

Editorial

It is with great pride and satisfaction that we celebrate the 20th year of *Technology and Health Care*. The journal was established with the aim to provide a forum for topics of common interest and overlap between engineering and medicine, as well as with health care in general. It was in particular the result of an initiative by ESEM, the European Society for Engineering and Medicine that followed the first European Union programs in Biomedical Engineering.

The application of technology within the framework of health care has a long history. It dates back in time when surgical devices and artificial limbs (consider, e.g., the well-known Götz von Berlichingen with the iron hand) were widely used to treat injuries, mostly in battle environments. Diseases were treated with medication that derived from traditional knowledge on healing (or alleged healing) plants, often in combination with all kinds of magic and sorcery. Methods were mostly unsophisticated, primitive and quite radical. Today, Biomedical Engineering (BME) represents high technology and is ubiquitously present in clinical medicine, medical and biological research and general healthcare. This is emphasized by the fact that today even sciences such as psychology and economics make use of MR imaging in order to investigate brain activities under controlled conditions of interest. Accordingly, THC covers a wide spectrum of topics ranging from medical technology to technical aspects of health care in general as is indicated in the aims and scope of the journal and highlighted in this special “birthday” issue.

Health care technology faces a number of significant challenges to be addressed in the future. First, in view of the increasing cost of health care in the industrialized countries medical and biological devices and techniques have to become more economical, specific and fail proof. Second, we have to acknowledge the fact that still a large part of the world-wide population has no or insufficient access to state-of-the art medical treatment. Again, biomedical technology is challenged to provide a basis for adequate world-wide health care. Third, the aging population in the industrialized world creates new needs in view of home care, rehabilitation and telemedicine. Finally, the tendency towards personalized and individualized medical treatment calls for novel approaches in diagnosis and therapy.

New, innovative technologies such as genetic diagnostics and engineering, implantable sensors and control units, nano-technology based drugs, multimodal imaging, computer-assisted surgery, rehabilitation methods and individualized mathematical modeling of pathophysiologic processes are under way. They will cover the entire range from the molecular to the macroscopic scale and will open new horizons in medical and biological engineering. Likewise, social, psychological and in particular economical issues associated with the application of medical technology are of rapidly increasing importance.

From the beginning, THC has appeared regularly and published contributions of a high quality.

THC will continue to provide a forum for the presentation, discussion and assessment of innovative technical methods within the entire area of the administration of health care.

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