

# Division of Clinical Informatics



Charles Safran, MD,  
Chief

## ● *Overview*

The Division of Clinical Informatics (formerly Clinical Computing), created over 30 years ago by Drs. Howard Bleich and Warner Slack, was among the first academic divisions in the world to concentrate on the use of computers for patient care, teaching, and medical research. The goals of the Division have been to improve the quality and reduce the cost of medical care, to enhance the quality of medical education, to improve the relationship between doctor and patient, and to explore innovative approaches to research through computing.

Beginning in 1976 the faculty and staff of the Division designed, developed, implemented and studied hospital-wide, integrated computing systems for doctors, other clinicians, and students that would give the results of diagnostic studies immediately upon request; offer access to the biomedical literature with PaperChase (the first program of its kind, which in turn gave rise to a new field of literature searching and spawned numerous derivative programs); offer advice, consultation, alerts and reminders; assist with communication by electronic mail (with the Division's home-grown system, which was the first e-mail to be installed in a clinical facility); assist with order entry; and assist in the day-to-day practice of medicine, both for inpatient and ambulatory care.

## ● *Clinical Activities*

A distinguishing feature of the clinical computing systems developed and studied in the Division has been the intensity and extensiveness of their voluntary use (thousands of times each day), thus contributing in numerous important ways to the practice and teaching of clinical medicine.

The Online Medical Record (OMR) for ambulatory care was developed by Dr. Charles Safran together with Drs. David Rind and Daniel Sands, and transformed to a Web-based system (WebOMR), which is used by over 1000 clinicians in more than 100 practices to document and track the processes of medical care.

## ● *Educational Programs*

Dr. Safran directs the fellowship program that is part of the Harvard / HST Medical Informatics Training program funded by the National Library of Medicine. In addition, Dr. Stan Finkelstein leads the newly formed combined MD/MBA program at Harvard University. Drs. Finkelstein and Safran teach a new course at HMS, "Medical Management" for 3rd year medical students. Dr. Slack, together with Drs. Howard Hiatt, Donald Berwick, and David Blumenthal, teaches a course for Harvard College undergraduates, "The Quality of Health Care in America." Dr. Steven Locke is the founding course director for HST.921, a graduate elective in the Harvard-MIT Division of Health Sciences and Technology (HST).

## ● *Research Activities*

Under the direction of Dr. Safran, the division has been awarded research contracts by the government of Dubai to use informatics to improve the care of diabetic patients, including Internet-based electronic charting methods, real-time quality and performance measurements, and tailored patient portals that will help physicians and nurses efficiently manage populations as opposed to one patient at a time.

Dr. Warner Slack has been supported by the National Library of Medicine to help patients and their doctors, working together, to



● *Selected Publications*

Farzanfar R, Stevens A, Vachon L, Friedman R, Locke SE. Design and development of a mental health assessment and intervention system. *J Med Systems* 2007; 31:49-62.

Engel CC, Locke S, Reissman DB, DeMartino R, Kutz I, McDonald M, Barsky AJ. Terrorism, trauma, and mass casualty triage: How might we solve the mind-body problem? *Biosecurity Bioterrorism* 2007; 5:155-163.

Halamka J, Mandl KD, Tang P. Early experiences with personal health records. *J Am Med Inform Assoc* 2008; 15:1-7.

Marin HF. Nursing Informatics: Advances and trends to improve health care quality. *Int J Med Informat* 2007; 76 Suppl 2:S267-9.

McCray AT, Marin H. Medinfo2007: Building sustainable health systems. *Methods Inform Med* 2007; 46:93.

Safran C, Bloomrosen M, Hammond WE, et al. Toward a national framework for the secondary use of health data: an American Medical Informatics Association White Paper. *J Am Med Inform Assoc* 2007; 14:1-9.

Schachter AD, Ramoni MF, Baio G, Roberts TG, Finkelstein SN. Economic evaluation of a Bayesian model to predict late-phase success of new chemical entities. *Value in Health* 2007; 10:377-85.

Slack WV. Cybermedicine for the patient. *Am J Prevent Med* 2007; 32(5 Suppl):S135-6.

Cantor M, Feldman H, Triola M. Using trigger phrases to detect adverse drug reactions in ambulatory care notes. *Qual Saf Health Care* 2007; 16:132-4.

Gray JE, Geva A, Zheng, Z, Zupancic JAF. CoolSim: Using industrial modeling techniques to examine the impact of selective head cooling in a model of perinatal regionalization. *Pediatrics* 2008; 121:28-36.

Kamholz K, Cole CH, Gray JE, Zupancic JAF. Cost-effectiveness of early treatment for retinopathy of Prematurity. *Pediatrics* 2009;123:262-9.

Sands DZ. ePatients: Engaging patients in their own care. *Medscape J Med* 2008; 10:19.

Kanter AS, Wang AY, Masarie FE, Naeymi-Rad F, Safran C. Interface Terminologies: Bridging the gap between theory and reality for Africa. *Stud Health Technol Inform* 2008; 136:27-32.

● *Faculty*

Howard L. Bleich, MD	Steven E. Locke, MD
James A. Carter, PhD	Alexa T. McCray, PhD
Roger B. Davis, ScD	Larry Nathanson, MD
Meghan M. Dierks, MD	Shane Reti, MBChB, QSM
Henry Feldman, MD	David M. Rind, MD
Stan Finkelstein, MD	Charles Safran, MD
James Gray, MD	Daniel Z. Sands, MD
John D. Halamka, MD	Warner V. Slack, MD