

Influential Commentary: Outbreak, Pandemic and Medical Response

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Joanne V. Loewy, DA, LCAT, MT-BC¹

On June 11, 2009, the World Health Organization declared that a new strain of H1N1, popularly called the “swine flu,” is responsible for the ongoing flu outbreak. The alert level was elevated to Phase 6, marking the first global pandemic of this magnitude since the 1968 Hong Kong flu. Many hospitals have recently passed emergency regulations requiring that health care workers and volunteers who have direct patient contact, or whose activities are such that if they were infected with influenza could potentially spread it to patients, be vaccinated this year against seasonal influenza and the H1N1 virus. The mortality rate of the “Spanish” flu of 1917 and 1918 was 1% of the infected population. This influenza was an H1N1 strain, and research on the reconstituted virus shows that it was particularly infective. The Spanish flu claimed 70 million lives. The medical community considered that flu to be one of the deadliest to attack the human population, capable of sickening and killing a person on the same day.

As researchers, practitioners, and clinicians, we tend to compartmentalize how we understand the treatment of disease. It seems evident that classification schemas help us realize with reasonable certainty and perhaps increasing clarity the etiology of a disease. There would certainly be no treatment or assurances of cures if we did not have a way to report, classify, and rule out disease factors. Observing trends in the course of patient care and the influence that history has had on treatment and clinical opinion has effected interesting changes throughout the course of time. Certainly the culture of a health care institution and the beliefs and desires of both patients and family members infuse the reality that the practice of medicine among human beings is as much an art as it is a science.

The World Health Organization’s declaration that the new strain of swine-origin H1N1 is reaching epidemic proportions has increased apprehension, anxiety, and dread in the world population. The threat of a pandemic can have a traumatic effect, which tends to create a sense of mistrust and threat among large groups of people. The current surge of apprehension throughout the world regarding the recent swine flu epidemic has reached what seems to be increasing proportions of concern. Patients and health care professionals are experiencing varying levels of stress and trepidation related to the outbreak. Many are faced with growing concerns as regulations are becoming more stringent. International travel has been

restricted. Public and private employers have taken proactive measures to prevent the spread of the flu among their employees.

The scope and intensity of epidemics have increased in proportion to the population size throughout history. It is difficult to believe that the Spanish flu or “la grippe” killed more people in its single-year course than did 4 years of the bubonic plague, which occurred from 1347 to 1351. This pandemic was one of the worst plagues in recorded history. And yet it does seem important to remind ourselves that modern flu outbreaks have weathered threats despite lacking the advantages of vaccines. The Hong Kong flu of 1968 and 1969 took 34,000 lives; previously, the Asian flu had killed approximately 70,000 people in 1957 and 1958.

Epidemics, crises, and high-alert situations are not unfamiliar to modern medical professionals. Flu outbreaks have claimed thousands of lives. Incidentally, infection that is the result of medical error or complications in treatment has been a rather quiet but escalating identified danger in hospital care in recent years (Pronovost et al., 2006). There is increased attention to our vigilance where infection is concerned. The medical community has been particularly concerned with the spread of infectious disease both in the population at large and within medical institutions. The medical community has responded to these threats with increased attention and intensive training (Makary et al., 2006).

There is anxiety that is notable among patients and professionals with regard to outbreak. Depending perhaps on one’s experience with infection and the history of diligence set forth in early childrearing practices (e.g., “wash your hands,” “don’t share drinking cups with siblings”) and training, the reaction to an outbreak has a varying level or threshold for each individual. In general, institutional measures taken to address an outbreak at the community, state, and national levels ideally would help one feel in greater control, affording more trust in health care

¹The Louis Armstrong Center for Music & Medicine, Beth Israel Medical Center, New York, NY, USA

Corresponding Author:

Joanne V. Loewy, 13 Arborlea Avenue, Yardley, PA 19067, USA.
Email: loewyjoey@aol.com

providers and/or institutions, communities, states, provinces, or countries. However, as often is the case historically, such measures can cause a myriad of suspicious responses and engender feelings of mistrust, doubt, and fear, which can lead to resistance, anger, and at times even mass hysteria. And even with knowledge and mechanisms for vaccines and rescue clinics set up worldwide, the fear pervades, facts become muddy, and treatment options and outcomes are not so clear. Throughout our recent past, we have been subjected to numerous infectious diseases that have fueled international alarm and blame. In recent times, as a result of outbreaks of anthrax, mad cow disease, bird flu, and Ebola, humans have learned about the impact of illness, and outbreaks often breed anxiety that is clearly out of proportion to the actual incurred risk for “catching” the disease.

The challenge of health care providers in the current day of integrative treatment is to inform those we treat and then, as comprehension, awareness, and trust increase, to encourage decision making to be undertaken in a knowledgeable way. Transparency ensures that decisions are not solely in the hands of health care providers. Information is shared, and patients and family members, whenever possible, are empowered to make informed decisions. Providers are increasingly supporting treatment decisions with patient and family considerations that are inclusive of adherence and credence to cultural and personal circumstances.

The regulations set forth by national governments and/or world health mandates are not always favored by those in the medical profession. Some are left wondering, Who protects my right to decide? Health care professionals may at times not favor health regulations that are “required” and may deem themselves as in the best place to decide whether a vaccine is warranted, on the basis of their own beliefs and historical, cultural knowledge of a virus, which may be highly informed.

In a certain sense, the outbreak and crises associated with a new virus provide a magnified view into how we typically “treat” and address not only a medical concern but the accompanying issues associated with any patient crisis. There are layers upon layers of how we navigate patient care and balance this along with the attitudes of staff members and employees. Not only are personal preferences and beliefs about medicine and reactions to vaccines and preventive practices individual and varied among professional caregivers, but adherence or selecting not to be vaccinated or to have one’s children vaccinated is a personal issue as well.

Integrative practitioners working in health care communities are not immune from examining the influence of new strains of viruses, in particular the impact of an impending “epidemic” or “crisis” on patients. This includes accompanying anxiety that manifests within such realms, which can complicate the experience. Confusion, hysteria, misinformation, and hyperarousal add to the stress in an already often taxing environment. These types of diseases produce a host of fears and challenges for patients and caregivers. Outbreaks compound the stress that a provider typically endures in a medical setting. The tension of a new virus and the potential for stress,

greater expense, and increased tasks for providers under uncertain conditions and terms cannot be denied.

Anxiety and stress are no strangers to health care workers. Health care professionals are typically and notably poor at self-care (Figley, 2002). Suicide rates are exceedingly high for those who practice medicine, and there seems to be a need to develop measures that reduce the occupational stress of doctors. (Hawton, Malmberg, & Simkin, 2004).

Perhaps one of the more stressful places in a hospital is the ICU, where an environment of intense medical trauma and a lack of physical privacy for patients, family members, and providers alike can make for a hectic, noisy, and unsettling atmosphere. The benefit of music within the ICU environment may be in its ability to access the dynamic stress of the moment and to work within it on multiple levels. It may be that music assists in particularly painful or stressful interventions, such as venipunctures (Loewy, 1999; Loewy, MacGregor, Richards, & Rodriguez, 1997; Malone, 1996) and/or lumbar punctures (Rasco, 1992), in which a patient who is “needle-phobic” can use music to integrate, which might result in enhancing a sense of resilience to endure the procedure and/or to have less apprehension about future procedures. The music may effectively work in such instances to break the cycle of painful trauma, such as would occur during a biopsy or debridement procedure (Edwards, 1995; Prensner, Yowler, Smith, Steele, & Fratianne, 2001).

A recent trend in current research that is being increasingly undertaken by musicians, music therapists, doctors, and nurses is the examination of the impact of music on vital signs, particular the effect that winds and/or singing may have on heart rate and/or respiratory rate during procedures (Taylor-Piliae, 2002).

In this issue, László Harmat and Töres Theorell study interventions of singing and flute playing to compare the physical effects and experiences during different conditions, including performing easy and strenuous pieces during both a rehearsal and a concert. Both relaxed and strenuous pieces were performed with and without an audience, and heart rate and heart rate variability were measured to illustrate the physiological effects of singing and playing during these varying situations. Because singers and wind players undertake similar breathing patterns when they perform the same pieces of music, whether during a rehearsal or during a concert, this study sets up a firm condition for the comparison of heart rate variability.

In addition to measuring anxiety through breath and heart response, music’s application associated with its capacity to alter perceptions of painful stimuli is notable. Playing music and/or listening to live or recorded music within an environment can decrease one’s experience of tension or stress.

ICU-related music and medicine research, including randomized trials, has demonstrated that listening to recorded music can reduce anxiety (Nilsson, Unosson, & Rawal, 2005), and music can enhance mood during hospitalizations that require intensely difficult procedures (Cassileth, Vickers, & Magill, 2003) and reduce stress prior to surgery (Wang, Kulkarni, Dolev, & Kain, 2002). Anxiety can lead to depression, which can exacerbate the pain experience (Nolan, 1997). Music

therapy can alter the “perception and experience of pain and suffering for patients and at the same time can provide relief for their families in unique ways” (Portenoy, 2005). Because the relationship between pain and anxiety is often interrelated (Loewy, 1999; Loewy et al., 1997), altering one modality through a music intervention may modify the impact of the other modality, thus shifting the cycle and overall impact of pain and anxiety, providing relief that leads to self-soothing control measures.

Perhaps the most comprehensively addressed outcome that can influence stress in the ICU on a global level is the artistic acoustical nurturance that music can provide for patients, family members, and professional caregivers and staff members (Chestnut, Duncan, Gagnon, & Schreck, 2005). There is a strong sense that in stressful, noisy environments such as ICUs, music can reduce tension. Given that the medical literature views noise as a hazard (Gray & Philbin, 2000), music’s effects may actually help lower noise and provide a more relaxed environment, especially amid the often chaotic ICU environment. Environmental music therapy (EMT; the term was coined by music therapist and composer Steve Schneider, 2005) takes the implementation of music in the ICU a step further than simply playing music to reduce noise. Music therapists who have studied the most advantageous means of implementing music in the ICU environment address the tones, timbres, and pulse of the unit. They report that working within the context of the noise can provide for the most gradual and sensitive transition. EMT might include playing in the key of a monitor. It may also serve the unit to organize music material that appeals not only to patients and caregivers but to staff members as well. EMT and environmental music application are becoming more prevalent in many ICUs across the United States and Europe (Thorgaard, Ertmann, Hansen, Noerregaard, Hansen, & Spanggaard, 2005).

Music has been implemented increasingly in ICUs to address noise and patient and family stress and anxiety (Berens, 1999). In this issue, Eliana Gilad and Shmuel Arnon address their earlier study of the stress of a NICU environment and reflect on the institution of live music, which provided support for premature infants, the NICU team, and caregivers. This team generously describes musical, environmental, sociological, and cultural aspects of the implementation of the music related to their study (Arnon et al., 2006). In the present article, the authors examine the use of live music intervention and outline critical considerations for how singing and rhythm are best implemented for both infant care and the “sound” environment of the ICU. A live music intervention in a NICU is readily adaptable on the basis of the tensions observed and also reflected in the feedback and needs reported by the ICU team. Music can serve a multitude of purposes within the moment. Music can enhance physiological stability, behavioral organization, and sensory system development. At the same time, music can mask ambient noise. Descriptive and survey evidence (Hweidi, 2007; Stewart & Schneider, 2000) seems to suggest that music can decrease the noise and negative noise perceptions of staff. In Gilad and Arnon’s study, the practice of singing to infants and the unique implementation of live

song form and style are rooted in ancient wordless traditions. These music traditions notably have endured both industrialization and urbanization. Gilad and Arnon note that their Middle East–based hospital serves a multicultural population, many whose music traditions are rooted in the ancient cultures of the Mediterranean and Middle East.

The wordless healing music modality developed by Gilad, which implements both Eastern and Western approaches to music and ancient traditions, is described. The authors’ description of the healing traditions for these babies is based on wordless singing (i.e., pure tones that as such use “the nutritive essence of sound at its fundamental level”). This may provide the most direct means of tone for babies, lessening intellectualization factors for parents and caregivers whose focus can, in turn, be on bonding through the sounds of the body. As Gilad and Arnon outline comprehensively all considerations of the medical-music teams’ analyses, it is notable and astute to recognize “socio-political tension” as a contributing factor which served the consideration of how the music could best serve this complex environment of patients, and personal and professional caregivers as well.

The authors’ awareness and recognition that the crisis in the Middle East influences intervention makes the study’s potential impact comprehensive and trustworthy. It is not often that a team, through retrospective analyses, reports on political tensions as a contributing added stressor to the mix of an intervention in a hospital. Many journal articles discuss interventions and outcomes, but one of the continued goals of *Music and Medicine* is to describe, analyze, and consider the impact of the music itself. In this way, readers will be provided with essential insight as to how the intervention might be refined, thus advancing the ways music can be instituted in future clinical efforts and endeavors.

Taking into consideration the effect of music and its impact to potentially reduce stress in medical environments calls on those who institute the implementation of music to continually assess, address, and evaluate the particulars of music’s effects. This is another goal of this journal. An essential primary mission of *Music and Medicine* is to work within the broader environment of each medical genre, with the medical milieu, unit, and population, to consider each and every aspect of care from the personal and professional perspective of treatment values and preferences.

What is the way to best implement music, and how can it be most effectively evaluated? Pioneers Paul Nordoff and Clive Robbins were among the first to develop scales for assessing musical expression and communicativeness on the basis of the musical expressivity of seriously emotionally challenged children. These scales are probably the most well known instruments for considering musical parameters through focus on a client’s musical expression as a means of interpretation in and of itself. Yet although they are well known and have been used widely over the past several decades, these scales have never been validated. In this issue, two Nordoff-Robbins-trained music therapists working within two different contexts undertake examination of the work using the Nordoff-Robbins

approach in varying ways. John Mahoney investigates the Nordoff-Robbins scales in terms of rater validation, or the scorers' perspective. Mahoney seeks to learn if there is any interrater agreement when both Nordoff-Robbins-trained and non-Nordoff-Robbins-trained music therapists assess the same material. One way we can begin to understand the process of therapy and the therapeutic value of music implementation is by looking directly at what occurs in the therapy or clinical situation using material from therapeutic sessions. This material may be in the form of collected audiotaped or videotaped recordings. It may also be the results of questionnaire material and written or verbal accounts and may include quantitative material. In laboratory settings, such traces might include samples or reports of scans from examinations, combined with hospital notes and questionnaire scores. These traces are interpreted, and their outcomes are considered in conjunction with a system of meanings.

In this issue, exploring users' evidence is examined in a second Nordoff-Robbins article, by Gary Ansdell and John Meehan. In this instance, the evidence is examined not in terms of therapists' scores but by the effectiveness of music therapy itself in the research and investigation of the client reports. Their study addresses the effects of music therapy in adult mental health settings, a population that is underaddressed in the music therapy literature.

Ansdell and Meehan's research addresses our need for evidence regarding not only the effectiveness of music therapy in adult psychiatric care but the need for this evidence to be patient centered and within the domain of an approach that is Nordoff-Robbins based. The in-depth analysis implements the voice of the patient in a strategic way, through interpretive phenomenological analysis and a "music-health-illness narrative" approach, which convincingly consolidates the strength of patients' ongoing use of music as a health-promoting resource in day-to-day living.

In this issue, the reader will appreciate the musical mechanisms of understanding behavior, affect, and environment across a variety of conditions and populations in the MAKES, the Music Therapy Scale for Measuring Expression and Communication. This scale was formerly studied in 1996 and in the current issue is refined through a study by Dorothy von Moreau, Heiner Ellgring, Kirstin Goth, Fritz Poustka and David Aldridge. In sampling children from a psychiatric unit who were at varying school settings with measures at three different time intervals during the therapy process, the scale provides an objective rating of how we might come to understand musical behavior. The refined description within intervals of specific items allows for a detailed assessment of musical behavior. The MAKES presents a wider field of musical expression or communication skills as the scales examine multiple aspects of affect and musical expression.

Musical behavior need not be restricted solely to how music, sound, or even its intention or purpose is used or developed. The very act of creating music involves mechanisms of movement. In this issue, Andrew Warshaw shares his model of how movement has influenced the creation and playing of music. He

advances a proposal concerning the fundamental significance, primarily for music made on percussion and string instruments, of several varieties of locomotion that appear throughout the vertebrate phylum and in human motor development. A taxonomy of four neurodevelopmental categories of vertebrate locomotor movement is applied in a novel approach to musical analysis and creation. The approach renders kinemorphic accounts of musical organization that result from movement "encoded" in the actions and sounds of music making. A classificatory scheme of locomotion-encoded musical movements and locomotion-encoded musical patterns is articulated and discussed for its potential value in music therapy and music cognition research.

Finally, Paul Plener, Thorsten Sukale, Andrea Ludolph, and Thomas Stegemann share pilot research of music therapy for adolescents who are prone to nonsuicidal self-injury. This intriguing article is the first of its kind and in its comprehensiveness combines dialectic behavior therapy with music psychotherapy in both single and group session formats. The reader will also note that there were parent sessions, which included how to address nonsuicidal self-injury in a family context. Furthermore, there is rich descriptive material of activities that had obvious impact, including a "soundtrack of my life" experience. The use of the Functional Assessment of Self-Mutilation, the Self-Harm Behavior Questionnaire, the Beck Depression Inventory, and a diary ensured a broad range of analyses in specifically addressing suicide and self-injuring behavior. Identifying problematic situations and later reflecting on them was an important component of this rich project.

The variety of music and medicine models, case material, and clinical findings reported in this journal represent not only diverse methods but a broad range of approaches and integrative quests. The value of case research and subsequent reporting is reflected in the journal's ability to convey information that is helpful, instructional, and educational in both content and presentation.

The two Nordoff-Robbins articles in these pages provide an expanded scientific understanding of the value of this widely used approach and furthermore provide vision for how it can be substantiated, validated, and enhanced to serve an expanding range of clinical populations.

The variety of populations, settings, and mixed methods of investigation serve to make this journal comprehensive. The implementation of a broadened integrative creative arts therapy model of clinical thinking that integrates a basis for movement as part of music making in this issue is far reaching. Reports of clinical populations that are not so reachable through conventional methods (vulnerable teens and adults with psychiatric illnesses) provide a compelling foundation for study and outcomes that serve to broaden our clinical thinking.

The institution of music as a basis for investigations that incorporate the effect of sound, music, and timbre on vital signs, and the exploration of music's use within stressful health care environments such as ICUs, are important topics, and submissions such as these are providing a unique foundation and clinical forum for *Music and Medicine*. The recent influx

of articles that include the development of theory and practice, as well as novel research milieu in clinics and hospitals worldwide, is encouraging.

In the near future, there will be some changes and new efforts to expand editorship and opportunities to foster new incentives for the journal. Thanks to SAGE, our articles are currently available online at no cost during the promotional period. Doctors, nurses, music therapists, musicians, and creative arts therapists are encouraged to read, provide feedback, and contact me and/or members of our editorial staff, especially if we can be helpful with submission guidelines.

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