

Department of Health Services
UCLA School of Public Health

Health Services 288: The Role and Impact of Technology in Health Services

Spring 2006

Instructors: Paul R. Torrens, MD, MPH
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Date/Time: Wednesdays - April 5, 2006 to June 7, 2006

Location: Room 41-268

Purpose and General Organization of the Course

The purpose of this course is to provide graduate students in the health sciences with a general understanding of the role and impact of technology in health services in the United States. By examining the various types of health care technologies and by understanding the origins and the processes for their production, approval, adoption, and financing, students will develop an appreciation for the size and scope of its potential impact. By examining costs of production, purchase, installation, and use, as well as the impact of technology on associated patterns of care, students will develop an appreciation for technology's economic and financial impacts. Finally, by examining the ways in which technology changes patterns of clinical practice, changes consumer demand, and (possibly) changes value systems within medicine, students will develop an appreciation of technology's organizational, clinical, and ethical impacts as well.

The course will be divided into several general sections. The first section will provide a general framework for understanding the overall role of technology in US health care, including information on the different types of technology to be discussed (pharmaceuticals; medical devices; clinical procedures; information technology). It will also provide information on the process of technology development, diffusion, adoption, and utilization within the health system, as well as information on the methods of technology assessment and approval at the governmental, health insurance, and institutional levels.

In the third section of the course, attention will focus on the impact of technology on the economics of healthcare, clinical practice, consumer behavior, organizational structure

and function, and health policy. Each of these areas will be examined separately, using appropriate case studies and examples that provide further elaboration of the general principles. This section will also include discussions of ethical issues, access to technology, and equity in distribution of new technology.

In the last section of the course, a selection of important new technologies will be discussed to provide a general sense of what is currently happening with technology development and use, as well as what lies ahead for technology supply and demand in the future. These will (hopefully) include developments in embryonic stem cell research, robotics, telemedicine, neuropharmacology, genetics, digital imaging, nanotechnology, and electronic medical records. Each of these individual technological developments will be presented for two reasons: (a) because the technology is interesting in itself, and (b) because it emphasizes one or more of the broader and more general issues/principles/challenges involved in understanding the role of technology in health care.

Since much of the course content is presented by guest lecturers and since it is not always possible to coordinate their availabilities with the course outline, many of the actual course sessions may eventually appear somewhat out of sequential order. To help prevent student confusion and to remind those taking part in the course exactly how each session fits into the overall framework, an overall theoretical framework for the course will be presented in the first session and each session thereafter will be introduced with a specific description of how that particular session fits into the overall pattern. This possible disruption of sequencing of individual sessions will call for specific efforts on the part of the course instructors and the students themselves to integrate the various sessions into the overall framework of the course as a whole. The students' cooperation in this integration effort will be greatly appreciated.

Textbooks for the Course

The two main textbooks for the course will be: (1) Technology in American Health Care: Policy Directions for Effective Evaluation and Management, 2004, by Alan Cohen and Ruth Hanft, and (2) The Business of Healthcare Innovation, 2006, by Lawton R. Burns. Both books will be available in the UCLA Medical Center Bookstore. Additional individual readings will be provided by the instructors and guest lecturers for individual sessions.

Grading for the Course

Grading for the course will be derived from three sources: (a) attendance/completion of assigned readings/active participation in course sessions and exercises: 25%; (b) summary of major learnings/insights/understandings from the course: 25%; (c) final course project/product: 50%. Auditors for the course are welcome and will be expected to take an active part in the classroom discussions and exercises.

Summary of Major Course Learnings/Insights/Understandings

For the final session in the course, all students will be expected to produce a one/two-page summary of the major points that they have learned through this course. This can be a simple listing of major points, or it can be a listing of major points together with a brief explanation of why the student feels it/they are important. It is hoped that this device will force students in the course to continuously ask themselves, "What is important about the material presented today, the material that I have just read, or the discussions that have just taken place." It is not meant to be a research paper with references, documentation, or elaborate explanations; rather it is meant as a simple check for students, instructors, and guests: "Did I learn anything today that is worth remembering and storing away?"

Final Course Project/Product

Since there will most likely be a wide variety of professional backgrounds and interests among the students attending the course, the instructors will allow considerable latitude for students to develop final course projects/products that are particularly relevant to their individual interests. In order to ensure standardization of the projects/product, students will be required to present a brief written outline of their intentions to the instructors early in the course and should not proceed until they have received approval from the instructors.

For the final course project/product, each student should select a particular technology and analyze it from several points of view. In the first, the student should review the history and development of the particular technology, tracing it from its origins to its present status. In the second, the student should identify those forces/pressures/opportunities/events/etc. that either helped or hindered the progress of the technology at various important stages of its development from initial scientific idea to final diffusion and use by clinicians. In the third, the student should discuss the impact of the technology on: (a) the economics of healthcare; (b) the clinical practice; (c) consumer behavior; (d) organizational function and behavior; (e) national/state/local health policy.

Contact with Instructors

The instructors welcome contacts with the students, either about the contents of the course or about individual student career directions and professional progress. Their contact information is as follows:

Doctor Torrens : (voice mail: (310)(825-7640)(e-mail: torrens@ucla.edu)
(appointments: call (310)(825-7640) giving days and times
when you are available; Doctor Torrens will call back to
confirm)

Doctor Aronberg: (voice mail: (310)(277-9876)(e-mail:
saronberg@earthlink.net)

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Tentative Schedule of Lectures/Presentations

<u>Date</u>	<u>Subject</u>	<u>Speaker</u>	<u>Readings</u>	
			<u>Cohen</u>	<u>Burns</u>
4/5/06	Introduction to the Course	Torrens Aronberg	1,2	1
4/12/06	Technology Development/Adoption (b) Technology Assessment	Torrens Aronberg Aubrey	3,4,5 6,9	
4/19/06	(a) Economics of Technology (b) Pharmaceutical Pricing	Kominski Stalker	7 12	2
4/26/06	(a) Technology Diffusion/Use (b) Role of the FDA	Torrens Aronberg Grundfest	6,9	8
5/3/06	(a) Venture Capital in Technology (b) Bariatric Surgery	Crouch Siegal	4,10,12	4,5
5/10/06	(a) Neuro-imaging (b) Genetics/Genomics	Mazzioto Grody	11 3	6 3
5/17/06	(a) Nanotechnology (b) Embryonic Stem Cell Research	Grundfest Lill	3 3	
5/24/06	(a) Electronic Medical Records (b) New Developments in Oncology	Guze Audeh	13 4,8	7
5/31/06	(a) Economic Impact of EMR (b) Organizational Ethical Issues	() Finegold	14	

(also a case study
from BioIndustry Ethics)

6/7/06 (a) Access/Use of Clinical Technology () 15
(b) Student/Instructors Course Summaries Torrens
Aronberg