

Value of Library and Information Services in Patient Care Study

Summary Report

All participating Southeast Atlantic & South Central 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).
- This project has been funded in part with federal funds from the National Library of Medicine, National Institutes of Health, Department of Health and Human Services, under Contract #N01-LM-6-3501 from New York University and under Contract No. HHS-N-276-2011-00003-C with the University of Pittsburgh, Health Sciences Library System, (NN/LM MAR).
- 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)	Southeastern Atlantic and South Central Region Sites (n=9)
Council of Teaching Hospitals member	77%	67%
Located in an urban or suburban area	86%	100%
Bed size:		
Less than 500	45%	11%
500 or more	54%	89%

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.

Regional results for Southeastern Atlantic & South Central sites

Response rates

- Overall response rate 6.3% (n=1803)
- Physicians response rate 6.7% (n=632)
- Residents response rate 10.9% (n=298)
- Nurses response rate 4.2% (n=695)

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 1803 because some respondents reported “Other” for their position and some did not report a position.

Participating sites

Library Name	
Moses Cone Health System Library Moses Cone Health System Greensboro, NC	Medical Library Louisiana State University Health Sciences Center Shreveport, LA
Zylman Health Sciences Library Inova Fairfax Hospital Falls Church, VA	Marrietta Memorial Medical Library JPS Health Network Fort Worth, TX
Preston Medical Library University of Tennessee Knoxville, TN	Biomedical Library University of South Alabama Mobile, AL
Erlanger Medical Library Erlanger Health System Chattanooga, TN	Saint Thomas Health Services Medical Libraries Saint Thomas Health Services Nashville, TN
UNC Health Sciences Library University of north Carolina at Chapel Hill Chapel Hill, NC	

Respondent demographics

Gender (n=1507)

- Female 60%
- Male 40%

Interest in follow-up interview

- Yes – 169 respondents

Age (n=1510)

- Under 25 1%
- 25-44 48%
- 45-64 46%
- Over 64 5%

Education (Questions D2a-D2b)

Attending & resident physicians (n=843)

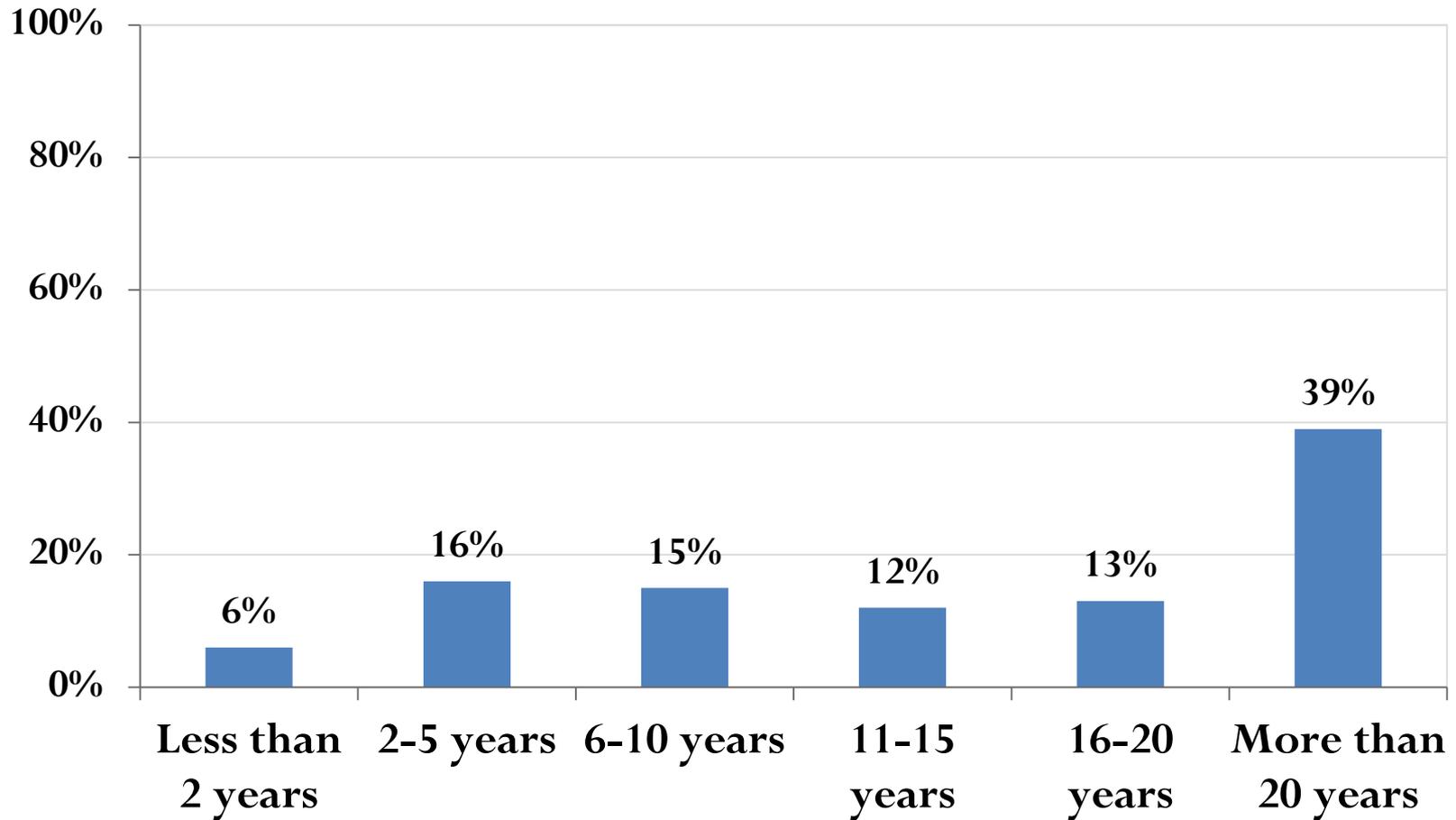
- MD 95%
- Master 11%
- PhD 4%
- DO 4%
- Other 2%
- Bachelor 24%

Nurses (n=564)

- Bachelor 47%
- Diploma 6%
- Master 18%
- Certified Nurse Practitioner 4%
- PhD 1%
- Associate 30%
- Other 7%

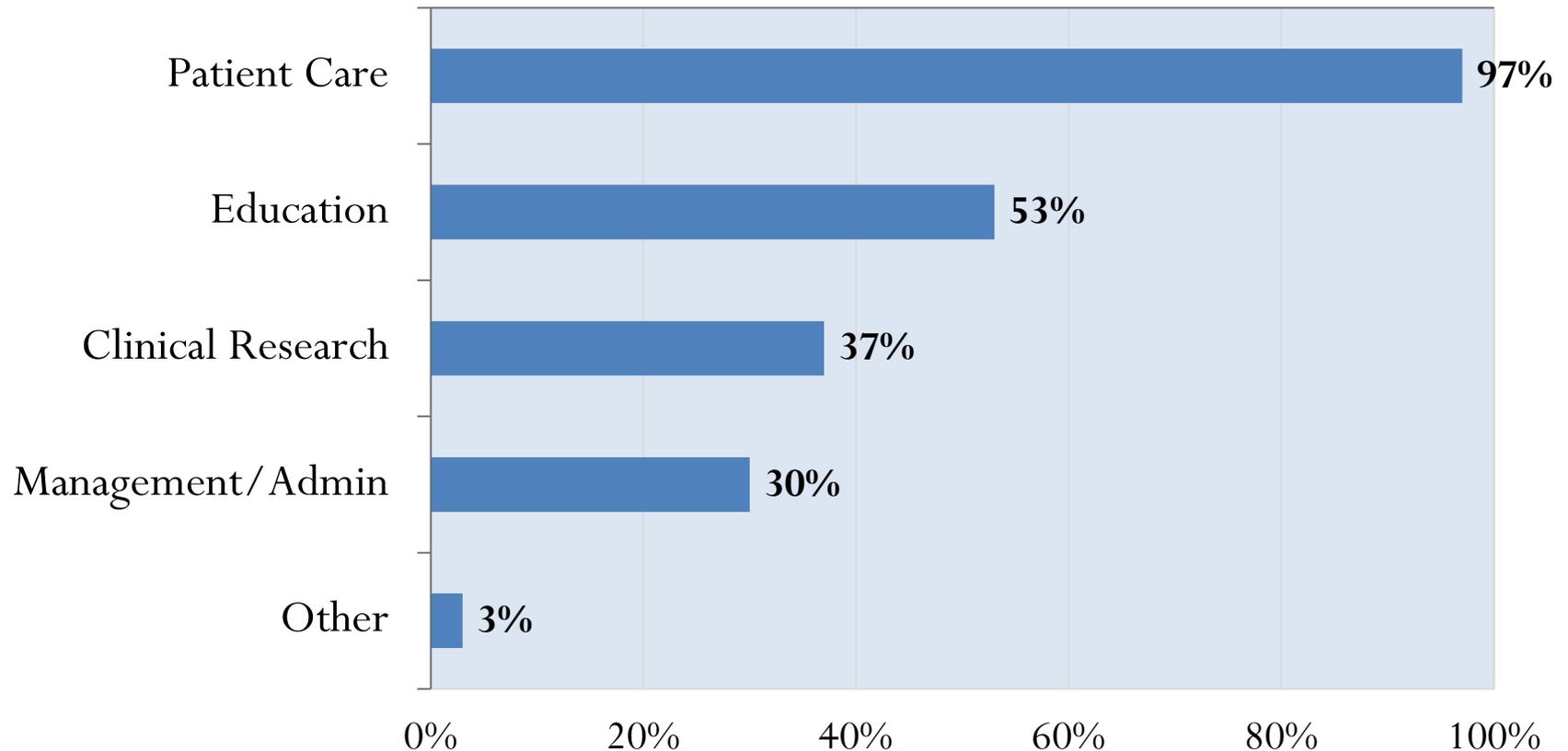
Note: For this question, respondents were able to check all that apply. The percents will not equal 100.

Years as a health care professional (n=1508) (Question D5)



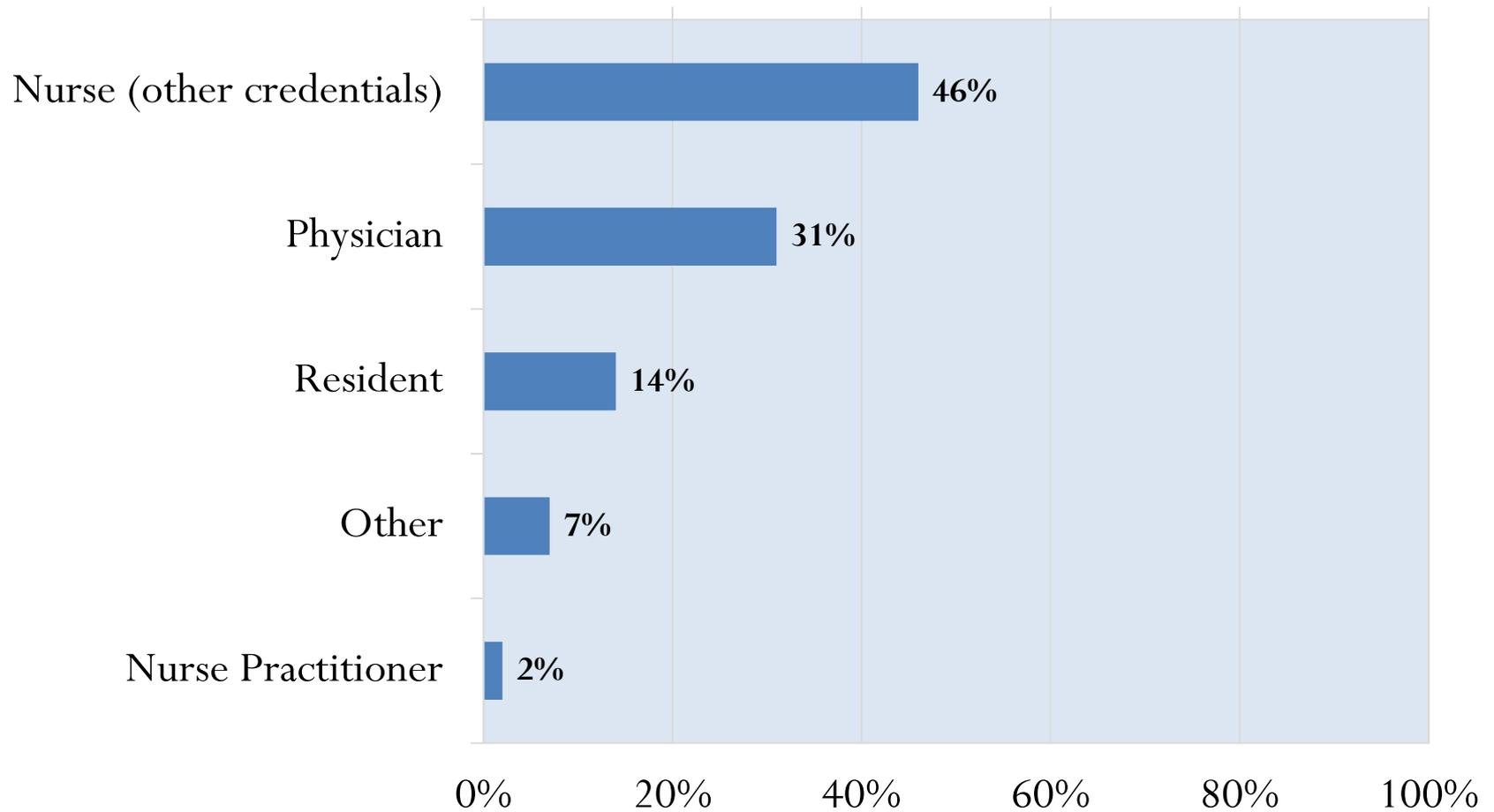
Job duties (Question IN1b)

Which of the following does your job involve?* (n=1749)



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

Positions held by respondents (n=1753) (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=1593)	Attending physicians (n=595)	Residents (n=285)	Nurses (n=608)
Definitely Yes	35%	43%	44%	23%
Probably Yes	41%	45%	41%	36%
Probably No	20%	10%	14%	32%
Definitely No	4%	1%	1%	8%

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

Changes Reported	Overall (n=1533)	Attending physicians (n=577)	Residents (n=276)	Nurses (n=575)
Advice given to patient or family	49%	51%	49%	49%
Choice of drugs	35%	52%	55%	13%
Choice of other treatments	35%	47%	49%	17%
Diagnosis	25%	37%	43%	7%
Choice of test	25%	38%	42%	5%
Handled situation differently	22%	23%	27%	19%
Not applicable	16%	5%	9%	29%
Post hospital care or treatment	15%	13%	23%	13%
Length of stay	9%	10%	15%	7%

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	100% (1536)	100% (581)	100% (275)	99%(575)
Accurate	100% (1520)	100% (576)	99% (271)	100%(568)
Was of clinical value	99% (1501)	100% (577)	99% (273)	98%(552)
Will be of use in the future	99% (1507)	100% (576)	100% (272)	99%(558)
Current	98% (1499)	99% (574)	97% (267)	98%(556)
Resulted in a better informed clinical decision	96% (1378)	99% (566)	99% (265)	92%(466)

Value of the information (continued)

Percent who agree that the information...	Overall (n)	Attending physicians (n)	Residents (n)	Nurses (n)
Refreshed my memory of details or facts	97% (1417)	96% (540)	100% (269)	96%(513)
Contributed to higher quality of care	96% (1392)	98% (557)	99% (266)	93%(481)
Substantiated my prior knowledge or belief	95% (1366)	93% (514)	97% (255)	96%(507)
Provided new knowledge	93% (1395)	93% (528)	98% (267)	91%(504)
Having the information saved me time	89% (1245)	88% (474)	96% (247)	87%(442)

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

	Overall (n=1153)	Attending physicians (n=454)	Residents (n=229)	Nurses (n=398)
Mean	2.9	3.5	2.5	2.4
Median	1.0	1.0	1.0	1.0
Standard deviation	8.5	11.0	7.3	5.7

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

Adverse Event Avoided	Overall (n=1509)	Attending physicians (n=566)	Residents (n=270)	Nurses (n=569)
Patient misunderstanding of disease	26%	24%	29%	28%
Additional tests or procedures	23%	35%	35%	8%
Adverse drug reaction or interaction	13%	18%	16%	8%
Misdiagnosis	17%	25%	25%	5%
Medication error	13%	16%	17%	8%
Not applicable	39%	30%	33%	48%

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	98% (1393)	98% (550)	99% (256)	97% (496)
Discussion with colleagues	93% (1196)	88% (411)	98% (245)	96% (431)
Lab tests	89% (1059)	86% (433)	96% (227)	90% (338)
Diagnostic imaging	82% (845)	81% (357)	89% (188)	80% (260)

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	3.6 (0.5)	3.7 (0.5)	3.6 (0.5)	3.5 (0.6)
Discussion with colleagues	3.4 (0.7)	3.3 (0.8)	3.6 (0.5)	3.4 (0.6)
Lab tests	3.3 (0.8)	3.3 (0.8)	3.5 (0.6)	3.3 (0.8)
Diagnostic imaging	3.2 (0.9)	3.2 (0.9)	3.4(0.7)	3.1 (0.9)

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 (SD)
Overall (n=1676)	3.7 (2.6)
Attending physicians (n=617)	4.1 (2.5)
Residents (n=292)	4.4(2.7)
Nurses (n=652)	2.9 (2.0)

Top five library resources used (Question IN3)

	Overall (n=1682)	Attending physicians (n=617)	Residents (n=292)	Nurses (n=656)
Journals (online)	51%	64%	60%	32%
PubMed/MEDLINE	45%	62%	59%	22%
UpToDate	42%	60%	79%	12%
Books (online)	32%	34%	46%	24%
eMedicine	20%	19%	35%	16%

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=1682)	Attending physicians (n=617)	Residents (n=292)	Nurses (n=656)
Micromedex	20%	14%	14%	28%
Books (print)	21%	23%	21%	20%
Other	10%	8%	6%	13%
Journals (print)	19%	26%	16%	13%
Clinical Evidence (BMJ)	11%	13%	14%	6%
Professional assoc. website	14%	15%	7%	14%

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=1682)	Attending physicians (n=617)	Residents (n=292)	Nurses (n=656)
Ovid Medline	14%	17%	14%	10%
MD Consult	18%	22%	24%	11%
CINAHL	11%	1%	2%	22%
Nursing Reference Center	7%	1%	0%	17%

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=1622)	Attending physicians (n=600)	Residents (n=285)	Nurses (n=627)
Completely	63%	68%	68%	55%
Partially- time constraints	18%	14%	15%	23%
Partially – information incomplete	15%	14%	14%	16%
Partially- other reason	4%	4%	3%	4%
Not at all	1%	1%	0%	2%

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

	Overall (n=1676)	Attending physicians (n=617)	Residents (n=292)	Nurses (n=652)
On your institution's library web site	53%	63%	73%	34%
On your institution's intranet	50%	50%	63%	46%
Search engine such as Google	38%	37%	40%	37%
Personal/departmental subscription	28%	39%	28%	18%
In your institution's library	22%	24%	26%	34%
Via patient's electronic medical record	17%	17%	14%	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=1676)	Attending physicians (n=617)	Residents (n=292)	Nurses (n=652)
Mobile Device	21%	25%	34%	12%
Asked a librarian	17%	19%	12%	15%
Bookmarked website	12%	16%	12%	8%
Asked Colleague	8%	6%	8%	10%
Other library	5%	6%	2%	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.

Study Acknowledgment for use in all presentations and publications

Value of Libraries and Information Services in Patient Care study has been funded in part with Federal funds from the National Library of Medicine, National Institutes of Health, Department of Health and Human Services, under Contract #N01-LM-6-3501 from New York University and under Contract No. HHS-N-276-2011-00003-C with the University of Pittsburgh, Health Sciences Library System, (NN/LM MAR). Additional support is provided by from 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.

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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