Foreword: Managing implementation of e-health technologies
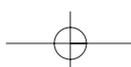
David Bangert, Robert Doktor*
and Michael Valdez

This Special Issue of the *International Journal of Healthcare Technology and Management* examines the fundamental causes of low utilisation of clinical e-health technologies and explores possible managerial approaches to encourage higher rates of utilisation. It directly supports the aims of the journal:

- to establish channels of communication and disseminate knowledge between policy-makers, professionals and providers working in the healthcare and related industries
- to further the knowledge, research, theory and practice in the fields of management, economics and the management of technology in healthcare.

This Special Issue was generously supported and encouraged by the Telemedicine and Advanced Technology Research Center. It is through the efforts of the Center that a community of practice has emerged within the American Telemedicine Association – the extension of the special work group on human factors. The collaborative members of this community of e-health practitioners and scholars will be publishing a book in the spring 2004 entitled *Human and Organizational Dynamics in e-Health: a Global Perspective*. We dedicate this Special Issue to the late Rufus Sessions, the 2002 Maxwell Thurman Award recipient.

Articles included in this Special Issue span a wide range of e-health applications, from iKeys in Biometric Technology to Traditional Rural Telemedicine. The largest segment of the e-health arena, however, is encompassed by the term 'telemedicine' when used in its broadcast sense. The causes of low utilisation and possible managerial interventions to remedy those causes are seen to be somewhat generic across diverse areas of clinical e-Health. That is, what works managerially in telemedicine and telehealth systems also appears to be useful in biometric technology and other e-health applications. Although we focus on 'telemedicine' in most of these contributions, the results, we believe, may be generalised for many clinical e-health applications.

Telemedicine is at the forefront of clinical e-health systems. Globally, both in the government and private sectors, professionals agree that telemedicine is a good idea and here to stay; most agree it will be central to the future delivery of healthcare services. Yet, many stakeholders report that telemedicine seems more like a failure than a success. In case after case, soon after the implementation of telemedicine and the loss of start-up funding, the utilisation and interest curves skate downhill – sometimes to the point where the system remains unused. While there are notable exceptions to this trend, the reported failures of telemedicine foster a reputation that distinctly challenges leaders who seek to adopt this promising technology. Further, the same dynamics relevant to the adoption of telemedicine may foreshadow the adoption of different and/or more advanced clinical e-health technology to come.

'Clinical e-health technologies' refers to technologies which primarily generate in the computer and information sciences and are applied to clinical, as opposed to administrative, data in healthcare situations.

Across the globe, failures are disheartening, especially for advocates of the efficacy of telemedicine and other clinical e-health solutions. To them, telemedicine clearly presents a constellation of opportunities, some of which are: to increase access to healthcare of the highest quality; to improve the quality of healthcare by providing earlier, more effective interventions and to improve the quality of healthcare by providing a mechanism for continuing clinical learning and rapid, widespread knowledge dissemination. And, intuitively, healthcare professionals believe that telemedicine holds the promise of decreasing the cost of healthcare services.

Why do so many telemedicine systems fail? What are the dynamics underlying the failure to thrive and how can we preclude such failure? Why is success so rare? What enables the successes and what can we learn from them? Research, especially the examination of the impact of organisational and managerial dynamics on telemedicine, may hold the answers to these questions, not only for telemedicine but also for clinical e-health systems in general.

Normally, the root of telemedicine failure (relative to cost-effectiveness) is not the technology, but rather the human and social system in which the technology is implanted. When the technology is not utilised to its potential, a low number of interactions is expensed to the initial investment; the programme is thus deemed too costly. Insufficient utilisation is central to the failure of telemedicine: the source is neither consumer acceptance nor inadequate technology. The utilisation problem is a human dynamic expressing an interesting ambiguity: healthcare providers accept the new delivery system as a good development and yet resist using it. The organisational and individual resistance may come from human-machine interface, change in organisational processes and culture, individual behaviour, clinical conditions, and user preconceptions of telemedicine.

This Special Issue focuses on understanding and resolving organisational and individual resistance to telemedicine, and prescribes specific managerial solutions that are inordinately relevant to current challenges – as well as to more complex clinical e-health technology of the future.

Facilitating utilisation is a key to unlocking the potential of e-health technology. Understanding and managing people within an organisation during a change of technology such as telemedicine is a complex, interactive and systemic challenge. Particularly since the reality of being able to isolate and control one aspect of an issue without impacting other aspects is highly unlikely. High rates of utilisation of telemedicine significantly reduce the cost per consultation and result in telemedicine being viewed as a success by healthcare leaders which then allows continuation, innovation, increased access, improved quality and reduction of the overall cost of healthcare.

In the articles which follow, you will find a series of quantitative empirical studies and qualitative research (including some very interesting case studies) which yield an understanding of the organisational and managerial approaches which are most likely to enhance utilisation of clinical e-health technologies: Enjoy!