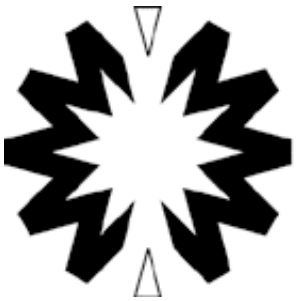


SPARC

The Case for Open Access to Taxpayer-funded Research

Today, the Internet brings access to billions of pages of information. Yet most American taxpayers cannot gain access to the biomedical research for which they have paid. The vast majority of research funded with public dollars is available only through increasingly costly subscriptions (often more than $10,000 annually), institutional licenses (more than a million dollars annually for many universities), or per article purchases (as much as $30 per article).“Open access” will remove these barriers by making the results of taxpayer-funded research available online, upon publication, and for no extra charge to the American public.

Ensuring the widespread dissemination of research knowledge is an essential and inseparable component of our nation’s investment in research itself. Anything less fails to deliver to the American taxpayer an optimal return on the nation’s enhanced investment in federal research, including the recent doubling of the National Institutes of Health budget.

Open access can be accomplished by placing all peer-reviewed, taxpayer-funded research accepted for journal publication in a publicly accessible archive. For biomedical research, PubMed Central at the National Library of Medicine—a model, publicly funded archive—is primed to manage this wealth of information for the public good.

Placing taxpayer-funded research in a public archive will provide access to physicians and other public health professionals, disease interest groups, students, teachers, and scientists at thousands of academic institutions, including hospitals, research laboratories, and corporate research centers throughout the country, as well as to the nation’s global health partners. Timely access to this vital biomedical research is the lifeblood of their important work.

In dramatically expanding numbers, millions of Americans are searching the Web for information to inform their health decisions, and open access will allow them to have access to the credible, peer-reviewed research they have funded. The huge audience for this information is demonstrated by the recent experience of shifting the National Library of Medicine’s former fee-based search system for biomedical research (Medline) into the freely available PubMed. Use of PubMed, which allows access only to brief abstracts of published biomedical research, increased 100-fold once it became freely available.

The time has arrived to offer this larger audience full access to the biomedical research for which they have paid with their tax-dollars.

The Need for Action

Access to scientific and medical publications has lagged behind the explosive use and exchange of knowledge enabled by the growth of the Internet. Barriers inherent in the current system for disseminating published medical and scientific research effectively require American taxpayers to pay twice for the same research—by funding the original research and by publicly funding subscription fees—while denying the taxpayers themselves any direct access to the research.

The current system of subscription-based access to scientific research is economically unsustainable and increasingly impedes the dissemination of research. For at least two decades, journal price increases have outpaced the growth of library budgets (Fig. 1). As a result, even libraries cannot afford access to the broad range of information needed by the researchers and students they serve. The average cost of a single medical journal was nearly $800 in 2002, while many key journals cost over $10,000 annually. Rising journal prices have forced many libraries and research institutions to forgo the purchase of new journal titles, to cancel subscriptions altogether, and to reduce the purchase of books and other research materials.

Dissatisfaction with the current system amongst researchers, academic administrators, and taxpayer advocacy groups continues to mount.

Acting on the Opportunity

Ensuring open access to taxpayer-funded research, including the wealth of scientific and medical knowledge generated by NIH intramural and extramural research, is crucial to capitalizing on the public's investment in the biomedical research enterprise. Articles appearing in open access journal are cited more often (Fig. 2) than those in limited access subscription journals. This means that, in an open access environment, scientific research funded with taxpayer dollars will be more readily searched and retrieved, more frequently relied upon as a foundation for new research, and more vigorously parlayed into new knowledge, innovation and discovery—all ultimately in the interest of the American public.

Open access to taxpayer-funded research is:

- good for science,
- good for education,
- good for patients, and
- *good for the American taxpayer*.

Figure 1

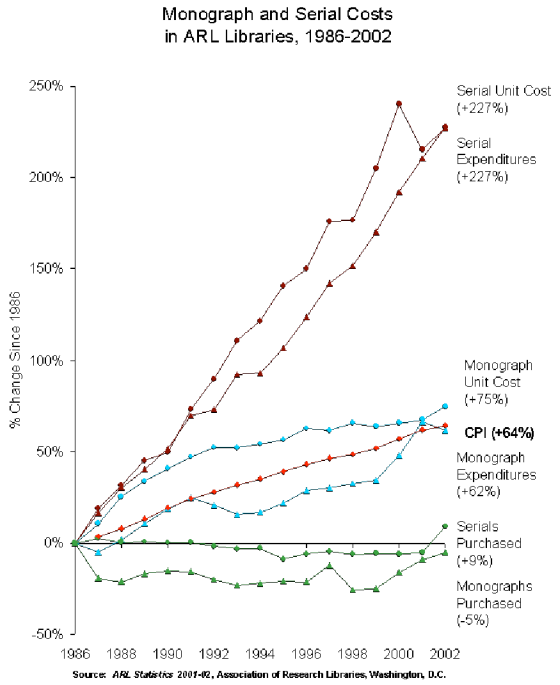
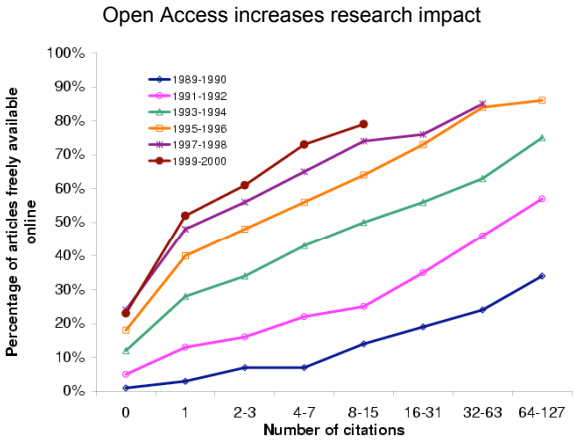


Figure 2



Steve Lawrence, a scientist at NEC Research Institute, analyzed nearly 120,000 computer science articles cited in a standard disciplinary bibliography. When he looked at articles with successively higher levels of impact or citations, he found successively higher percentages of open-access articles, and vice versa. He found the strength of this correlation steadily increased over a decade. (Source: Steve Lawrence, "Online or Invisible?" *Nature*, Vol. 411, No. 6837, p. 521, 2001.

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