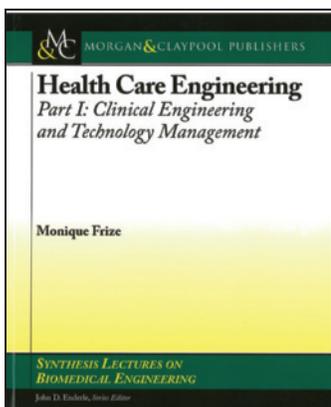


Reading Room



Health Care Engineering

Part I: Clinical Engineering and Technology Management

Part II: Research and Development in the Health Care Environment

Author: Monique Frize

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About the Reviewer



Matthew F. Baretich, PE, PhD, is president of Baretich Engineering, Inc. (Fort Collins CO), which

provides clinical engineering and forensic engineering services. He is a subject matter expert for AAMI's *Benchmarking Solutions – Healthcare Technology Management*. E-mail: mfb@baretich.com.

I met the author, Monique Frize, in 1989 at a conference in the historic city of Weimar, during the dissolution of the German Democratic Republic, known more commonly as East Germany. She was then finishing her PhD in clinical engineering from Erasmus University in Rotterdam in The Netherlands.

Frize is a member of the faculties of Carleton University and the University of Ottawa in Canada. During her career, she has been a practicing clinical engineer and an academician focusing on technology management and on the role of women in engineering.

These two short books are based on university courses Frize has taught over the years. They provide overviews of several related topics, all firmly based in historical and international contexts. It is this broad perspective that sets these books apart.

Audience: Healthcare technology management (HTM) professionals will find these books useful in two ways. First, the well-written summaries and extensive lists of references will serve as entry points for further study. Second, for those familiar with the technical aspects of these topics, the historical discussions show how we got where we are, and the international material places the Canadian and U.S. experiences within those of other countries.

Features: The first chapter of first book describes the health systems in Canada and the United States. My observation has been that

many people in the United States have a limited understanding of health systems in other countries, a deficit that is especially critical as we continue our implementation of the Affordable Care Act. In addition to the material in Chapter 1, I would recommend *The Healing of America: A Global Quest for Better, Cheaper, and Fairer Health Care* by T. R. Reid.

Following that introductory material, there are three technical chapters: Measuring Physiological Variables in Humans (chapter 2), Safety Considerations, Minimizing Liability, and Continuous Quality Improvement (chapter 4), and Telemedicine: Applications and Issues (chapter 5).

Interspersed among the technical chapters are two chapters that put the material into an international context. Management of Medical Technologies in Industrialized and Developing Countries (chapter 3) draws on the author's own survey research. Impact of Technology on Health Care and the Technology Assessment Process (chapter 6) addresses how technology affects healthcare delivery throughout the world.

The second book deals primarily with a variety of information technology (IT) issues. These include Adverse Events, Medical Errors, and the Role of Information Technology in Reducing Them (chapter 7), The Electronic Medical Record: Design, Safety, and Meaningful Use (chapter 8), Knowledge Management in a

Clinical Environment: Data Acquisition, Storage and Retrieval (chapter 9), Knowledge Discovery: Data Analysis and Data Mining Tools (chapter 10), and Knowledge Translation, Integration, and Sharing in a Clinical Environment (chapter 11). These chapters are less directly relevant to typical HTM practice, but are useful introductions to areas that are rapidly becoming more important in our daily work.

The final chapter, Clinical Trials and Usability Studies in a Medical Environment, addresses (along with Chapter 6) another aspect of HTM practice that is, fortunately, becoming more widespread. My experience with incident investigation leads me to believe that careful technology assessment represents a major opportunity for HTM professionals to head off adverse patient incidents that are the result of organizations selecting medical equipment that is poorly designed for their needs.

Assessment

I should note here that these books are part of Morgan & Claypool's *Synthesis Lectures on Biomedical Engineering* series, edited by John Enderle. As such they, and other books in the series, are available in electronic format through many university and large medical libraries.

If you are interested in these topics, and especially if you are interested in their historical and international aspects, get these books. They will give you concise overviews and many references for further reading. ■