

# Chapter XI

## Bio–Behavioral Medicine and Information Technology

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### **ABSTRACT**

*Research advances in behavioral medicine have prompted increasing recognition of the importance of behavioral and social science factors in healthcare, resulting in calls for the greater incorporation of the behavioral sciences in medical education and of behavioral interventions in healthcare. These developments have underscored the need for research on the mechanisms of bio-behavioral interaction and the conceptual limitations of the traditional biomedical model. The evolution of a bio-behavioral model of medicine and increasing multidisciplinary translational research in bio-behavioral medicine, have significant implications for information technology (IT). Consumers of IT must be assured that the “best evidence” incorporates relevant information on behavioral as well as biological factors, especially, information on the complex processes and mechanisms of bio-behavioral interaction that contribute to medical conditions and their treatment.*

### **INTRODUCTION**

Increased calls for the incorporation of the behavioral sciences in medical education, research on the mechanisms of bio-behavioral interaction, and initiatives in translational medical research and clinical care, have prompted mounting interest in interdisciplinary research, health care practices, and teaching. These changes, in turn, have led to an evolving re-conceptualization

of the bio-medical model and the structure of academic medicine, with more emphasis upon the integration of biological and behavioral sciences and interdisciplinary collaboration, and less emphasis upon traditional disciplinary insularity and competitiveness.

Evolving bio-behavioral models of medicine and health care, such as the Integrated Sciences Model (Carr, 1998), have profound implications for the future conceptualization of medicine, placing

greater emphasis upon the interaction of biologic and behavioral science factors in health care, and requiring greater attention to an expanded array of measures, defining their relevance to various diseases and disorders and, therefore, their diagnostic and therapeutic significance. Whereas, information technology (IT) has concerned itself primarily with the process and methodology of information transfer in bio-medicine, the emergence of bio-behavioral medicine has significant implications for health care information technology since it raises the question as to whether the information currently being transferred is sufficiently comprehensive and relevant.

### **THE BIOMEDICAL LEGACY OF THE FLEXNER COMMISSION**

For more than three decades researchers have documented the importance of behavioral factors in disease and health care. Medical educators have persistently called for the greater inclusion of the behavioral sciences in medical education, only to have those recommendations repeatedly ignored (Carr, 1998). In 2002 the National Institute of Health, Office of Behavioral and Social Science Research (NIH-OBSSR), together with the Robert Wood Johnson Foundation, commissioned the Institute of Medicine (IOM) to determine what progress had been made in integrating the biological and behavioral sciences in medical education. An interdisciplinary committee of administrators, scientists, clinicians and educators reviewed curricula in select medical schools, interviewed resources, developed a list of priority topics, and attempted to identify the barriers that had impeded integration. In its final report (Cuff & Vanselow, 2004), the Institute of Medicine (IOM) committee reported that the primary barriers to the integration of the behavioral and biological sciences were the administrators of academic medical centers who lacked familiarity with or

exposure to the behavioral sciences and their research literature.

The origins of this knowledge deficit lay in the historical legacy of the Flexner Commission which was charged by the Carnegie Foundation early in the 20th century to assess the state of medical training in the U.S. and Canada (Flexner, 1910). The commission found medical education and practice to be abysmal and lacking in any standards for instruction, teaching facilities or faculty qualifications. The commission found that many of the concepts and procedures being taught lacked any scientific basis and recommended that medical training emphasize didactic and laboratory instruction in the basic biological sciences in the first and second years, and increased hospital based clinical training in the third and fourth years. Thus, the Flexner Commission called for the establishment of a scientifically based medicine, but on exclusively biological foundations. The implementation of Flexner's recommendations fostered the development of medical school administrative structures comprised of biological discipline-specific departments (e.g. anatomy, physiology, etc). Since behavioral science departments did not exist in medical schools, they were to play no role in medical research, medical education, or the administration of academic medicine until late in the 20th century. Decisions regarding the allocation of resources, teaching time, curriculum content and faculty positions were, and continue to be, made by the biological discipline specific departments, their heads and the Deans who are promoted from the ranks of those departments.

The discipline-specific structure of academic medicine continues to influence the allocation of resources, teaching time, and faculty positions. Senior faculty and administrators, trained in the traditional curricula, are limited in their exposure to, knowledge of, and ability to appreciate, let alone implement, an integrated bio-behavioral model with which they have little familiarity.

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