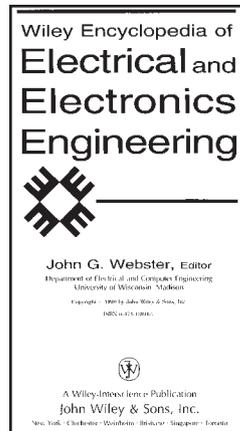


Wiley Encyclopedia of Electrical and Electronics Engineering

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Chapter on Clinical Engineering

Author: Ira Soller
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It is not too often that clinical engineering gets an entire chapter to itself in an encyclopedia on electrical engineering. This, however, is what is included in *Wiley's Encyclopedia of Electrical and Electronics Engineering*—a massive 24-volume set covering virtually all areas of electrical engineering.

The chapter on clinical engineering—written by Ira Soller, director of the Scientific and Medical Instrumentation Center (SMIC) at the State University of New York, Downstate Medical Center—fully describes the evolution of clinical engineering and the functions associated with a full-service clinical engineering department. The 22 pages associated with this chapter are nicely supplemented with photographs of department staff engaged in a variety of clinical engineering tasks. The chapter is also well documented, containing 45 references over a span of the last 25 years.

Audience: While only select libraries may be able to afford the complete 24-volume set, the chapter on clinical engineering would be welcome reading for anyone interested in what clinical engineering is and, in particular, what an established medical center-based clinical engineering department does. The chapter also describes the operation of a model department—one deserving of emulation.

Features: Following a brief review of clinical engineering's basic mission and employment opportunities, the chapter begins with a thorough treatment of the educational qualifications and job tasks for both biomedical

equipment technicians (BMETs) and clinical engineers. The importance, need, and opportunities for continuing education are also addressed. A listing of supporting professional organizations is also included.

Included in the brief history of the profession is the reference to the birth of the electrical safety scare and frenzy credited to Ralph Nader's infamous article in the March 1971 *Ladies Home Journal*. The influential and generous role of the W.K. Kellogg Foundation and the impact of the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) are also highlighted. The effects of managed care and the reductions in federal reimbursement practices and their impact on clinical engineering management—namely, the trend toward outsourcing and staff reductions—make this a painfully current section.

The primary focus of this chapter, however, and the most refreshing is its discussion of the many services that an established, full-service clinical engineering department has to offer. The SMIC is not just a biomedical equipment fix-it shop. Their comprehensive and respected involvement in virtually all phases of medical equipment evaluation, acquisition, use, education, maintenance, incident investigations, and ownership remains the envy of many clinical engineering departments. In this regard, the SMIC is functionally and literally a textbook operation.

The only feature of this full-service department that is not discussed is its budget. Specifically, a distribution of department expenses, its internal cost accounting procedures, and especially ways to justify its existence would have been a welcomed addition to this otherwise complete chapter. While the value-added benefits of a full-service clinical engineering department are often obvious to those providing them, many of these benefits are very difficult to quantify.

Assessment: This chapter should be required reading for anyone considering clinical engineering as a career choice. It would also serve as a great model for existing departments seeking to expand and build on the hope and promise associated with the profession's founding mission.

Reviewed by Larry Fennigkoh
 Associate Professor
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