

## Preface to the Special Issue

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In 1988, Isaac Asimov wrote “Science can amuse and fascinate us all, but it is engineering that changes the world.”<sup>1</sup> In the disciplines of both medicine and music, respectively, the technologies that engineering develops have a dual relationship. When we consider the treatment options for a disease, natural remedies are often the preferred first line of care. The recommendation of medical tests that are necessary means to prescribing medical care may involve risks or side effects and have at times increased patients’ skepticism, which resulted in noncompliance or complete avoidance of care altogether.

And yet, it cannot be denied, that technology has changed the face of medicine in virtually each and every aspect of care, from diagnosis through treatment. Medical testing and treatment function is ever changing through the advancement of technology.

In 1996, Dr Robert Glatz wrote about the development of “Nanotechnology and Medicine.” The “computer controlled molecular tools,” described as being “considerably smaller than a human cell yet constructed with the precision of drug molecules” fascinated us. The excitement of nanotechnology which, for the first time, seemed as though it would function at a cellular and molecular level, became unusually widespread. The hope for broad functions, such as removal of obstructions in the circulatory system, destruction of cancer cells, and discussion of artificial mitochondrion, would seemingly stimulate motivations for a great many scientists wanting to be involved in developing this technology. At the end of his description and outline of how the technology would need to be implemented and investigated, Glatz writes:

The remarkably steady trend lines in computer hardware, however, give a false sense that there is a “schedule” and that developments will spontaneously happen at their appointed time. This is incorrect. How long it will take to develop these systems depends very much on what we do. If focused efforts to develop molecular manufacturing and its medical applications are pursued, we will have such systems well within our lifetimes. If we make no special efforts the schedule will slip, possibly by a great deal.<sup>2(p285)</sup>

This last paragraph of the article distinctly takes us to the reality that in order to move technology into function, we need to be steadfast in its development. Machines cannot perform

independently. Advancement of technological function involves human implementation and this takes great amounts of time, effort, and finding.

In music, which also benefits from rapid advances in technology, an unsought result has been that the act of actually making music has become less common, especially for our youth. The development of sound reproduction has technology replacing actual instrumentation. It is not difficult to create a replicated recording of an orchestral performance on a keyboard, for instance. The programs developed, which integrate sophisticated rhythms and musical genres, are pleasing enough to some composers, and this convenience and spared expense has often led to diminishing studio and stage time for the musician/performer.

It is tempting in our music making, to create sound-full musical masterpieces with virtually no authentic musical instruments. It is easy, convenient, and often fun to create melodies and scores with literally 2 fingers and many buttons. The ease and the capacity to stimulate and communicate through music and technology is the essence of this Special Issue of *Music and Medicine* addressing Music and Technology. It is the culmination of an 18-month Leverhulme Trust Fellowship undertaken by Dr Wendy Magee who has opened new frontiers in exploring how professionals are engaging with music technology (in its broadest sense) in therapeutic and various health settings and with a variety of populations throughout the world.

Dr Magee has a broad range of expertise in the field and her clinical prowess recognizably has grounded her vision of how technology can serve a variety of populations. Her focus in music therapy has included the treatment of adults with learning difficulties, patients with acquired brain injury, Huntington

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disease, multiple sclerosis, neurobehavioral disorders, and Parkinson disease, as well as elderly people, and those in need of stroke rehabilitation and palliative care.

It is our pleasure to have Dr Wendy Magee's influence on this largely underinvestigated and undernourished area of music and medicine. Her strong knowledge of music, spanning from early music and harpsichord performance and blended with her current love of technological applications for the most fragile populations, is noteworthy.

We are grateful that Dr Magee has provided a music therapy for clinical and research perspective on this impressive compila-

tion of articles. We are certain that these topics will be stimulating to our readers, and we are hopeful that this special issue will stimulate further developments in this important area of practice.

### References

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