

Hospital Library Resources in Massachusetts: Data Collection and Analysis*

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ABSTRACT

Hospitals in the Commonwealth of Massachusetts were surveyed to establish some ranges and baseline statistics for hospital medical information resources. The data were evaluated in terms of theoretical compliance with the Joint Commission on Accreditation of Hospitals standards as well as the more specific proposed appendices to the Canadian Standards for Hospital Libraries. The study quantifies hospital library resources and services in a state with a substantial number of acute care facilities. Of the study universe, 67.6% were judged as meeting either the revised JCAH or the Canadian criteria. The central finding is that the 100- to 299-bed institutions reflect a significant number of deficiencies when evaluated against either quantitative or nonquantitative standards. Further areas of study are suggested.

METHODOLOGY

Distribution of Questionnaires

The Massachusetts section of the *American Hospital Association guide to the health care field* [1] was used as a basis for deriving a mailing list of Massachusetts acute care hospitals—that is, medical, surgical, and specialty institutions. Excluded from the list were college and university infirmaries, residential/custodial institutions, psychiatric/mental health centers, and facilities listed by the guide as “nonreporting.”

All chief executive officers of the 135 acute care facilities identified were sent a letter and a survey form in the format used by the MHA for similar communications. In addition, a letter and a survey form were sent to each hospital library. This procedure was used in order to encourage communication between administrators and the personnel responsible for the libraries.

Of the 135 institutions sent questionnaires, 102 (75.5%) participated in the study, returning their responses in the preaddressed envelopes included in the original mailing. The individual completing each form was not identified, though the author's assumption was that the person completing the form for each library was the person managing the library operation. No double-counting was possible because each institution was identified.

Questionnaire

The questionnaire asked for two types of information. First, it requested information about the hospital, including bed size, medical and nursing school affiliations, residency programs, research activity, and number of physicians. This information was collected as an indication of level of demand for library services. Second, the questionnaire sought information about the types and levels of library resources and services in the institution. These questions were based on the suggested criteria for professional library services listed in the 1978 JCAH standards I and II. Standard I covers

A SURVEY OF library resources and services of the hospitals in Massachusetts was conducted in the latter part of 1978. The Massachusetts Hospital Association (MHA) endorsed the data collection on hospital learning resources. It was agreed that in any dissemination of information gained from the study, confidentiality would be maintained. The survey objective was to establish some ranges and baseline figures for hospital medical information resources in Massachusetts. These data could be useful for assessing the present level of resources and for planning future development. In addition, survey data on resources and services would be analyzed to determine estimated theoretical compliance with the newly revised standards for hospital library services published in 1978 by the Joint Commission on Accreditation of Hospitals (JCAH). The survey did not attempt to elicit information on salaries, patient education programs, or detailed measures of interlibrary loan activity.

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resources, services, budget, staff, departmental collections, consultants, and consortia; while standard II covers written policies and procedures and advisory library committees.

After the questionnaires were returned, the author analyzed them to determine theoretical compliance with the two major sets of standards for hospital libraries: the 1978 JCAH standards and the draft of appendices compiled by the working party for proposed inclusion with the Canadian Standards for Hospital Libraries [2] prepared by the Ontario Medical Association.*

Theoretical JCAH Compliance

Any positive response to a question was judged as compliance. No attempt was made to judge the adequacy of each response. For example, a reply of "none" or a dash (—) was the only tally for noncompliance in any particular area. Questions on aging of collections, depth of policy and procedure documentation, written agreements on sharing, and the like were not addressed.

Theoretical CHLS Appendices Compliance

The proposed CHLS appendices were much more specific than the JCAH standards; therefore, compliance was easier to determine. As is evident from combined appendices I and II reproduced in Fig. 1, hospitals are grouped into categories determined by factors such as school affiliations, residency programs, number of physicians, research grants, bed capacity, and the like. Standards for *minimum* resources vary with each category. (Appendix III, "Planning premises for facilities," was not utilized in this study.)

To determine compliance, the hospitals were placed in the appropriate category and then judged according to Fig. 1. For example, a 100-bed hospital with staffing on a part-time basis of fifteen hours per week would be noncompliant.

FINDINGS

At the present time, studies on many aspects of hospital operations are discussed in terms of bed capacity. The following results for the most part are reported on that basis. The data displayed are neither standards nor minimum requirements; they reflect the present holdings, or actual status of the hospital libraries surveyed.

*Unfortunately the Appendices were not ultimately a formal part of the Canadian Standards for Hospital Libraries. In this author's opinion their value is that they are a practical *starting* point for measurement [3].

CANADIAN STANDARDS FOR HOSPITAL LIBRARIES

CRITERIA	C A T E G O R Y				
	1	2	3	4	5
AFFILIATED WITH:					
A. MEDICAL SCHOOL PROGRAM	X	✓			
NURSING SCHOOL PROGRAM	X	✓			
B. ACCREDITED RESIDENCY/ INTERNSHIP PROGRAM	X	✓			
C. RESEARCH/GRANTS	X	✓			
# PHYSICIANS	200+	100+			
# BED CAPACITY	500+	500+	300-499	100-299	0-99
# BOOKS	1,000	750	500	200	50
# JOURNAL TITLES	245	75	35	29	15
\$ BOOK BUDGET	\$2,500.	\$2,205.	\$1,050.	\$610.	\$125.
\$ JOURNAL BUDGET	\$5,145.	\$1,875.	\$1,250.	\$500.	\$462.
# STAFF: FULL-TIME	4	3	2	1	
LIBRARIAN	(1)	(1)	(1)		
TECHNICIAN	(1)	(1)		(1)	
CLERICAL	(2)	(1)	(1)		
PART-TIME					1
CLERICAL					(1)

FIG. 1.—CHSL criteria.

The number of replies noted in the tables is not consistent because the survey questions were not answered by all facilities consistently. When the survey forms were distributed, anonymity for institutions in any dissemination of information had been assured, so the decision was made that wherever hospitals could be identified, data would not be used. In the tabular form only, responses from the small fraction of the study population made up of institutions with 500 or more beds was not included.

Resources

Table 1 presents the size of the book collections housed in Massachusetts hospital libraries. There is no consistent pattern displayed. This unevenness is highlighted by the fact that the mean number of books in hospitals with 99 or fewer beds is higher than in the 100–199 bed grouping.

TABLE 1
NUMBER OF BOOKS

Bed Capacity	No. of Replies	Range	Median	Mean
0- 99	16	30-6,966	225	782
100-199	29	91-4,316	465	745
200-299	19	104-3,730	600	959
300-399	17	160-7,000	1,600	2,191
400-499	4	2,350-7,000	3,200	3,937

TABLE 2
NUMBER OF JOURNAL TITLES

Bed Capacity	No. of Replies	Range	Median	Mean
0- 99	3	20- 34	25	26
100-199	13	5-150	42	53
200-299	14	2-274	85	89
300-399	15	31-306	150	166
400-499	4	150-250	182	186

TABLE 6
DEPARTMENTAL COLLECTIONS

Bed Capacity	No. of Replies	Yes	%	No	%
0- 99	18	9	50	9	50
100-199	29	25	86	4	14
200-299	21	17	81	4	19
300-399	18	18	100	—	—
400-499	5	5	100	—	—
Total	91	74	81	17	19

TABLE 3
INTERLIBRARY LOAN

Bed Capacity	No. of Replies	Yes	%	No	%
0- 99	19	10	52	9	48
100-199	30	19	63	11	37
200-299	21	16	76	5	24
300-399	18	16	88	2	12
400-499	5	5	100	—	—
Total	93	66	71	27	29

TABLE 4
AUTOMATED LITERATURE SEARCHES
(DIRECT OR REFERRED)

Bed Capacity	No. of Replies	Yes	%	No	%
0- 99	17	5	30	12	70
100-199	30	9	30	21	70
200-299	21	13	61	8	39
300-399	18	11	61	7	39
400-499	5	3	60	2	30
Total	91	41	45	50	55

TABLE 5
LIBRARY PERSONNEL
(FULL-TIME EQUIVALENTS)

Bed Capacity	No. of Replies	0.125-0.875	1.0-1.625	2.0-2.75	3.0-3.125	4.625
0- 99	8	7	1			
100-199	21	12	9			
200-299	20	4	15	1		
300-399	17	2	8	4	2	1
400-499	4		1	3		
Total (%)	70 (100)	25 (35.7)	34 (48.6)	8 (11.4)	2 (2.9)	1 (1.4)

Table 2 shows the number of journal titles held by hospitals in Massachusetts. A wide disparity of holdings is evidenced by the sharp contrast of one medium-size institution reporting two subscriptions while a smaller hospital subscribes to 150 titles.

Services

Table 3 shows the number of hospitals that provide interlibrary loan services. The provision of remote access to information becomes substantially less as the size of the institution decreases; 25 of the 27 facilities that do not provide interlibrary loan services have 299 or fewer beds.

The number of hospitals offering either direct or indirect automated literature searches is shown in Table 4.* Fewer hospitals provide this type of service than provide interlibrary loan service. Forty-one of the fifty facilities that do not provide automated searches have 299 or fewer beds.

*The pattern is understandable when one considers that the use of data bases in hospital libraries is still an emerging service. According to National Library of Medicine statistics, as of March 1979, 321 of 909 NLM identification codes were assigned to hospitals; only 77 of 349 codes had been assigned to hospitals in 1974.

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TABLE 7
BUDGET FOR BOOKS AND JOURNALS

Bed Capacity	No. of Replies	\$100-\$499	\$500-\$1,499	\$1,500-\$2,999	\$3,000-\$5,999	\$6,000-\$11,999	\$12,000-\$25,000
0- 99	9	1	2	5	1		
100-199	19	1	1	8	8	1	
200-299	20		1	6	9	3	1
300-399	18		1	4	1	7	5
400-499	3					1	2
Total (%)	69 (100)	2 (2.9)	5 (7.2)	23 (33.3)	19 (27.6)	12 (17.4)	8 (11.6)

Library Personnel

Staffing of hospital libraries is shown in Table 5. Almost one-half (48.6%) of the institutions employ at least one FTE (full-time equivalent) employee regardless of hospital size. Facilities that have only part-time staffing account for 35.7% of the respondents. The 300- to 399-bed grouping reported the highest level of salaried staffing.

Departmental Collections

Table 6 indicates the extent of departmental collections. The vast majority of replies show that some learning resources are decentralized throughout facilities. Only 17 (18.7%) institutions had no departmental collections, while 74 (81.3%) reported some dispersal of resources.

Budget

Money allotted for books and journals is displayed in Table 7. The striking visual directionality (upper left to lower right) of the data indicates that larger financial resources are allocated as the institution's size increases. This manifestation has already been indicated in the services provided.

The binding budgets are shown in Table 8.

Directionality is once again present. The overwhelming majority of facilities reported spending less than \$1,200 on binding periodicals. What is more telling here is the number of facilities failing to respond to this section of the survey (thirty-eight replies, as compared to sixty-eight replies on Table 7).

Physical Features

Table 9 presents the data on the physical size of the hospital libraries. The smallest area in a hospital is 140 square feet; the largest area in a hospital is 8,500 square feet. A substantial majority falls between 250 and 2,499 square feet.

Seating capacity is displayed in Table 10 and ranges from 5 to 108 seats, with 55.3% of the facilities providing 5 to 15 reader stations.

Administration

Table 11 shows the number of hospital libraries in Massachusetts that have written policies and procedures. Seventy-one libraries (78%) have written documents, while twenty (21%) do not.

Table 12 gives the number of hospitals both with and without an advisory library committee. In only fifteen hospitals (16%) were libraries devoid of a

TABLE 8
BUDGET FOR BINDING

Bed Capacity	No. of Replies	\$100-\$299	\$300-\$599	\$600-\$899	\$900-\$1,199	\$1,200-\$1,499	\$1,500-\$2,499	\$2,500-\$3,500
0- 99	3	2			1			
100-199	5	2	1	2				
200-299	11	3	2	4	1	1	6	
300-399	16		4	3	1	1		1
400-499	3			1	2			
Total (%)	38 (100)	7 (18.4)	7 (18.4)	10 (26.3)	5 (13.2)	2 (5.3)	6 (15.8)	1 (2.6)

TABLE 9
SQUARE FOOTAGE

Bed Capacity	No. of Replies	140-249	250-499	500-999	1,000-1,499	1,500-2,499	2,500-4,999	5,000-8,500
0- 99	9	3	4	1		1		
100-199	18	1	8	5	3	1		
200-299	18	1	5	8	1	3		
300-399	18	2	2	4	2	5	2	1
400-499	4				2	1	1	
Total (%)	67 (100)	7 (10.4)	19 (28.4)	18 (26.9)	8 (11.9)	11 (16.4)	3 (4.5)	1 (1.5)

TABLE 10
SEATING

Bed Capacity	No. of Replies	5-10	11-15	16-19	20-29	30-39	40-49	50-108
0- 99	10	7		1	2			
100-199	24	7	11	3	1	1	1	
200-299	20	3	8	5	3		1	
300-399	18	2	4		5	3	1	3
400-499	4				2		2	
Total (%)	76 (100)	19 (25.0)	23 (30.3)	9 (11.8)	13 (17.1)	4 (5.3)	5 (6.6)	3 (3.9)

TABLE 11
WRITTEN POLICIES

Bed Capacity	No. of Replies	Yes		No	
		Yes	%	No	%
0- 99	18	9	50	9	50
100-199	29	21	72	8	28
200-299	21	18	86	3	14
300-399	18	18	100	—	—
400-499	5	5	100	—	—
Total	91	71	78	20	21

TABLE 13
LIBRARY CONSULTANT

Bed Capacity	No. of Replies	None		No Need	
		None	%	No Need	%
0- 99	18	14	78	4	22
100-199	29	19	65	10	34
200-299	21	10	48	11	52
300-399	18	1	6	17	94
400-499	5	1	20	4	80
Total	91	45	51	46	49

TABLE 12
ADVISORY COMMITTEE

Bed Capacity	No. of Replies	Yes		No	
		Yes	%	No	%
0- 99	19	10	53	9	47
100-199	29	25	86	4	14
200-299	21	19	89	2	11
300-399	18	18	100	—	—
400-499	5	5	100	—	—
Total	92	77	84	15	16

TABLE 14
CONSORTIUM MEMBERSHIP

Bed Capacity	No. of Replies	Yes		No	
		Yes	%	No	%
0- 99	18	4	22	14	78
100-199	29	19	66	10	34
200-299	21	14	67	7	33
300-399	18	14	78	4	22
400-499	5	3	60	2	40
Total	91	54	59	37	41

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TABLE 15
AFFILIATIONS, ACCREDITED RESIDENCIES, AND RESEARCH FACILITIES

Bed Capacity	No. of Replies	Medical School				Nursing School				Accredited Residencies				Research Facilities			
		Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
0-99	18	3	16	15	84	2	11	16	89	3	16	15	84	3	16	15	84
100-199	28	10	36	18	64	20	71	8	29	19	68	9	32	7	25	21	75
200-299	21	10	48	11	52	15	71	6	29	7	33	14	67	6	29	15	71
300-399	18	9	50	9	50	16	89	2	11	12	67	6	33	9	50	9	50
400-499	5	4	80	1	20	4	80	1	20	4	80	1	20	4	80	1	20
Total	90	36	40	54	60	57	63	33	37	45	50	45	50	29	32	61	68

committee; seventy-seven facilities (84%) utilized the committee mechanism.

The use of a library consultant is shown in Table 13. In forty-six facilities the library managers were sufficiently qualified by education so that consultant services were not required, as interpreted in the JCAH standards; the remaining forty-five respondents had no consultant agreements. The question of whether or not a consultant had ever been used in the past was not studied.

Consortium membership is indicated in Table 14. The sharing of resources through consortia is evidenced by a 60%-plus level in most institutions, with a major change in hospitals with ninety-nine or fewer beds, where consortium activity is significantly less (22%).

Level of Demand

The principles of the JCAH standards for professional library services state that library services should meet the needs of the medical and hospital staffs. One way of measuring needs, or

level of demand, is to count programs or affiliations that traditionally have required library support. Table 15 shows medical and nursing school affiliations, accredited residencies, and research facilities.

ANALYSIS

Based on the data received, all hospital libraries responding were judged in compliance or noncompliance with two separate sets of criteria: the JCAH standards for professional library services and the CSHL proposed appendices.

JCAH Standards

Fifty-seven percent of all hospitals in the study population were judged not in compliance with at least one of the criteria. The larger institutions had the greatest degree of compliance (78.7%), while the smallest hospitals had the lowest compliance rate (73.7%). Fig. 2 presents data on compliance rate by bed capacity.

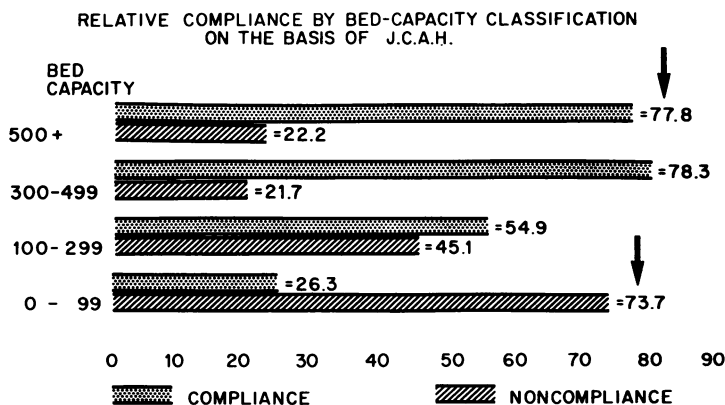


FIG. 2.—Relative compliance by bed-capacity classification on the basis of JCAH.

RELATIVE COMPLIANCE BY BED-CAPACITY CLASSIFICATION ON THE BASIS OF C.S.L.H.

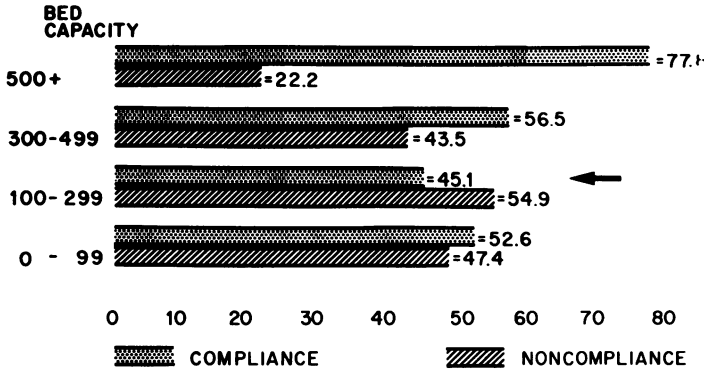


FIG. 3.—Relative compliance by bed-capacity classification on the basis of CSHL.

CSHL Appendices

Fifty-two percent of the hospitals met the quantitative levels of the draft appendices developed for Canadian hospital libraries, while 48% were judged to fall below the standards for their category. Fig. 3 shows that the larger hospitals reflected the highest rate of compliance, but interestingly, the rate for all other bed-size classifications clustered around 50%.

CONCLUSIONS

Fig. 4 compares the rates of compliance for the two sets of standards by hospital-bed size. From the figure, it is clear that the 100- to 299-bed hospitals have the lowest rate of compliance; 51% of hospitals in this category failed to meet the criteria of either governing authority. Looking at

BED CAPACITY	COMBINED EVALUATION OUTCOMES			
	COMPLIANCE WITH:			
	JCAH AND CSHL CRITERIA	JCAH CRITERIA ONLY	CSHL CRITERIA ONLY	NEITHER CRITERIA
500 +	10.0	11.1		3.0
300 - 499	32.5	27.8		18.2
100 - 299	42.5	61.1	54.5	51.5
0 - 99	10.0		45.5	27.3
ALL HOSPITALS	39.2	17.6	10.8	32.4

FIG. 4.—Combined evaluation outcomes.

the study population as a whole, 32.4% of Massachusetts hospitals met neither standard, while 28.4% met one set of standards but not the other (Fig. 5).

Fig. 6 shows the areas of deficiency under both standards for the total hospital population. Judged by the qualitative JCAH standards, the areas of greatest deficiency are budget (12.9%), staff (13.9%), and audiovisuals (12.9%). Judged by the more specific, quantitative CSHL proposed appendices, the rates of compliance in all areas are lower than the rates in the areas of greatest JCAH

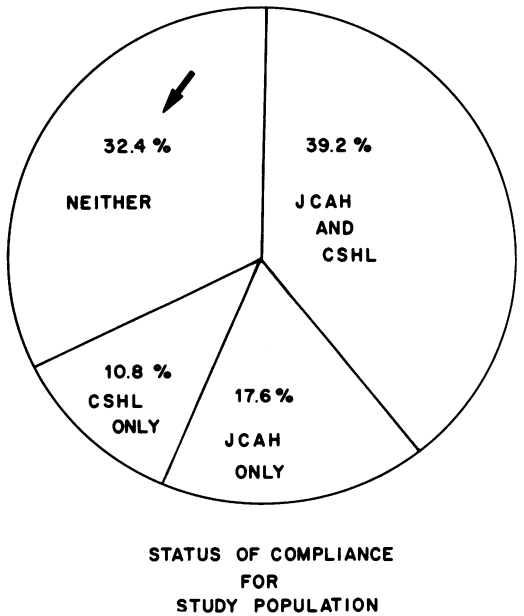


FIG. 5.—Status of compliance for study population.

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TOTAL NUMBER DEFICIENCIES - JCAH vs. CSHL	J C A H		C S H L	
	No.	%	No.	%
	AREA OF DEFICIENCY:			
BOOKS	7	6.9	15	14.0
AUDIOVISUALS	→ 13	12.9		
SERIALS	2	2.0	11	10.3
SERVICES	6	5.9	12	11.2
BUDGET	→ 13	12.9	25	23.4 ←
STAFF	→ 14	13.9	44	41.1 ←
WRITTEN POLICIES	9	8.9		
ADVISORY COMMITTEE	2	2.0		
CONSULTANT	45	44.2		
TOTAL	111		107	
CONTINUING EDUCATION	16*			

*INFORMATIONAL ONLY; SHOWN AS NOTE BECAUSE NO LIBRARY WAS FOUND DEFICIENT FOR ONLY LACK OF SUPPORT FOR CE FOR THE LIBRARY STAFF.

FIG. 6.—Total number of deficiencies, JCAH versus CSHL.

deficiency; the highest rates of noncompliance with the specific criteria are in staff (41.4%) and in budget (23.4%). Deficiencies under the two standards are compared by bed size in Fig. 7. Clearly, the 100- to 299-bed group has the lowest rate of compliance with both JCAH (56.4%) and CSHL (49.5%) standards.

SUMMARY

Massachusetts now possesses basic data describing most existing hospital learning resources in the state. These data must be viewed with caution because the information merely reflects resources held and not minimum requirements or standards. The survey results provide a baseline or point of reference by which to measure future overall development. In addition, each institution has its individual baseline by which to measure the development of its hospital learning resources. Individual statistics or hospital library profiles can document to the JCAH the progress made in each facility since the inception of the revised library standards.

An overall assessment suggests that budgeting and staffing present the most pressing need for

COMPARISON OF DEFICIENCIES BY BED CAPACITY

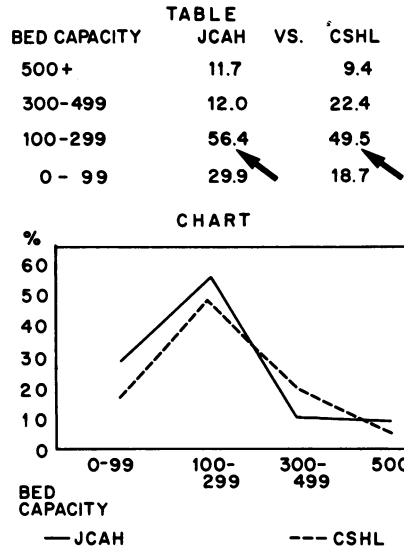


FIG. 7.—Comparison of deficiencies by bed capacity.

development, especially in the 100- to 199-bed facilities. Clearly, all of the factors studied are interdependent. The suggested shortcomings in budget impact journal and book collection size. Adequate qualified staffing would allow proper management of budgeted funds, as well as provision of the services of a fully functioning library. The size of the user population seeking information services is an important element affecting space requirements. Bed capacity alone should not be the determining factor of physical features allocated to the library.

The JCAH now requires evidence of continuing effort to study the hospital's need for professional library services. As each hospital completes a needs assessment and adjusts its information resources accordingly, the unevenness of the survey findings should be corrected.

As is the case with many studies, this one raises many questions for future investigation, including the following:

1. What effect do education affiliations have on levels of learning resources and services?
2. What level of information support do research efforts require?
3. Should educational resources distributed in clusters throughout a hospital be reorganized, since a central location would make them available to more people?
4. What is the impact of information services on quality of care?

The general philosophy of hospital librarians is that library resources and services are the underpinnings of improved patient care, medical and continuing education, as well as research and, ultimately, public health. Many studies are yet to be formulated regarding these assumptions.

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