

Drowning or Thirsting: The Extremes of Availability of Medical Information

The *PLoS Medicine* Editors

Medical researchers in the developed world increasingly feel overwhelmed by the mass of published information, both on paper and on the Web. MEDLINE/PubMed, the National Library of Medicine's electronic database, gives an idea of the scale of the problem: it contains references to more than 16 million articles in some 4,800 biomedical journals. Even this volume is dwarfed by the unindexed, "gray," literature lurking in the world's digital databases.

Navigating this sea of information is not straightforward, even for experienced researchers or clinicians. At least MEDLINE provides some sort of mark of respectability, and most professionals feel comfortable using information from this source. One obstacle they face is that only a small proportion of indexed papers are freely available as full text either from PubMedCentral or from a journal's own Web site. But those able to pay, or with access to a well-resourced library, can eventually get access to pretty much any information they want, and have some idea of its reliability. For these medical researchers and clinicians, the crucial questions then become "how appropriate is this paper for me, and how does it sit in the context of other research?"

The challenge for biomedical publishing, at least in the developed world, is now less how to produce and distribute a vast amount of literature and more how to navigate it. Just as sophisticated computer algorithms are required to derive knowledge from genomes, they are also needed to extract information from the ever-growing bibliome. New search and aggregation engines are continuously under development, which mine and analyze the published literature in increasingly subtle and systematic ways. These tools are crucially reliant on the free availability of papers, not just abstracts but also the whole text and the data behind it. PLoS is committed to helping this happen by catalyzing the change to open-access publishing,

open equally to all human readers and to the host of automatic crawlers and spiders that are the foot soldiers of such informatic applications.

If medical professionals feel confused about the huge volume of medical literature available to them, they should spare a thought for the nonprofessional reader. Patients, relatives of patients, and advocates are increasingly important consumers of health-care information through the digital medium. Yet, as any Google user will know, it is not high-quality information that predominates on the Web. Navigating across the shifting landscape of information, avoiding quackery and misinformation, to reach the firm ground of solid evidence is not easy. One group of information providers in this landscape is the pharmaceutical industry, with yet another source of information: direct-to-consumer advertisements. Such advertisements have always been a familiar sight in the less-developed world, where patients have always been able to buy drugs without prescription, but these advertisements are now an increasingly familiar sight on the television and computer screens of the developed world. These controversial advertisements range from those for specific products to those aimed at raising awareness of a condition (in the hope that patients will ask their doctor for a pill to treat that condition). Proponents of such advertisements claim they provide medical consumers with essential information; their detractors claim they are at best confusing and at worst misleading. But in any event, they are effective: they are associated with increased prescribing of drugs. This month's *PLoS Medicine* Debate (DOI: 10.1371/journal.pmed.0030145) explores the possible public health benefits and harms of direct-to-consumer advertisements.

Given the information overload of the developed world, it's easy to forget that not everyone has the same problem. In many areas of Africa, medical libraries

contain virtually no information whatsoever, so while the rest of the world craves more sophistication in their searching and analyses of the literature, medical workers there lack even the most basic medical information, either on paper or electronically.

The article by Pascal Mouhouelo and colleagues (DOI: 10.1371/journal.pmed.0030077) in this issue of *PLoS Medicine* describes a low-tech initiative to address this lack of information: the evocatively named Blue Trunk library. This library contains within it carefully selected books covering topics from "care of the critically ill patient in the tropics and subtropics" to "young people and substance abuse." This project is nothing short of a lifesaving initiative—a trickle of information to an information-parched part of the world; the contrast with the information overload of the developed world is yet again a shaming example of global disparities. So ironically, while the developed world increasingly turns away from paper, it remains an information lifeline for Africa. But interestingly, electronic devices may eventually provide innovative solutions to bridge this information gap. Already, mobile phones are more reliable than landlines in much of the less-developed world, and as companies scramble to develop cheap handheld devices for use in the most inaccessible places, new technology may leapfrog the developed world's computers to allow direct access to medical literature. Equality of information may then be a reality, an essential prerequisite to health equality. ■

Citation: The *PLoS Medicine* Editors (2006) Drowning or thirsting: The extremes of availability of medical information. *PLoS Med* 3(3): e165.

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DOI: 10.1371/journal.pmed.0030165