The Economics of Academic Health Sciences Libraries: Cost Recovery in the Era of Big Science

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ABSTRACT

With launching of Sputnik by the Soviet Union in the late 1950s, science and technology became a high priority in the United States. During the two decades since, health sciences libraries have experienced changes in almost all aspects of their operations. Additionally, recent developments in medical care and in medical education have had major influences on the mission of health science libraries. In the unending struggle to keep up with new technologies and services, libraries have had to support increasing demands while they receive a decreasing share of the health care dollar. This paper explores the economic challenges faced by academic health sciences libraries and suggests measures for augmenting traditional sources of funding. The development of marketing efforts, institutional memberships, and fee-based services by the Louis Calder Memorial Library, University of Miami School of Medicine, is presented as a case study.

OVER the past decade there have been many disturbing changes in the funding of academic health sciences libraries. Economic pressures have resulted in proportionately fewer dollars while the demands on libraries have called for more support. This paper explores developments during the past two decades and changes in methods of financing academic health sciences libraries. The experience of one library in deriving income from fee-based and membership services for recurring expenses is described.

HISTORICAL PERSPECTIVE

During the early 1960s, the average academic health sciences library budget was cited as inadequate for the challenges of the times. According to the Jones report (1962), "one urgent need almost all medical schools have in common is the improvement of their libraries which are essential to the function of education, research and good medical care. The school administrations have not considered it possible to spare sufficient general operating funds for this purpose" [1]. The Bloomquist report, prepared for the National Library of Medicine (1963), detailed the deficiencies of academic health sciences libraries [2]. According to Bloomquist, "fewer than 25 percent of medical school libraries met suggested standards for collections."

These and other findings contributed to passage of the Medical Library Assistance Act (PL 89-291) in 1965. During the following five-year period some forty-one million dollars were appropriated for more than 600 projects in medical libraries, of which over eleven million dollars were given to academic health sciences libraries for building construction and renovation. One of the most important developments of the act was creation of the Regional Medical Library (RML) Program, which fostered interlibrary cooperation nationwide by funding academic health sciences libraries to share resources. This funding benefitted all such libraries and was the first major source of recurring funds other than institutional allocations.

The year 1971 saw the introduction of MEDLINE and computerized bibliographic searching. By 1976 this service was available in most academic health sciences libraries and in many hospital and other health related institutions. For the first time, libraries provided a service that incurred significant direct costs. As the demand for MEDLINE searches increased during the 1970s, the ongoing costs of online searching increased proportionately. Further, the demand for photocopies rose in direct response to the number of searches provided. The cost of adding new books and journals, paying higher prices due to inflation, and increased salaries further strained an already

critical budget "crunch" for academic health sciences libraries.

The use of computer technology for information retrieval in a time of high inflation produced, for the first time, major increases in library expenditures for operations. By the mid 1970s, the average academic health sciences library's budget was over $650,000; 50% was expended for personnel, 37.5% for collections, and 12.5% for operations [3].

It was clear that computer technology and other direct costs of information services necessitated a means for recovering some of the costs. During the second half of the 1970s libraries began charging fees for such services as computer searching and photocopying. The RML program discontinued funding interlibrary loans and fees were introduced at most libraries. By 1979, "special funds," i.e., income from fee-based services, had become important enough to be documented in the third edition of the *Association of Academic Health Sciences Library Directors* (AAHSLD) *Statistics*. On the eve of the 1980s, over 3% of the average library's revenues were from fee-for-service [4].

TABLE 1

NATIONAL MEDICAL SCHOOL/LIBRARY EXPENDITURES (in millions)

	Medical school expenditures*	Library expenditures**	Percent library support
1976	1,800	56	3.11
1977	2,197	66	3.00
1978	2,451	68	2.77
1979	2,828	77	2.72
1980	3,116	75	2.40
1981	3,891	85	2.18
1982	4,467	101	2.26
1983	5,183	106	2.04
1984	5,756	122	2.11
1985	6,459	126	1.95

*Data are from the JAMA Annual Issue on Medical Education, v. 256, no. 12, Sept 26, 1986.

**Data are from the Medical Library Statistics, compiled by the Univ. of Texas Health Sciences Center at Dallas, 1975–1977, and the AAHSLD Annual Statistics of Medical School Libraries in the U.S. and Canada, 1978–1985.

Academic Health Sciences Libraries, 1976–1985

Since the less complicated era when Bloomquist analyzed the status of academic health sciences libraries, many events have altered the very nature of these libraries and the institutions they serve. Medical centers formerly received income directly from patients, third-party payments, or the government (Medicare, Medicaid). Under the impact of Reagan administration retrenchment policies, these centers have now had to deal with complicated diagnostic related group (DRG) payment patterns, health maintenance organization (HMO) involvement, and other cost cutting not at issue previously. New teaching modalities have greatly affected medical education with both new procedures and technologies.

Parallel with changes in medical education, academic health sciences libraries also faced a revolution in technology and methods of information management that absorb an ever-increasing portion of the budget. Increasing amounts of resources had to be devoted to computers, interactive video and other audiovisual hardware, as well as to new programs and activities.

As costs for patient care, research, and education continue to escalate, the expenditures of academic health sciences libraries rise accordingly. However, library budgets have not kept pace with those of medical schools. Table 1 compares medical school operating expenditures with library expenditures for the years 1976 through 1985. In 1976 $1,800,000,000 was reported as the total operating budget for U.S. medical schools and by 1985 this figure had grown to $6,459,000,000, an increase of 258.8% [5]. During the same period library expenditures rose from $56,000,000 in 1976 to $126,000,000 in 1985, an increase of 125% [6]. By 1985 the total operating budget of all academic health sciences libraries was only 1.95% of the total medical school budget, dropping from 3.11% in 1976. This shows that the percentage of the overall medical school budget received by the library in the ten-year period decreased by over 37%. Between 1975 and 1985, the rate of increase in medical school budgets was twice that of their libraries, and libraries' support from their institutions as percentages of medical school totals decreased by more than one-third.

As shown in the data, the library's "piece of the pie" in terms of support from the medical school steadily diminished while demands in terms of staff, materials, services, and technologies escalated. To meet these new challenges library directors began to look for nontraditional sources of revenue.

One of the most important reports dealing with the issue of nontraditional funding is *Challenge to Action: Planning and Evaluation for Academic Health Sciences Libraries,* produced in 1987 by a task force of AAHSLD [7]. The attention given to

the need for identifying and creating funding sources established nontraditional funding as an integral part of the operating procedures for academic health sciences libraries.

An analysis of the AAHSLD Statistics for 1980–1985 is shown in Table 2. During this period, generated income is referred to as "special funds," "generated revenue," and "revenue." From a negligible amount in the late 1970s, generated income in academic health sciences libraries accounted for 3.4% of libraries' operating budgets by 1980/81. In the five-year period from 1980/81 to 1984/85, while overall medical school operating budgets increased by 65.9% and their libraries' budgets increased by 48%, generated income for academic health sciences libraries increased 182.7%, from 2.4 million dollars to 8.2 million. By 1984/85, 6.5% of the total revenue for academic health sciences libraries was derived from fee-based, generated income. The actual percentage for individual libraries, however, varied greatly, from zero to over 30% [8].

It is clear that during the 1980s many libraries have been aggressively introducing revenue-generating programs as a new avenue for much-needed financial support. Given these general findings, we present a case study of how one academic health sciences library coped with increasing demands and inadequate financial support from an overtaxed medical school administration.

Case Study

The Louis Calder Memorial Library of the University of Miami School of Medicine serves the university's Schools of Medicine, Nursing and Allied Programs, Jackson Memorial Hospital and clinics, as well as thirty-eight member institutions.

TABLE 2
Library Revenues 1981–85
(in millions)

	1981	1985	Percent change
Medical school operating budgets*	3,891	6,459	+65.9%
Library operating budgets**	85	126	+48%
Fee-based income	2.9	8.2	+182.7%
Percent of total medical library budget	3.4	6.5	+91.1%

*Data are from JAMA, v. 256 no. 12, Sept 26, 1986.
**Data are from AAHSLD Statistics.

In addition, the library serves as a resource library under the National Library of Medicine's RML program for the ten counties comprising south Florida. The collection consists of 55,000 monographs, 110,000 bound periodical volumes, and over 2,100 current journal subscriptions. The library has a staff of thirty-six FTE, including ten professionals. The library director is also responsible for the Department of Biomedical Communications with an additional sixteen FTE. However, for the purposes of this paper all facts and figures will deal solely with the library.

By 1980 it was readily apparent to the library administration that funds forthcoming from the medical school would not be adequate to support the level of activity and programs the constituency demanded. It became necessary for the library director to look for alternative sources of income beyond the walls of the library, the medical school, and the university. Gifts and grants were actively pursued, but as these were for special projects and not permanent sources of support, they are not included in this paper. The goal was to obtain continuing sources of support for recurring expenditures.

It was determined that the need for medical library services in south Florida was increasing as the number of requests from non-University of Miami sources escalated. It was then decided that all services to primary clientele should be rendered on a direct cost recovery or a cost-plus basis and the library's services be actively marketed [9]. The marketing effort resulted in CLASSIC (Calder Library Access to Service System/Information Consortium) which was made open to all members of the community with a legitimate need. The planning and implementation process, including establishing fees, is described elsewhere [10]. One of the primary targets was the local hospital community, in particular those hospitals with no or inadequate library facilities. To date, twenty-one hospitals have joined the CLASSIC network and each pays an annual fee based on the size of the hospital. In addition, many law firms, corporations, and individuals have joined. The experience with two corporate members is described in another paper [11].

Table 3 shows the fee structure for hospitals, corporations, and individuals. With their membership fee, hospitals receive a specific number of coupons redeemable for services at the library, similar to the coupon system developed by the RML program. Once the coupons are used, more may be purchased or services can be billed. All

TABLE 3
CALDER LIBRARY
CLASSIC MEMBERSHIP FEES

Type of membership	Dues	Benefits
Hospitals		
0–99 beds	$1,800	150 coupons
100–199 beds	$2,500	250 coupons
200–299 beds	$3,500	350 coupons
300–399 beds	$4,500	450 coupons
400+ beds	$5,500	550 coupons
Corporations	$1,000	0 coupons
Individuals	$ 100	0 coupons

CLASSIC members have full library privileges and receive all services at in-house rates. Certain services are also available to non-members but at a higher fee. For example, the basic charge for a corporate member is fifteen dollars per computer search. The same search for a non-member would cost fifty dollars. Similarly, a member requesting a photocopy would be charged fifty cents per page up to a maximum of five dollars. A non-member would pay a minimum of ten dollars for an article with an additional one dollar per page after ten pages. This does not apply to libraries, which are charged a maximum of six dollars per ILL request. An important step is the awareness that information is an expensive commodity. As noted by Crawford in her Janet Doe Lecture of 1981, "both Machlup and Porat view information as a commodity made up of goods and services that have costs as they are created and that can be bought and sold" [12, 13].

Table 4 shows the increase in generated income for the Calder library from fiscal year 1981/82 through fiscal year 1985/86. During this period institutionally budgeted support increased by only 26.9%. However, fee-based, or generated income increased by nearly 140%. The library's overall income increased by 40.2% due to the great increase in fee-based revenues. As shown, not only income from the CLASSIC network increased, but the totals for other fee-based income were up sharply. Also shown in this table are the annual amounts budgeted by the medical school for the years reported. In 1981/82 fee-based income accounted for less than 12% of the library operating budget, with the bulk from photocopy, while by 1985/86 this figure topped 20%.

Activity Levels, Staffing, and Billing

With the marketing of services to generate income, it follows that increased use of the library's facilities, resources, and services would result. This has surely been the case at the Louis Calder Memorial Library. For the first several years after initial marketing efforts began, usage increased but not at an unusual pace. However, marketing efforts and CLASSIC usage began to show great change during the 1984/85 academic year. By the following year activity levels also increased markedly. Interlibrary loans increased nearly 23%; computer searches increased 42%, and overall attendance in the library increased 30%. Yet fee-based income for the year was up over 58% from the previous year. Coincidentally and most fortuitously, this was the same year the library's budgeted support was decreased and the additional fee-based revenues became even more critical to the library's operations.

When activity levels increase at any institution, the first thought may be an increase in staff to accommodate additional work loads. At the University of Miami adding staff was not a viable option at the time. Changes or increases in work load had to be accomplished with existing staff. A major library reorganization effort was undertaken that resulted in the streamlining of not only public services departments, but technical services as well. It was partially the result of a dedicated staff's concerted effort that the positive results shown were achieved. Naturally, even with total dedica-

TABLE 4
CALDER LIBRARY REVENUE

	1981/82	1982/83	1983/84	1984/85	1985/86
CLASSIC fees	$ 2,000	$ 15,700	$ 23,200	$ 38,780	$ 54,158
Coupon sale	$ 11,896	$ 14,320	$ 12,875	$ 12,345	$ 13,375
Other fee-based	$ 94,679	$ 95,825	$ 113,378	$ 112,997	$ 192,581
Total fee based	$108,575	$ 125,845	$ 149,453	$ 164,122	$ 260,114
Budgeted support	$813,633	$ 878,968	$ 996,251	$1,050,121	$1,033,180
Revenue	$922,208	$1,004,813	$1,145,704	$1,214,243	$1,293,294

tion and efficiency there comes a time of "saturation" when additional staff must be added to maintain levels of efficiency and service. At the University of Miami, with the rise in both services and income, this issue is being given careful consideration.

Thus far the CLASSIC members and other non-university clientele as well as income from these sources have been described. However, there is an aspect of fee-based services which actually represents increased support on the part of the medical school. In fiscal year 1985/86, $100,000 or 38.4% of the total fee-based income was the result of billing medical school departments for library services. As individuals request services, such as computer searches, photocopy services, and interlibrary loans, they submit departmental account numbers for later billing. In some instances funds from the departments were direct disbursements from the medical school, while in other cases they came from grants or gifts. The reported institutionally budgeted support for 1985/86 was $1,033,180, a 2% decrease from the previous fiscal year. When the $100,000 departmental billing is included, support from the institution actually totalled $1,133,180, an increase of nearly 8%.

As more libraries establish fee-based services and medical schools demand that libraries pay a portion of their expenditures, this type of indirect financing from the school will become more predominant. Few schools can now afford "free" or open services to all staff.

In addition to providing vitally needed revenue for the library, billing specific departments for services is a more logical and certainly more equitable method of distributing library expenses; those who use the services pay the fees. In the past, a set amount was given to the medical library and all staff and students had equal access to services. Needless to say, a core of library users accounted for the bulk of services provided, although their share of the expenses was no more than that of departments rarely or never using the library. Individuals with grants tend to use the library more, both for obtaining funding and for subsequent research. However, it rarely occurs that funds for library support are written into the grant proposals. With the billing method just described, some of the grant money is earmarked for library services. Whether from grants, gifts, general funds, or other sources, billing for services increases support for the library and distributes costs in a more equitable fashion.

Another advantage of this type of income is flexibility. In recent years libraries have been plagued by journal costs which not only increased at alarming rates, but were difficult to budget for because the costs were often unknown when the orders were placed. This has been exacerbated by decline of the dollar, causing sharp increases in the cost of foreign subscriptions. In some cases foreign publishers will not even quote a price until an order is actually received. The revenue from fee-based services provides the library with a "cushion" to absorb such fluctuations in journal expenses.

Discussion

Twenty years ago, academic health sciences library budgets supported collections and staff, but little else. Library operations today include the application of computers and communications technology, which account for at least one third of operational expenditures. Such issues as cash flow, income over expenditures, and the marketing of information as a commodity now need to be met effectively on a continuing basis. Already, many academic health sciences library programs, among them photocopy services and computer searching, must be run on a cost recovery basis.

In this paper we have demonstrated how one library has developed solutions by packaging and marketing library services to its user population. Some basic library programs are viewed as business operations and cost recovery is now an integral part of the budgeting and financing process. Through this strategy, the Louis Calder Memorial Library of the University of Miami School of Medicine has increased its fee-based income to over 20% of the library's operating budget in 1985/86. This success has assured the viability of all library activities. The continuance of the library as the resource for information, its management, acquisition, and dissemination, is only possible when based on a firm financial foundation. The challenge lies in not allowing fees, now an essential element in the fiscal equation, to become a barrier to access.

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