

Value of Library and Information Services in Patient Care Study

Summary Report

All participating Middle Atlantic 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



UNC
SCHOOL OF INFORMATION
AND LIBRARY SCIENCE

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

NN/LM MAR Planning 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)	Middle Atlantic Region Sites (n=23)
Council of Teaching Hospitals member	77%	76%
Located in an urban or suburban area	86%	85%
Bed size:		
Less than 500	45%	65%
500 or more	54%	35%

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 Middle Atlantic Region sites

Response rates

- Overall response rate 10.2% (n=7074)
- Physicians response rate 10.9% (n=2322)
- Residents response rate 10.4% (n=926)
- Nurses response rate 7.8% (n=3072)

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 6869 because some respondents reported “Other” for their position and some did not report a position.

Participating libraries

Library Name	
Biomedical Library University of Pennsylvania Philadelphia, PA	NYU Health Sciences Libraries NYU School of Medicine New York, NY
Talbot Research Library Fox Chase Cancer Center Philadelphia, PA	Gustave L and Janet W Levy Library Mount Sinai Medical Center New York, NY
George T. Harrell Health Sciences Library Penn State Hershey/Penn State University Hershey, PA	Lewis B. Flinn Medical Library Christiana Care Health System Newark, DE
Booker Health Sciences Library Jersey Shore University Medical Center Neptune, NJ	Edward G. Miner Library NYU School of Medicine New York, NY

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.

Library Name	
Memorial Sloan-Kettering Cancer Center Library Memorial Sloan-Kettering Cancer Center New York, NY	Health Sciences Library St. Joseph's Regional Healthcare System Paterson, NJ
Health Sciences Resource Center Glens Falls Hospital Glens Falls, NY	Health Sciences Libraries Geisinger Health System Danville, PA
Library Services Crouse Hospital Syracuse, NY	UMDNJ Camden Campus Library Cooper University Hospital Camden, NJ
Jameson Health System Library Jameson Health System New Castle, PA	Margery H. Nelson Medical Library St. Christopher's Hospital for Children Philadelphia, PA

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.

Library Name	
Health Sciences Library Upstate Medical University Syracuse, NY	Lankenau Medical Library Lankenau Hospital Wynnewood, PA
Health Sciences Library System University of Pittsburgh Pittsburgh, PA	AIDHC Medical Library Alfred I duPont Hospital for Children of the Nemours Foundation Wilmington, DE
Health Services Library UPMC McKeesport McKeesport, PA	Harold Fink Memorial Library Coney Island Hospital Brooklyn, NY
Power Memorial Library Magee-Womens Hospital of UPMC Pittsburgh, PA	

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=5630)

- Female 64%
- Male 36%

Age (n=5635)

- Under 25 2%
- 25-44 48%
- 45-64 46%
- Over 64 4%

Interest in follow-up interview

- Yes – 489 respondents

Education (Questions D2a-D2b)

Attending & resident physicians (n=2861)

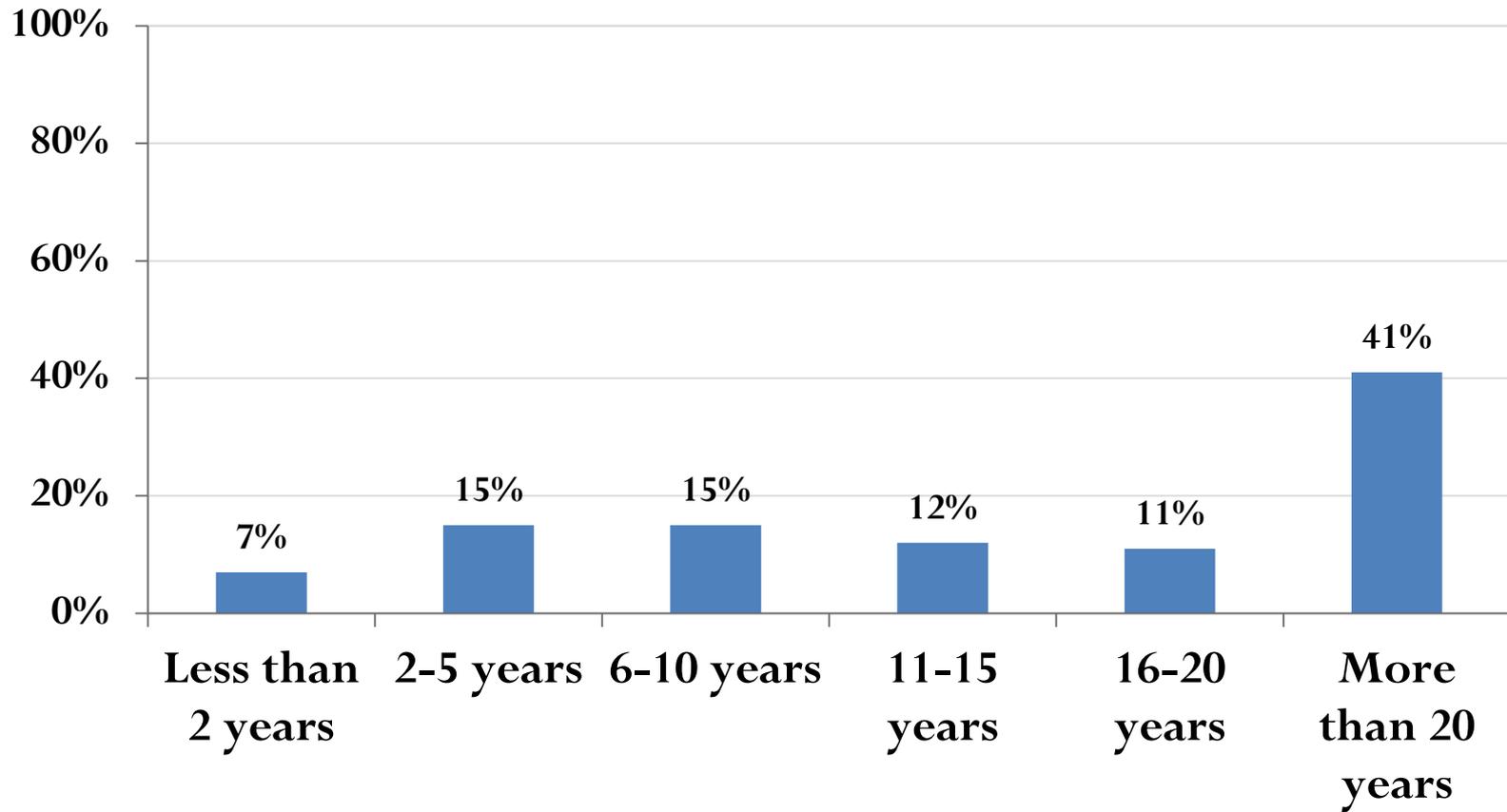
- MD 91%
- Master 8%
- PhD 6%
- DO 7%
- Other 3%
- Bachelor 20%

Nurses (n=2419)

- Bachelor 49%
- Diploma 11%
- Master 25%
- Certified Nurse Practitioner 10%
- PhD 2%
- Associate 18%
- Other 6%

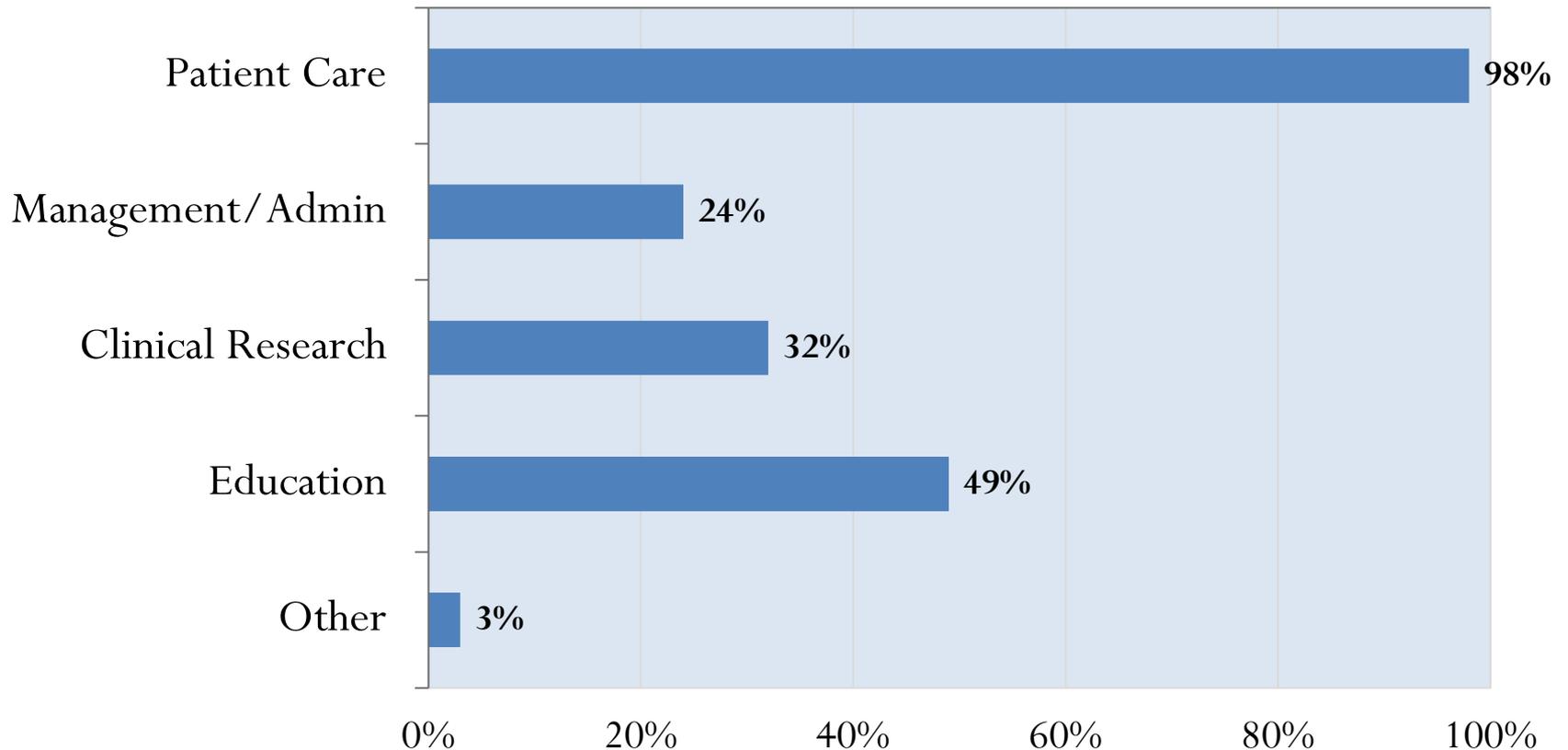
Note: For this question, respondents were able to check all that apply. The percents will not equal 100.

Years as a health care professional (n=5638) (Question D5)



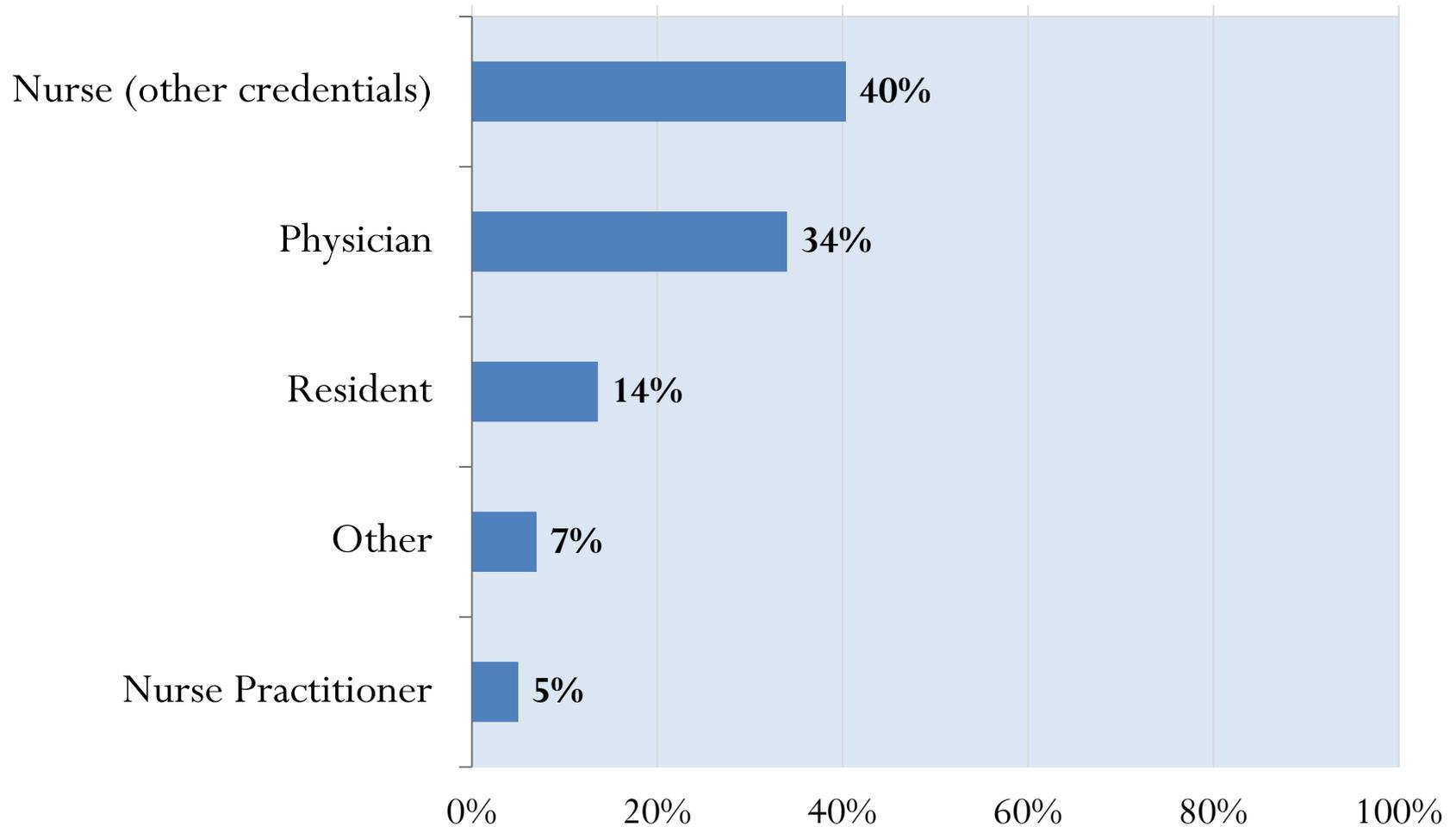
Job duties (Question IN1b)

Which of the following does your job involve?* (n=6789)



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

Positions held by respondents (n=6764) (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=6023)	Attending physicians (n=2178)	Residents (n=849)	Nurses (n=2607)
Definitely Yes	29%	36%	37%	21%
Probably Yes	45%	48%	49%	42%
Probably No	22%	14%	14%	31%
Definitely No	4%	2%	1%	7%

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

Changes Reported	Overall (n=5789)	Attending physicians (n=2128)	Residents (n=801)	Nurses (n=2487)
Advice given to patient or family	47%	48%	45%	48%
Choice of drugs	33%	46%	51%	16%
Choice of other treatments	31%	41%	42%	18%
Diagnosis	25%	37%	41%	9%
Choice of test	22%	35%	40%	6%
Handled situation differently	21%	19%	21%	24%
Not applicable	17%	8%	7%	27%
Post hospital care or treatment	12%	12%	13%	10%
Length of stay	7%	7%	9%	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	100% (5800)	100% (2135)	100% (808)	99% (2482)
Accurate	99% (5733)	100% (2112)	100% (803)	99% (2454)
Was of clinical value	99% (5666)	99% (2117)	99% (800)	97% (2387)
Will be of use in the future	98% (5653)	99% (2097)	99% (803)	97% (2384)
Current	98% (5653)	99% (2097)	98% (792)	97% (2396)
Resulted in a better informed clinical decision	95% (5159)	98% (2039)	98% (777)	92% (2025)

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% (5319)	97% (1989)	98% (776)	96% (2214)
Contributed to higher quality of care	95% (5260)	97% (2021)	98% (772)	93% (2139)
Substantiated my prior knowledge or belief	95% (5184)	95% (1932)	97% (751)	95% (2171)
Provided new knowledge	93% (5293)	93% (1944)	97% (783)	91% (2212)
Having the information saved me time	86% (4474)	86% (1676)	88% (660)	84% (1851)

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

	Overall (n=4132)	Attending physicians (n=1575)	Residents (n=616)	Nurses (n=1678)
Mean	2.5	2.7	2.6	2.0
Median	1.0	1.0	1.0	1.0
Standard deviation	7.9	9.0	5.8	5.8

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

Adverse Event Avoided	Overall (n=5680)	Attending physicians (n=2095)	Residents (n=776)	Nurses (n=2803)
Patient misunderstanding of disease	23%	18%	22%	26%
Additional tests or procedures	18%	27%	31%	7%
Adverse drug reaction or interaction	14%	15%	16%	11%
Misdiagnosis	13%	22%	22%	2%
Medication error	12%	13%	18%	9%
Patient mortality	5%	6%	10%	3%
Not applicable	45%	40%	35%	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	97% (5095)	97% (1932)	97% (735)	96% (2099)
Discussion with colleagues	92% (4527)	89% (1593)	96% (714)	94% (1916)
Lab tests	87% (3755)	87% (1500)	89% (618)	86% (1413)
Diagnostic imaging	79% (3038)	80% (1252)	85% (550)	75% (1043)

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 (0.6)	3.4 (0.6)
Discussion with colleagues	3.4 (0.7)	3.3 (0.7)	3.5 (0.6)	3.4 (0.7)
Lab tests	3.3 (0.8)	3.3 (0.8)	3.3 (0.8)	3.2 (0.8)
Diagnostic imaging	3.1 (0.9)	3.2 (0.9)	3.3 (0.8)	3.0 (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=6387)	3.5 (2.4)
Attending physicians (n=2256)	3.9 (2.4)
Residents (n=880)	4.5 (2.6)
Nurses (n=2824)	2.9 (2.2)

Top five library resources used (Question IN3)

	Overall (n=6407)	Attending physicians (n=2257)	Residents (n=881)	Nurses (n=2839)
Journals (online)	46%	59%	56%	32%
PubMed/MEDLINE	42%	52%	60%	28%
UpToDate	42%	54%	77%	23%
Books (online)	30%	35%	46%	21%
eMedicine	21%	21%	40%	15%

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=6407)	Attending physicians (n=2257)	Residents (n=881)	Nurses (n=2839)
Micromedex	23%	14%	18%	33%
Books (print)	20%	26%	26%	13%
Other	11%	9%	7%	14%
Journals (print)	15%	21%	12%	11%
Clinical Evidence (BMJ)	10%	10%	15%	7%
Professional assoc. website	13%	13%	9%	13%

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=6407)	Attending physicians (n=2257)	Residents (n=881)	Nurses (n=2839)
Ovid Medline	21%	29%	22%	14%
MD Consult	17%	21%	28%	10%
CINAHL	10%	1%	<1%	21%
Nursing Reference Center	6%	<1%	0%	13%

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=6132)	Attending physicians (n=2192)	Residents (n=859)	Nurses (n=2681)
Completely	59%	64%	61%	54%
Partially- time constraints	20%	15%	20%	26%
Partially – information incomplete	16%	17%	15%	16%
Partially- other reason	4%	4%	4%	3%
Not at all	1%	<1%	<1%	2%

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

	Overall (n=6387)	Attending physicians (n=2256)	Residents (n=880)	Nurses (n=2824)
On your institution's library web site	52%	66%	72%	36%
On your institution's intranet	56%	53%	69%	54%
Search engine such as Google	37%	39%	40%	35%
Personal/departmental subscription	24%	35%	25%	15%
In your institution's library	18%	20%	23%	14%
Via patient's electronic medical record	16%	15%	15%	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=6387)	Attending physicians (n=2256)	Residents (n=880)	Nurses (n=2824)
Mobile Device	14%	18%	27%	7%
Asked a librarian	13%	14%	12%	12%
Bookmarked website	11%	16%	10%	7%
Asked Colleague	10%	8%	8%	12%
Other library	5%	4%	4%	6%

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

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