

Chapter 14

Gastrointestinal Motility

Online Educational Endeavor

Shiu-chung Au
Tufts Medical Center, USA

Amar Gupta
University of Arizona, USA

ABSTRACT

Medical information has been traditionally maintained in books, journals, and specialty periodicals. Now, a growing number of people, including patients and caregivers, turn to a variety of sources on the Internet, most of which are run by commercial entities, to retrieve healthcare-related information. The next area of growth will be sites that focus on specific fields of medicine, featuring high quality data culled from scholarly publications, operated by eminent domain specialists. One such site is being developed for the field of Gastrointestinal Motility; it further augments the innovations of existing healthcare information sites with the intention of serving the diverse needs of lay people, medical students, and experts in the field. The site, called Gastrointestinal Motility Online, leverages the strengths of online textbooks, which have a high degree of organization, in conjunction with the strengths of online journal collections, which are more comprehensive and focused, to produce a knowledge base that can be easily updated, but still provides authoritative and high quality information to users. In addition to implementing existing Web technologies such as Wiki- and Amazon-style commenting options, Gastrointestinal Motility Online uses automatic methods to assemble information from various heterogeneous data sources to create a coherent, cogent, and current knowledge base serving a diverse base of users.

INTRODUCTION

For the last several decades, Harrison's Principles of Internal Medicine, published by McGraw Hill, has served as a major source of information in the

field of Gastrointestinal Motility. This book and its online presentation have been, and continue to be, used by many medical colleges to train the next generation of medical doctors; practitioners in this field also frequently refer to them.

Traditionally, papers and articles in specialty medical journals supplemented the material in

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textbooks like Harrison. The latter book would itself be updated periodically to reflect the state of the art in medicine and the various specialties, providing a consensus opinion of the standard of care.

The advent of computers and Internet has given rise to online sources of information such as UpToDate (<http://www.uptodate.com/>) and WebMD (<http://www.webmd.com/>). While gaining tremendous following and being updated frequently, these sources of online information relate to the medical field as a whole and not to particular specialties. Furthermore, the information on these sites is generally maintained by personnel of the respective organizations, not by specialists in specific disciplines of medical science. These organizations are usually set up as commercial entities, rather than non-profit ones.

The progressive transformation of information has seen many journals that were previously in paper format opting to use new electronic technologies; most of them now come out both in paper and electronic formats. Searchable electronic archives, such as PubMed (<http://www.pubmedcentral.nih.gov/>), now place a plethora of information into the hands of researchers and physicians. However, such searches are very time consuming and often produce irrelevant or poorly supported articles. Sites like Harrison's Online (<http://www.access-medicine.com/>) serve as information directories that can be searched, hoping to place most suitable information on a medical topic in a user's hand. Students have gradually come to expect information in quick and readily available forms without having to bother about inter-library loans or even hardcopy versions at all.

The goal of the endeavor described in this article was to adapt emerging technologies to improve methods of teaching gastrointestinal material to students and to serve as a more effective source of relevant and accurate information for medical practitioners and specialists.

Evidence-Based Medicine

A study from the School of Information Management and Systems at UC Berkeley estimates that, in 2003, the World Wide Web contained about 170 terabytes of information on its surface alone, equivalent to seventeen times the size of the information in the Library of Congress (Lyman & Varian, 2003). With this increasingly information-rich society, the most precious ability for students and learners is no longer to find the information, but to discern the most relevant pieces of information and to integrate them into practice. The American Library Association describes "information literacy" as the ability of individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (American Library Association, 1989).

The medical domain version of information literacy is evidence-based medicine.

Evidence-based medicine (EBM) is the integration of best research evidence with clinical expertise and patient values (Guyatt et al., 1992). The Centre For Evidence-Based Medicine in Toronto, Canada, states that the origins of evidence-based medicine date back to post-revolution Paris (CEBM, 2007), but that the current growth is most closely attributed to the work of a group lead by Gordon Guyatt at McMaster University in Canada in 1992. EBM publications, reflecting interest in this field, have grown from a lone publication in 1992 to thousands in 2007.

Studies have become increasingly critical of the value of textbook sources (Antman et al., 1992). Didactic continuing medical information may be ineffective at changing physician performance (Davis et al., 1997), and clinical journals may lack practical application (Haynes, 1993). In addition, physicians are faced with an increasing burden on their time, forced to diagnose patient findings within a matter of minutes (Sackett & Straus, 1998), and can only afford to set aside

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