



THE FACULTY OF MEDICINE
Harvard University

Howard Leslie Bleich



Photograph courtesy of Beth Israel Deaconess Medical Center

Howard L. Bleich, MD, was a renowned expert in medical informatics and has made significant contributions to the medical informatics field, focusing on using technology to support clinical decision-making and information retrieval systems to improve patient safety.

He was born in Atlanta, Georgia, in 1934 and spent his formative years in Washington, D.C. He was the eldest of three siblings, all of whom pursued medical careers. Dr. Bleich received his undergraduate degree from George Washington University and his medical degree from Emory University.

In 1967, Dr. Bleich joined the Harvard Medical School and Beth Israel Hospital faculty, where he became renowned for his exceptional teaching abilities. He often initiated his classes on renal pathophysiology with the question, “Who remembers the molecular weight of sodium?” Additionally, Dr. Bleich served on the New England Journal of Medicine editorial board and edited the Beth Israel Seminars in Medicine publication.

Dr. Howard Bleich is known for his pioneering work in medical expert systems, particularly for developing the “Acid-Base Therapy Advisor.” This computer-based expert system was the first to provide diagnostic and therapeutic recommendations for patients with acid-base imbalances. The system utilized a knowledge base of medical literature and clinical expertise to generate recommendations for treatment based on the patient’s specific condition and medical history. This system was a significant advancement in medical informatics, as it demonstrated the potential for computer-based expert systems to provide personalized and evidence-based recommendations for patient care. The “Acid-Base Therapy Advisor” paved the way for developing other medical expert systems that have since been used to support clinical decision-making and improve patient outcomes.

*In tribute to their dedicated efforts to science and medicine, deceased members of the Harvard Faculty of Medicine (those at the rank of full or emeritus professor) receive a review of their life and contributions with a complete reflection, a **Memorial Minute**.*

In 1970, Dr. Howard Bleich and Dr. Howard Hyatt collaborated to recruit Warner Slack to help establish the “Laboratory for Computer Medicine.” This was the first academic division devoted to exploring the potential use of computers in clinical care. Their goal was to study how computers could be used to improve patient care and train future clinicians in medical informatics.

In 1976, Boston’s Beth Israel Hospital approached Drs. Bleich and Slack with a request to computerize the medical records for the entire hospital, except for financial systems. This was a significant undertaking, and with the hospital leadership’s support, they successfully implemented an integrated hospital information system. This project was an essential milestone in the history of medical informatics, as it demonstrated the potential for computers to improve healthcare delivery and patient outcomes. The success of this project paved the way for the widespread adoption of electronic medical records and other forms of health information technology in healthcare settings.

Dr. Howard Bleich made several notable contributions to the field of medical informatics, including the development of the Medical Information Storage and Retrieval (MISAR) system. Researchers at Harvard and other institutions widely used this system to store and retrieve time-oriented clinical data. The MISAR system served as the foundation for FileMan, the basis of the information systems used by the US Department of Veterans Affairs (VA). This system has been instrumental in improving healthcare delivery to veterans by providing clinicians with easy access to patient data.

In addition to the MISAR system, Dr. Bleich also invented a program called “PaperChase,” which enabled end-users to search for biomedical literature. This groundbreaking program allowed clinicians and researchers to search for relevant medical information using keywords and natural language queries. Dr. Bleich’s contributions to medical informatics have significantly impacted the field and helped improve patient care and outcomes. The MISAR system and PaperChase program are just two examples of how Dr. Bleich’s innovative work has paved the way for the development of modern health information technology systems.

In 1983, Dr. Howard Bleich and Dr. Warner Slack were invited to transfer the computer system they had developed at Beth Israel Hospital to Brigham and Women’s Hospital. There, they established the Center for Clinical Computing and named their system the CCC system, which still operates today (although it has been updated) at Beth Israel Deaconess Hospital.

The CCC system was designed to meet the needs of physicians, nurses, house staff, other hospital personnel, and patients. Dr. Bleich was instrumental in developing several key technologies that allowed the system to function efficiently, including a clustered architecture system and a memory-sharing system. These innovations were developed long before they were commercially available and helped to make the CCC system one of the most comprehensive and reliable clinical systems of its time.

Dr. Clement H. McDonald, a pioneer in the field of medical informatics, praised the work of Dr. Bleich

and his team, noting that the CCC system was one of the best clinical systems ever developed. The system was widely loved by hospital personnel and patients and set the standard for developing modern health information technology systems. The CCC system, and other systems developed by Dr. Bleich and his colleagues, have paved the way for modern health information technology's development and have helped improve the quality and efficiency of patient care.

Dr. Bleich's work has transformed clinical care at Beth Israel Deaconess Medical Center and worldwide. His contributions have earned accolades from colleagues and leaders in the field worldwide. To learn more about his career, please visit <https://www.howardbleich.org>.

Respectfully submitted,

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