

Value of Library and Information Services in Patient Care Study

Summary Report

All participating Canadian Sites

April 28, 2012

National Network of Libraries of Medicine,
Middle Atlantic Region

School of Information & Library Science, University of North
Carolina at Chapel Hill



Study overview

- The purpose of the study was to understand the value and impact of the information resources and services provided by the library and the librarian on patient care.
- Focus groups of librarians who had interviewed their administrators about their perceptions of the value of library services informed the study design.
- The research built on the original Rochester study:
Marshall, JG. The impact of the hospital library on clinical decision making: the Rochester study. *Bulletin of the Medical Library Association*. 1992 Apr;80(2):169-78.

Acknowledgments

- The Value Study was a partnership of the National Network of Libraries of Medicine, Middle Atlantic Region (NNLM/MAR) and the University of North Carolina at Chapel Hill (UNC).
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- Additional support was provided by the Hospital Library Section of the Medical Library Association (MLA), the NY/NJ Chapter of MLA; the Philadelphia Chapter of MLA; the Upstate New York and Ontario Chapter of MLA; the New York State Reference and Research Library Resources Councils and the Donald Lindberg Research Fellowship from MLA.

Study team

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UNC Research Team

- Joanne Gard Marshall, UNC Principal Investigator
- Cheryl A. Thompson, Project Manager
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Methodology

Full study design

- **Total study: 56 health libraries serving 118 hospitals.**
- Pilot phase: 7 health libraries serving 19 hospitals in Middle Atlantic Region
 - Survey of physicians, residents and nurses (Sept – Nov 2010)
 - Follow-up interviews with survey respondents (Jan – June 2011)
- Full launch phase: 49 health libraries serving 99 hospitals in the United States and Canada
 - Survey of physicians, residents and nurses (March – May 2011)

Participating sites by region

Region	Sites (n=56)
Middle Atlantic*	23
Greater Midwest	12
Southeastern Atlantic	7
Pacific Southwest	4
Pacific Northwest	3
South Central	2
Mid-Continental	1
Canada	4

Participating site characteristics

	All Sites (n=56)	Canadian Sites (n=4)
Council of Teaching Hospitals member	77%	25%*
Located in an urban or suburban area	86%	100%
Bed size:		
Less than 500	45%	33%
500 or more	54%	67%

Survey methods

- Collaborative development of the survey questions and protocol
- Web-based survey
- Invitation customized by sites and sent via listserv or portal
- Three survey reminders

For further information see: Dunn K, Brewer K, Marshall JG, Sollenberger J. Measuring the value and impact of health sciences libraries: planning an update and replication of the Rochester Study. *J Med Libr Assoc.* 2009 Oct;97(4):308-12.

Participant benefits

- Each site received its own de-identified dataset, a copy of the survey, a set of presentation-ready PowerPoint slides for use in their own institution, and a summary report of the aggregate findings.
- No identifying information about survey respondents or individual sites will be included in published results of the full study.

A list of the participating libraries is available on the study website. <http://nmlm.gov/mar/about/valueparticipate.html>

Critical incident technique

In the survey, respondents were asked to think about an occasion in the last six months when they looked for information resources for patient care (beyond what is available in the patient record, EMR system or lab results) and to answer questions regarding that occasion.

Results for Canadian sites

Response rates

- Overall response rate 7.6% (n=1231)
- Physicians response rate 13.3% (n=371)
- Residents response rate 10.6% (n=135)
- Nurses response rate 4.6% (n=560)

Note: Response rates are conservative estimates using as a denominator the number of employed physicians, residents and nurses reported by each site. The Ns reported by position do not add up to 1231 because 85 respondents reported “Other” for their position and 80 did not report a position.

Participating sites

Library Name

Neil John Maclean Health Sciences Library
University of Manitoba
Winnipeg, MB

London Health Sciences Centre
London, ON

Health Sciences Library
Hotel Dieu Grace Hotel
Windsor, ON

Health Sciences Library and Archives
Regina Qu'Apelle Health Region
Regina, SK

Note: Response rates are conservative estimates using as a denominator the number of employed physicians, residents and nurses reported by each site. The Ns reported by position do not add up to “overall” Ns1 because some respondents reported “Other” for their position and some did not report a position.

Respondent demographics

Gender (n=912)

- Female 37%
- Male 63%

Age (n=910)

- Under 25 1%
- 25-44 44%
- 45-64 50%
- Over 64 5%

Interest in follow-up interview

- Yes – 82 respondents

Education (Questions D2a-D2b)

Attending & resident physicians (n=127)

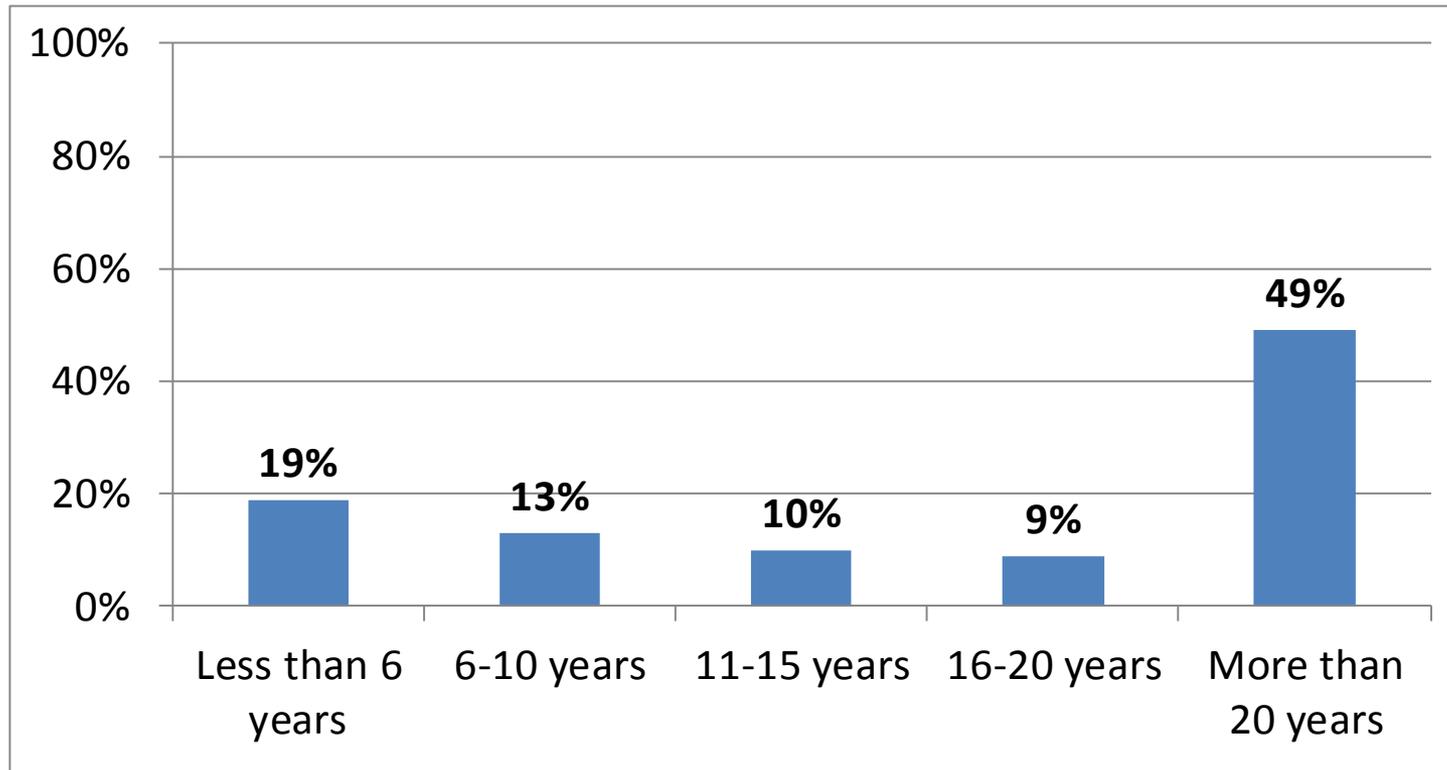
- MD 96%
- Master 17%
- PhD 4%
- DO 0%
- Other 9%

Nurses (n=404)

- Bachelor 39%
- Diploma 51%
- Master 15%
- Certified Nurse Practitioner 9%
- PhD 0%
- Associate 0%
- Other 7%

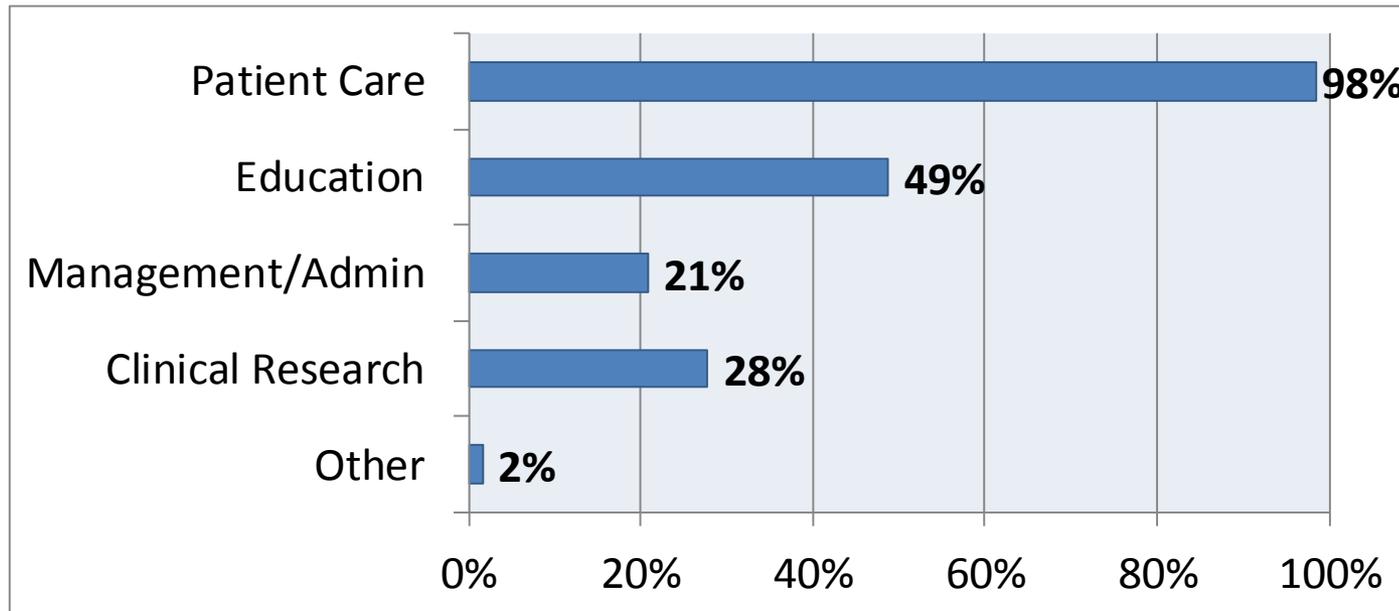
Note: For this question, respondents were able to check all that apply. The percents will not equal 100.

Years as a health care professional (n=913) (Question D5)



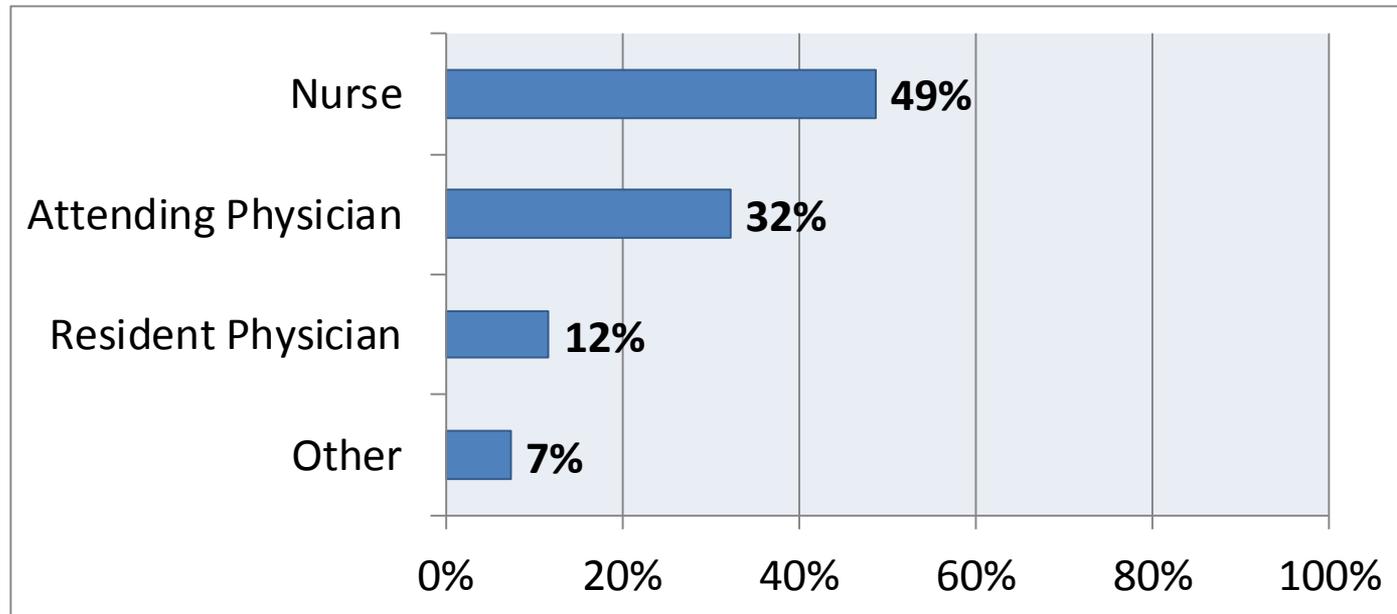
Job duties (Question IN1b)

Which of the following does your job involve?* (n=1147)



*Respondents had to perform patient care or clinical research to be included in the study.

Positions held by respondents (n=1151) (Question IN1)



Results: Value of library and information sources

Did you handle any aspect of the clinical situation differently as a result of having the information? (Question IN8)

	Overall (n=998)	Attending physicians (n=348)	Residents (n=124)	Nurses (n=460)
Definitely Yes	26%	34%	35%	18%
Probably Yes	45%	47%	44%	43%
Probably No	25%	17%	17%	33%
Definitely No	4%	2%	4%	6%

Changes in patient care as a result of the information (Question V3)

Changes Reported	Overall (n=946)	Attending physicians (n=342)	Residents (n=123)	Nurses (n=419)
Advice given to patient or family	49%	45%	48%	50%
Choice of drugs	31%	42%	53%	18%
Choice of other treatments	30%	43%	29%	20%
Handled situation differently	21%	20%	20%	22%
Diagnosis	20%	31%	37%	8%
Choice of test	18%	26%	37%	7%
Not applicable	17%	8%	9%	25%
Post hospital care or treatment	12%	12%	14%	11%
Length of stay	6%	6%	10%	5%

Note: For this question, respondents were able to check all that apply unless they selected Not applicable. The percents will not equal 100. Changes included here must have had at least 10% or more of respondents in at least one of the 4 categories.

Value of the information (Question V1)

Percent who agree that the information was...	Overall (n)	Attending physicians (n)	Residents (n)	Nurses (n)
Relevant	99% (956)	100% (345)	100% (121)	99% (428)
Accurate	98% (939)	99% (343)	98% (117)	98% (419)
Will be of use in the future	98% (935)	98% (339)	100% (120)	97% (418)
Was of clinical value	97% (952)	99% (343)	99% (120)	96% (427)
Current	96% (947)	99% (343)	97% (121)	94% (421)
Resulted in a better informed clinical decision	93% (872)	96% (332)	97% (116)	89% (370)

Value of the information (continued)

Percent who agree that the information...	Overall (n)	Attending physicians (n)	Residents (n)	Nurses (n)
Contributed to higher quality of care	93% (886)	96% (329)	95% (117)	343% (384)
Refreshed my memory of details or facts	93% (876)	95% (319)	97% (115)	89% (389)
Substantiated my prior knowledge or belief	92% (873)	93% (319)	93% (119)	92% (381)
Provided new knowledge	89% (935)	89% (336)	94% (120)	88% (417)
Having the information saved me time	79% (820)	78% (311)	80% (112)	80% (348)

If the information saved time, how many hours? (Question V2)

	Overall (n=579)	Attending physicians (n=224)	Residents (n=84)	Nurses (n=236)
Mean	2.5	2.0	2.9	2.4
Median	1.0	1.0	1.0	0.7
Standard deviation	8.4	4.0	10.9	8.4

Key adverse events avoided as a result of the information (Question V4)

Adverse Event Avoided	Overall (n=927)	Attending physicians (n=335)	Residents (n=121)	Nurses (n=411)
Patient misunderstanding of disease	23%	20%	26%	30%
Patient misunderstanding of disease	23%	19%	26%	24%
Additional tests or procedures	18%	25%	29%	8%
Adverse drug reaction or interaction	12%	15%	14%	9%
Misdiagnosis	11%	16%	17%	4%
Medication error	9%	9%	13%	9%
Not applicable	46%	39%	41%	53%

Note: For this question, respondents were able to check all that apply unless they selected Not applicable. The percents will not equal 100. The most frequent events were included along with patient mortality.

Importance of library and non-library sources I (Question V4b)

Source	Overall (n)	Attending physicians (n)	Residents (n)	Nurses (n)
Library/Information resource	96% (867)	96% (320)	98% (112)	96% (382)
Discussion with colleagues	91% (806)	85% (289)	93% (111)	94% (358)
Lab tests	83% (674)	81% (266)	86% (100)	84% (274)
Diagnostic imaging	77% (591)	79% (246)	86% (90)	70% (227)

Note: For this question, respondents were able to check all that apply so the percents will not equal 100. The importance rating is based on the percentage of respondents who indicated a source was “important” or “very important”.

Importance of library and non-library sources II (Question V4b)

Source	Overall Mean (S.D.)	Attending physicians Mean (S.D.)	Residents Mean (S.D.)	Nurse Mean (S.D.)
Library/Information resource	3.5 (0.6)	3.6 (0.6)	3.6 (0.5)	3.4 (0.6)
Discussion with colleagues	3.3 (0.7)	3.2 (0.7)	3.4 (0.6)	3.4 (0.6)
Lab tests	3.2 (0.9)	3.1 (0.9)	3.3 (0.8)	3.2 (0.9)
Diagnostic imaging	3.1 (1.0)	3.1 (0.9)	3.3 (0.8)	2.9 (1.0)

Note: For this question, mean scores were calculated based on 1=not at all important; 2=not very important; 3= important; and 4=very important. “Not used” was removed from this analysis.

Results: Library resources used

Number of library resources used (Question IN3)

	Mean number of resources used (S. D.)
Overall (n=1064)	3.2 (2.3)
Attending physicians (n=362)	3.6 (2.2)
Residents (n=133)	4.1 (2.5)
Nurses (n=494)	2.7 (2.1)

Top five library resources used (Question IN3)

	Overall (n=1068)	Attending physicians (n=363)	Residents (n=133)	Nurses (n=496)
Journals (online)	46%	64%	48%	31%
PubMed/MEDLINE	45%	63%	58%	28%
Books (online)	32%	32%	46%	28%
UpToDate	31%	43%	78%	12%
eMedicine	24%	29%	40%	17%

Note: For this question, respondents were able to check all that apply so the percents will not equal 100.

Other library resources used (Question IN3)

	Overall (n=1068)	Attending physicians (n=363)	Residents (n=133)	Nurses (n=496)
Books (print)	32%	32%	46%	28%
Other	16%	11%	11%	20%
Journals (print)	13%	18%	10%	9%
Clinical Evidence (BMJ)	13%	15%	14%	11%
Professional assoc. website	12%	10%	11%	13%
Micromedex	12%	6%	11%	18%

Note: For this question, respondents were able to check all that apply so the percents will not equal 100. Library resources included here must have had at least 10% or more of respondents in at least one of the 4 categories.

Other library resources used (Question IN3) continued

	Overall (n=1068)	Attending physicians (n=363)	Residents (n=133)	Nurses (n=496)
MD Consult	11%	14%	16%	8%
Ovid Medline	10%	13%	11%	7%
CINAHL	9%	1%	1%	17%
Nursing Reference Center	6%	0%	0%	12%

Note: For this question, respondents were able to check all that apply so the percents will not equal 100. Library resources included here must have had at least 10% or more of respondents in at least one of the 4 categories.

Did you find the information you needed? (Question IN6)

	Overall (n=1009)	Attending physicians (n=348)	Residents (n=125)	Nurses (n=467)
Completely	55%	63%	62%	48%
Partially- time constraints	25%	17%	18%	33%
Partially – information incomplete	15%	14%	16%	14%
Partially- other reason	5%	6%	3%	4%
Not at all	1%	0%	0%	1%

Access points used for all resources (Question IN4_1-IN4_OTH)

	Overall (n=1064)	Attending physicians (n=362)	Residents (n=133)	Nurses (n=494)
On your institution's library web site	47%	61%	74%	28%
On your institution's intranet	45%	40%	41%	49%
Search engine such as Google	40%	38%	40%	42%
Personal/departmental subscription	25%	38%	34%	15%
In your institution's library	19%	22%	32%	14%
Via patient's electronic medical record	18%	21%	20%	16%

Note: For this question, respondents were able to check all that apply so the percents will not equal 100. Access points included here must have had at least 10% or more of respondents in at least one of the 4 categories. Since institutions make online library resources available in different ways, options for both the library web site and the intranet were included in the survey.

Access points used for all resources (Question IN4_1-IN4_OTH) continued

	Overall (n=346)	Attending physicians (n=78)	Residents (n=45)	Nurses (n=206)
Asked a librarian	17%	22%	16%	14%
Bookmarked website	14%	18%	15%	11%
Asked Colleague	12%	9%	7%	15%
Mobile Device	12%	19%	25%	4%
Other library	9%	14%	8%	5%

Note: For this question, respondents were able to check all that apply so the percents will not equal 100. Access points included here must have had at least 10% or more of respondents in at least one of the 4 categories. Since institutions make online library resources available in different ways, options for both the library web site and the intranet were included in the survey.

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The study planning team was led by **Julia Sollenberger**, University of Rochester Medical Center and included **Sharon Easterby-Gannett**, Christiana Care Health System; **Mary Lou Klem**, University of Pittsburgh; **Joanne Gard Marshall**, University of North Carolina at Chapel Hill; **Lynn Kasner Morgan**, Mount Sinai Medical Center; **Kathleen (Kate) Burr Oliver**, NN/LM MAR; **Karen Brewer**, New York University; **Susan Cavanaugh**, University of Medicine and Dentistry of New Jersey; **Sue Hunter**, NN/LM MAR; and **Neil Romanosky**, NN/LM MAR. The research team at University of North Carolina at Chapel Hill was led by Joanne Gard Marshall, Principal Investigator, and included Cheryl A. Thompson, Project Manager; Jennifer Craft Morgan, Marshica Stanley and Amber Wells.

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