseased, damaged, or absent stem cells with healthy stem cells.

Acute side-effects from cancer treatments may include nausea, vomiting, oral mucositis (inflammation and ulceration in the mouth), diarrhoea, constipation, hair loss, rashes, tiredness, fatigue, febrile episodes (fever), infection, weight gain or loss, and changes in bloods (Tomlinson and Kline 2010). Additionally, the treatments that help children to survive their cancer can cause subsequent health problems, known as late effects. Late effects of treatments may include infertility, neurocognitive deficits, weakness, secondary malignancies, high-frequency hearing loss and tinnitus (noises or ringing in the ears), and sensory changes (Tomlinson and Kline 2010). About 50–60 percent of children treated for cancer will have

some risk of neurocognitive impairment resulting from the cancer and/or its treatment (Simone et al. 2003). Cognitive late effects may include impairments in short-term memory, processing speed, and attention and concentration, which can affect school performance, learning, and social function (Simone et al. 2003).

Incidence of childhood cancer

Childhood cancers are rare and survival rates have been improving over the last few decades. Comparisons in international incidence rates can be problematic because of different population standards and disease classifications (Baade et al. 2010). Public health infrastructure, which enables children to rapidly receive a diagnosis and treatment, differs between low and high income countries. In high income countries (such as Australia, Canada, Denmark, Norway, UK, and USA) the five-year event-free survival for children with cancer is high. However, low cure rates occur in middle- and low-income countries (such as India, Nigeria, Papua New Guinea, Vietnam, and Zimbabwe) and children under the age of five years have high mortality rates (Howard et al. 2008).

In Australia, childhood cancer is rare. There are approximately 620 new cases (approximately 158 per million) of children under the age of fifteen years diagnosed with cancer in Australia each year (Baade et al. 2010; Youlten 2012). After injuries, cancer is the second leading cause of death in Australian children. However, the five-year survival for all childhood cancers in Australia has increased from 67 percent (1982–1986) to 79 percent (1998–2004; Momber 2010). This increase over the last three decades highlights the significant and ongoing advancements in treatment and international research efforts to improve childhood cancer outcomes.

The causes of childhood cancers are largely unknown. Only a small percentage of cases can be explained, which include cases of children with genetic abnormalities and Down syndrome (Seewald et al. 2012). Parents of children diagnosed with cancer often create theories to understand the cause of their child's illness, and largely believe the cause may be from environmental factors such as pollution or radiation (Bernardi and Badon 2008). Their beliefs are often unresolved after initial discussions with medical staff that the cause of the cancer is unknown.

Adolescents and Young Adults with cancer (AYA) are a specific group requiring special attention and support when receiving medical treatment and associated care. In Australia, there are approximately 419 cases of cancer per million diagnosed among AYA (15–29 years; Australian Institute of Health and Welfare 2011). AYA account for approximately less than two percent of all cancer cases diagnosed in Australia (Australian Institute of Health and Welfare 2011). However, cancer is the leading cause of non accidental death in AYA and the incidence of cancer in young people in Australia increased by 30 percent between 1993–2001 (Mitchell et al. 2004). Although there is a higher and increased incidence of cancer in this age group, survival rates have not improved or benefited from improvements in childhood cancer outcomes (Hagggar 2012). There is growing research indicating that cancer may have a different biology in adolescents and young adults than in younger or older people with cancer (Bleyer 2009; Thomas et al. 2006).

Worldwide it is recognized that AYA have distinct needs which may not be met in pediatric or adult systems (D'Agostino et al. 2011; Palmer et al. 2007; Thomas 2007). Children

and adolescents with cancer have higher survival rates if treated in clinical trials at specialized centers (Mitchell et al. 2004). This poses a challenge to health systems. For example, within the state of Victoria in Australia, with a population of over five million, most AYA will have their cancer treated in any of 67 different adult institutions (Palmer et al. 2007) with only ten percent receiving treatment in dedicated pediatric institutions (Thomas 2007). It is acknowledged that the distinct medical, psychosocial, and information needs of AYA are often unmet in cancer care (Palmer et al. 2007).

Music therapy in pediatric oncology

A cancer diagnosis for a child or adolescent can have ongoing problematic effects for the young person and their family. Time in hospital separates children from their home, friends, family, school, and community. Children's reactions to time in hospital can often include anxiety, withdrawal, regression, and defiance (Brodsky 1989). Cancer treatments and procedures can become the overwhelming focus, which can disrupt normal development and can leave a child or adolescent feeling like a patient rather than a *normal* person. It is important to ensure that psychosocial care is integrated with medical care (Noll and Kazak 2004) and that a holistic approach is taken to providing comprehensive services to children with cancer and their families. Music therapy can provide adjunct support to medical treatments, to reduce distress, improve coping, provide comfort, and offer opportunities for children/adolescents and their families to share positive musical experiences alongside their illness experience.

CURRENT RESEARCH IN PEDIATRIC ONCOLOGY MUSIC THERAPY

A range of research studies provide evidence for music therapy's beneficial effects in pediatric oncology treatment contexts (Hilliard 2006; Standley and Hanser 1995). Pediatric oncology research literature highlights the usefulness of music therapy to address the physical, psychological and social needs, and to enhance the care and quality of life for pediatric patients (Standley and Hanser 1995). Seven pediatric oncology research studies using quantitative or mixed methods designs were conducted in a 25-year period up until 2013 in the USA, Canada, Norway, and Australia (O'Callaghan et al. 2013). In addition to these, a number of qualitative studies, case reports, and clinical reflections provide descriptions of music therapy's usefulness with this population. The use of methods from quantitative and qualitative traditions are important as they offer clinicians different types of information about music therapy in this context (Hilliard 2006; O'Callaghan et al. 2013). Controlled and descriptive studies of music therapy in pediatric oncology will be presented in the next part of the chapter focussed in six areas: Music therapy's relevance in pediatric cancer centers; music therapy provision in isolation rooms; music therapy during radiation therapy; music and music therapy during procedures; music therapy with adolescents and young adults; and palliative care music therapy.

Music therapy's relevance in pediatric oncology settings

Research studies highlight how children with cancer and their families benefit from music therapy programs in hospital settings. In Australia, multisite qualitative research investigated music and music therapy's relevance for children with cancer and their parents (O'Callaghan et al. 2011). Interviews with children ($n = 26$, <15 years old; median age 5.7 years) and parents ($n = 28$) revealed that children's cancer experiences can be helped by (a) their own music, (b) musical interactions within their families, social networks, and electronic (online) connections, and (c) hospital music therapy programs. Findings from this research were integrated with focus group research examining four registered music therapists' perceptions about music's role for children with cancer (O'Callaghan et al. 2013). The focus group research found that: (a) Music is imperative in children's attachment, adjustment, enculturation, identity formation, and social adjustment; (b) psychosocial and health factors affect young cancer patients' interactions with music and therapists in oncology hospital settings; and (c) positive transformation, including dissipation of distress, can occur through young cancer patients' observing musical instruments and engaging in music therapy. The findings from the two studies were comparable and informed the following abridged statement of combined findings:

Children's adverse cancer experiences are often alleviated by music usages. Broader family, social, and electronic musical interactions also promote children's resilience and "normal" development. Music therapy and associated programs often, but not always, alleviate children's distress. Positive effects can carry over into children's home, social, and school lives, and vicariously support families.

O'Callaghan et al. 2011

The authors suggested that this statement constitutes a substantive grounded theory, and may be generalized to comparable contexts, including where children have the choice of receiving similar music therapy services during their cancer treatment and follow-up care.

A multisite randomized controlled trial in the USA supports the use of music therapy to reduce the impact of hospital and treatment stressors and enhance positive coping behaviors in children with cancer (Robb et al. 2008). An active music engagement (AME) protocol was designed to change stressful qualities of the in-patient hospital environment. The AME intervention involved a music therapist offering opportunities for the child to experience mastery, make choices, and interact through a variety of age-appropriate music-based activities. The results indicate that children ($n = 83$, aged four to seven) in the AME group had a significantly higher frequency of coping-related behaviors compared with the music listening or audio storybook control conditions. Positive facial affect (smiling or laughter) and active engagement were significantly higher, and initiation (verbal or gestural) was significantly higher during AME than the audio storybooks. These areas are indicators of improved mood, positive coping strategies and children's exploring and interacting with their environment in hospital.

In Canada, the effects of active music therapy to support hospitalized young patients with cancer ($n = 65$, six months to seventeen years) has been explored (Barrera et al. 2002). Interactive music therapy sessions focused on age-appropriate music-making with the

child (and family if present). Typically patients were engaged in the following: Adolescents and school-age children participated in singing, songwriting, instrumental improvisation, and listening to self-selected pre-recorded music; preschoolers and toddlers participated in animated play songs, rhymes, and playing instruments; and infants and toddlers participated in vocal play, play songs, lullabies, rhymes, and playing instruments. The results suggest a significant improvement in children's self ratings of their feelings from pre- to post-music therapy ($p < 0.01$). Responses from the satisfaction questionnaires by children, parents and staff were grouped into the themes of enjoyment of music, change in mood and comfort, and general comments/suggestions, and all produced positive comments about music therapy.

Descriptive studies have highlighted the use of music therapy to foster the healthy aspects of a child when in an oncology hospital environment, through supporting the child's creative side in a socially active way. Case examples illustrate the usefulness of music therapy on the pediatric oncology ward environment, including enhancing the child's role in various relationships in their social environment through writing and performing their own songs (Aasgaard 2001; 2005). Music therapy initiatives, and the creation of songs, can enable children or adolescents with a life-threatening illness to be something other than "just a patient" (Aasgaard 2001, p. 177). Case studies highlight how the performance of an individual's song compositions in the hospital setting can increase feelings of self-esteem and empowerment, and increase social interaction (Abad 2003) and allow the young person to be seen as a normal, creative young individual, not primarily a patient with cancer (Aasgaard 2001; 2005).

A range of music therapy goals and methods are required to suit the varied stages and contexts that the children present with in hospital through their cancer trajectory (Daveson 2001). Musical instruments or methods that are flexible, age appropriate, engaging, and that do not require musical skill are essential, so that patients do not become frustrated with being unable to play or participate (Brodsky 1989). "Bricolage," that is using strategies and methods available in the immediate setting, has been presented as a framework for working as a music therapy clinician in a pediatric oncology setting (Dun 2007). Case study highlights how the flexible music therapist can recognize and embrace the healthy aspects of a child in various areas of the hospital (Dun 2007).

Music therapy provision in isolation rooms

Children and adolescents may be placed in isolation rooms during their treatment in order to prevent infection. In the isolation rooms children may experience separation from friends and family, decreased social interaction, reduced stimulation, and fewer physical activities. Young patients' emotional responses to being placed in isolation can often include loneliness, depression, rejection, anger, confusion, and lowered self-esteem (Brodsky 1989). Staff entering these rooms are often required to wear hospital gowns and surgical masks to protect children who have a reduced or absent immune system. Little is known about the psychological impact of wearing masks when working with children. However, when entering an isolation room it is important to consider that masks could be intimidating or frightening to

young children new to the hospital environment and/or who have not met the staff member outside of the room.

Pilot research provides support for the use of music therapy song writing to reduce anxiety for pediatric patients (nine to seventeen years) undergoing bone marrow transplant (Robb and Ebberts 2003). Case studies describe the use of music therapy, including the use of instruments and song activities, with children in isolation rooms in an Israeli pediatric oncology center (Brodsky 1989). Music therapy offered these children opportunities for interpersonal interaction, shared musical experiences, increased control, self expression, and the development of more adaptive coping. Environmental stressors and the effects of hospitalization, such as anxiety, withdrawal, and loss of control, can be addressed in music therapy (Brodsky 1989).

Music therapy and pediatric radiation therapy

The benefits of music therapy for pediatric radiotherapy outpatients attending an adult cancer center providing radiotherapy have been reported in Melbourne, Australia (O'Callaghan et al. 2007). Case studies illustrate the usefulness of music therapy to reduce anxiety, stress, and fears of children, and to facilitate creative, positive experiences which may be shared between pediatric radiation therapy out-patients and their families. Following these descriptive findings, research was undertaken to explore the usefulness of music therapy to support pediatric patients during their initial radiotherapy treatment (Barry et al. 2010). The music therapy procedures involved children creating a music CD using interactive computer-based music software to listen to whilst isolated during radiotherapy. The mixed methods research recruited outpatients ($n = 11$, aged six to thirteen), whom were randomly assigned to either the music or standard care group. An outstanding difference was that 67 percent of the children in the standard care group used social withdrawal as a coping strategy, compared to zero percent of the children in the music therapy group. The music therapy process is perceived to have offered a medium for enhanced communication and interaction between the children and the radiation therapy staff, when in the treatment room separated from parents. Overall, the music therapy CD creation was fun, engaging, and developmentally appropriate, which helped to prevent distress and support children's use of effective coping strategies to meet the demands of their initial radiotherapy (Barry et al. 2010).

This research and advancements in technology enabled the extension of music's supportive qualities for children during the administration of their radiotherapy. Clinical audio-visual opportunities were implemented to avoid the use of general anesthesia with children undergoing treatment (Willis and Barry 2010). A simple, inexpensive audio-visual system was established by radiation therapists using commercially available equipment, which enabled isolated children to see and hear their parents or staff including the music therapist during their treatment. Over a two-year period (March 2007–May 2009), children ($n = 24$, two to six years) participated in audio-visual interventions, and 92 percent ($n = 22$) of these children did not require the use of general anesthesia for some or all of their treatment. Case study descriptions illustrate how the audio-visual system allowed

a young child and the music therapist to continue to maintain visual contact whilst the child was isolated in the treatment room. Music therapy could be flexibly delivered during treatment, which without the audio-visual set-up, would otherwise be impossible. The benefits of music therapy as a nonpharmacological anxiolytic for children in the out-patient waiting areas (O'Callaghan et al. 2007) were extended, and as this study suggests, helped to reduce the need to anesthetize children undergoing radiotherapy treatment (Willis and Barry 2010).

MUSIC AND MUSIC THERAPY DURING PROCEDURES

Music therapy may support children during invasive procedures, such as dressing changes, line changes, injections, medication administration, chemotherapy, and induction of anesthesia. Qualitative document analysis was used to critically examine the literature ($n = 19$) where music therapy has provided procedural support during invasive medical procedures (Ghetti 2012). A working model of music therapy as procedural support was developed. It conceptualizes that the music therapist engages in a reflexive process of continually assessing the patient's responses in order to refocus the process to positively influence outcomes. Music techniques used may change from moment to moment based on the patient's responses and changing needs. The music therapist is required to make ongoing assessments and relevant adjustments to interventions used (Ghetti 2012).

The use of music-assisted relaxation for children ($n = 6$, six to fifteen years) during bone marrow aspirations without sedation was evaluated (Pfaff et al. 1989). Relaxation music on cassette tape was played during the bone marrow procedure with the music therapist coaching the child in relaxation exercises. Reductions in anticipatory and experienced fear, experienced pain, and anticipatory behavioral distress were found. Similarly, in Vietnam a randomized clinical trial explored the impact of listening to music through headphones on pain and anxiety in children undergoing lumbar punctures (Nguyen et al. 2010). Children with leukemia ($n = 40$, seven to twelve years) were randomly assigned to the music listening or control group. Children's choices of music included traditional Vietnamese and children's songs. No local anesthetics or other analgesics were administered during the procedure, as is standard care in most Vietnamese hospitals. The music group reported lower pain scores and heart and respiratory rates during and after the lumbar puncture, and anxiety scores were lower both before and after the procedure. Interviews with the children supported the numeric findings through descriptions of positive experiences listening to music, including less pain and fear.

A randomized controlled trial in the USA examined the effect of interactive music therapy on pre-induction anxiety for children undergoing outpatient surgery (Kain et al. 2004). Children were randomized to one of three groups: Interactive music therapy ($n = 51$), oral midazolam ($n = 34$), or control ($n = 38$). The results showed that children who received midazolam (inducing sedation and amnesia) were significantly less anxious during the induction of anesthesia than children in the music therapy and control groups. The research revealed a

significant therapist effect; i.e. during separation from parents and on entrance to the theatre, children treated by one of the therapists were significantly less anxious than children in the other therapist group and the control group. The researchers concluded that music therapy may be helpful on separation from parents and entrance to the surgery room, depending on the therapist. However, preoperative interactive music therapy does not appear to relieve children's anxiety during the induction of anesthesia. Separation anxiety from parents, anxiety post surgery, and the interpersonal elements of the music therapists are not described limiting understandings and explanation of the therapist effect.

MUSIC THERAPY WITH ADOLESCENTS AND YOUNG ADULTS

Music can enhance important areas of an adolescent's health, including identity formation, resilience, competence, and connectedness (McFerran 2010). However, a cancer diagnosis, treatments, and required time in hospital can have adverse consequences on normal development. Music can have calming, supportive, and relaxing effects that can promote endurance and identity adjustment through treatment (O'Callaghan et al. 2012).

In the USA, a randomized controlled trial was conducted across eight sites with AYAs ($n = 113$; 11–24 years old) undergoing hematopoietic stem cell transplant (Robb et al. 2014). Participants were randomized to either a therapeutic music video (TMV) intervention or an audiobooks group, completing six sessions over three weeks with a music therapist. The multisite study measured illness-related distress, social integration, spiritual perspective, family environment, coping, hope-derived meaning, and resilience, at baseline, post-intervention, and 100 days post-transplant. The TMV group reported significantly better courageous coping post-treatment, and significantly better social integration and family environment 100 days post-transplant. The results indicate that the TMV approach positively supported AYAs to use protective factors to buffer adverse cancer effects during and after treatment (Robb et al. 2014).

Music therapy groups can provide AYA with the opportunity to connect with other young people with cancer from different treatment centers (O'Callaghan and Barry 2009). A music group for AYA ($n = 8$, 19–25 years) co-facilitated by a music therapist and social worker included song sharing with discussion and group song writing. Thematic analysis from participant responses revealed benefits of music therapy group work with AYA, including: (a) Connecting and expressing themselves with a group who understands the cancer experience; (b) reducing loneliness, isolation, and risk of depression; and (c) using songwriting and music allowed it to be a group not focusing on cancer (O'Callaghan and Barry 2009). Music can be used in therapeutic group work with AYA to enable young people to comfortably express their experiences of cancer and connect with supportive peers who are undergoing comparable treatments.

Music and music therapy's relevance for AYA was explored in a grounded theory informed study (O'Callaghan et al. 2012). Twelve people (16–24 years old, mean age 21) with cancer diagnoses in Victoria participated in a semi-structured interview, providing their

perspectives about their music usage and what it offered them. The research revealed five themes: (a) AYAs' music backgrounds affect their musical experiences and reflections about their lived lives when living with cancer; (b) AYAs' *normal* development alongside cancer's biopsychosocial impact changes their *musicking* mildly to profoundly; (c) *musicking* signifies and promotes AYAs' endurance and identity adjustment through treatment and recovery; (d) some AYA find that time with flexible music therapists promotes normality, fun, and/or support; and (e) wisdom: Sound and music-based support strategies are recommended for health care providers and other AYA which include flexibility and choice.

Participants reported that a music therapy group for AYA (as discussed above) connected people without the therapy stigma, felt normal and fun, and the group songwriting enabled closure. Perceptions of individual music therapy were that it was not desired by everyone, but can be fun, loved, and promote normality when offered by a flexible, conversational, and friendly music therapist. AYA sometimes described involvement with music therapists yet report that they had not *received* music therapy. Additionally one participant, who had spent time with two music therapists, reported that one therapist was more helpful than the other because she allowed him to feel *normal* through friendly conversations and spontaneous and flexible sessions, rather than pre-determined times which made him feel more like a cancer patient (O'Callaghan et al. 2012). Consideration needs to be taken by music therapists working with young cancer patients to ensure that their approach is not stigmatizing, including through use of formal treatment times and assessments. Rather, music therapists should aim to develop flexible and friendly approaches to these young patients, to establish normalizing therapeutic relationships that promote creativity, abilities, normality, and fun (O'Callaghan et al. 2012).

Music therapy and life-limiting cancer

Moments of play, fun, and laughter enabled by music therapy can be invaluable for families when a child's cancer is life-limiting (O'Callaghan et al. 2013). Creative experiences in the hospital environment that promote healthy aspects of the child or adolescent (Fagen 1982) are important. Opportunities for peer group identification and normalcy are limited when an adolescent is coping with life-limiting cancer in hospital. Friends may be overwhelmed by their peer's cancer illness and compromised abilities, yet when friends are available, music and playing instruments can be a normal activity that can be shared (Callaghan 2007).

The music therapist can sensitively and flexibly offer children and adolescents and their families the opportunity to keep living whilst receiving palliative care. Understandings of death vary depending on developmental age and stage. For example, preschoolers (three to five years) may have a limited understanding of death and see it as reversible or temporary, whereas an adolescent (twelve to nineteen years) may understand death as much as adults do, yet may tend to think they will not die as a young person (Tomlinson and Kline 2010). It is the author's experience that children, adolescents, and families appreciate the normalized and personalized music-based interactions and support that the music therapist can provide during end-stage care.

THEORETICAL FRAMEWORKS

A variety of theoretical models can be used to guide and consider practice in pediatric oncology. In this setting, practice is not prescriptive. Theories can support music therapists to explore and understand how music functions to benefit the child or adolescent with cancer. In Victoria, Australia, the Pediatric Integrative Cancer Service (PICS) developed a model for providing art, music, and play therapies to children and adolescents with cancer and their families. It is a three-tiered model in which level of intervention is based on need (Figure 4.1).

The child or adolescent may move up or down the levels as they go through their cancer experience, based on assessed changing needs (PICS 2007). For example, a child identified as level one low risk, may have a change in diagnosis, treatment, or prognosis that may cause acute distress and require level three care. The ongoing assessment and flexibility of the music therapist is essential to meeting the fluctuating needs of the child or adolescent and their family.

The Children's Hospital of Philadelphia undertook research to develop a *blueprint* to help assure that children with cancer and their families have access to evidence-based care (Kazak et al. 2007). The two theoretical models developed were: The Pediatric Psychosocial Preventative Health Model (PPPHM) and the Pediatric Medical Traumatic Stress Model (PMTS, Kazak et al. 2006). The PPPHM is reflective of the PICS model. The three tiers are labelled: (a) Universal: Children and families are distressed but resilient; (b) Targeted: Acute distress and risk factors are present; and (c) Clinical/Treatment: Persistent/escalating distress and high risk factors. Similarly to the PICS model, level of intervention moves from general support to specialized interventions across the three levels. The PMTS model was developed to guide psychosocial assessment and intervention with children with illness or injury in medical settings across the various phases of care to reduce symptoms of post-traumatic stress (Kazak et al. 2006). The researchers propose that the PPPHM and PMTS models may be integrated to guide evidence-based psychosocial practice with children and their families across the spectrum of their cancer treatment (Kazak et al. 2007).

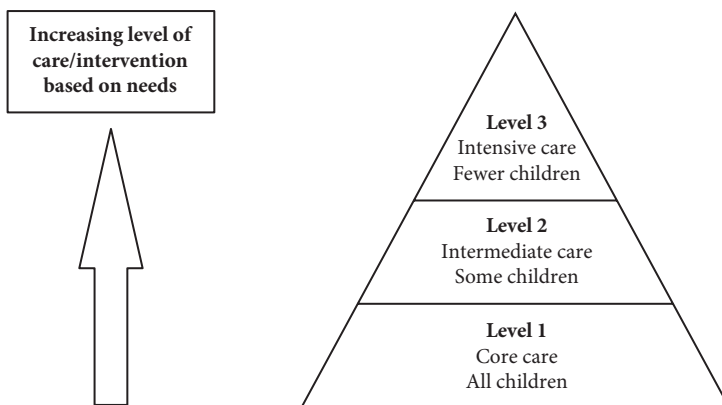


FIGURE 4.1 PICS model of music therapy intervention.

The PMTS model provides a useful guide for music therapists understanding short and long-term consequences of cancer treatment for children and their parents (Robb 2012). Traditional outcome-focused research in music therapy provides information about whether an intervention was effective for a given demographic. However, often information about how and why an intervention worked in this style of research often cannot be answered. The identification of variables (such as child and family demographics and individual cancer treatment characteristics) and measurement of potential mediating factors (such as perceived family normalcy and parental self-efficacy) can allow for a more comprehensive evaluation of intervention outcomes. Theory-based research can advance understandings of the diverse and complex interactions in music therapy between music, patients, and the health care environment (Robb 2012).

A cancer diagnosis and associated treatments in childhood is recognized as a potentially traumatic event for the child and their family members. Parents of children diagnosed with cancer may experience acute stress disorder (ASD) or post-traumatic stress symptoms (PTSS; Kazak et al. 2007; McCarthy et al. 2012). However, positive outcomes can develop from a traumatic event, which can be known as post-traumatic growth. Adolescents and young adults often report that their cancer experience influences positive self changes, improvements in relationships with others, and new or changed future plans. Researchers encourage that music therapy approaches with children and families should have a sustained focus on processes of growth and development (Kazak et al. 2006; O'Callaghan et al. 2012).

CLINICAL PRACTICE IN CHILDREN'S ONCOLOGY MUSIC THERAPY

Music therapists practicing in pediatric oncology centers are required to be flexible in their music therapy approaches to meet the fluctuating demands of the service and the changing needs of children and their families. Music therapy support may be requested by staff, families, or children who are newly diagnosed, undergoing procedures/treatments, or hospitalized. Music therapy referrals, assessment, methods, and evaluation and reporting will now be discussed.

Referrals

Referrals can come from a variety of sources within the oncology medical setting. Multidisciplinary staff members, including medical, nursing, and allied health, may notify the music therapist of a child who would potentially benefit from music therapy. Referrals may be received verbally, including in meetings or handovers, or written, via e-mail, paging messaging systems, or in a specific referral form. Children, adolescents, and their families may also self-refer to music therapy, by either approaching the music therapist directly, or by asking other staff members. However, parents may often be reluctant to initiate music therapy referrals because they perceive that their child is too unwell to "play music"