

The Value of Library and Impact of Library and Information Services

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The Evolution of Value Studies

- Standards
- Inputs
- Outputs
- Outcomes
- Impacts
- Value

Dictionary Definitions of Value

- Worth, desirability, utility, or the qualities on which these depend
- Worth as estimated [in dollars], valuation, power of a commodity to purchase others
- Amount for which a thing can be exchanged in the open market

Joanne's definition:

- Perceived value of using something to accomplish a task or goal.

Value of Library and Information Services in Patient Care Study

- The purpose of the study was to understand the value and impact of 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 builds 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

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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

NN/LM MAR Planning Team

- Julia Sollenberger, University of Rochester Medical Center
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- Sharon Easterby-Gannett, Christiana Care Medical Libraries
- Sue Hunter, NN/LM MAR
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- Neil Romanosky, NN/LM MAR

UNC Research Team

- Joanne Gard Marshall, UNC Principal Investigator
- Cheryl A. Thompson, Project Manager
- Jennifer Craft Morgan
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Pilot sites

- Edward G. Miner Library, University of Rochester Medical Center, Rochester, NY
- NYU Health Sciences Libraries, NYU Langone Medical Center, New York, NY
- Gustave L and Janet W Levy Library, Mount Sinai Medical Center, New York, NY
- Lewis B. Flinn Medical Library, Christiana Care Health System, Newark & Wilmington, DE
- Health Sciences Library System, University of Pittsburgh, Pittsburgh, PA
- Lankenau Hospital Medical Library, MainLine Health System, Wynnewood, PA
- Medical Library, AIDHC Hospital for Children, Wilmington, DE

Pilot site characteristics

	Pilot sites (n=7)
Part of a health care system	86 %
COTH member	86 %
Located in an urban area	100%
Bed size:	
Less than 500	29 %
500 or more	71 %

Methodology

Study design

- Pilot phase: Seven health libraries serving 19 hospitals in Middle Atlantic Region
 - Survey of physicians, residents and nurses (Sept – Nov 2010)
 - Selected volunteer interviews (Jan – April 2011)

Survey methods

- Collaborative development of the survey questions and protocol
- Listserv or portal announcement and invitation followed by three email reminders.

Critical incident technique

In the Value Study, 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.

Community Based Collaborative Research (CBCR)

The Value Study used an approach to research design that is based on active collaboration between researchers and members of the community who will benefit from the research. The approach has been used extensively in public health research (Israel, 2005).

Pilot response rates

- Overall 13% (n=3,213)
- Physicians 23% (n=1,182)
- Residents 11% (n=500)
- Nurses 9% (n=1,214)

- Response rates for the individual sites (n=7)
 - 10% or less 57%
 - 11% to 26% 43%

Note: The Ns reported by position do not add up to 3,213 because 207 respondents reported “Other” for their position.

Demographics

Gender (n=2569)

- Male 40%
- Female 60%

Interest in follow-up interview

- Yes - 206 respondents

Age (n=2573)

- Under 25 2%
- 25-44 49%
- 45-64 45%
- Over 64 4%

Education

Attending & resident physicians (n=1629)

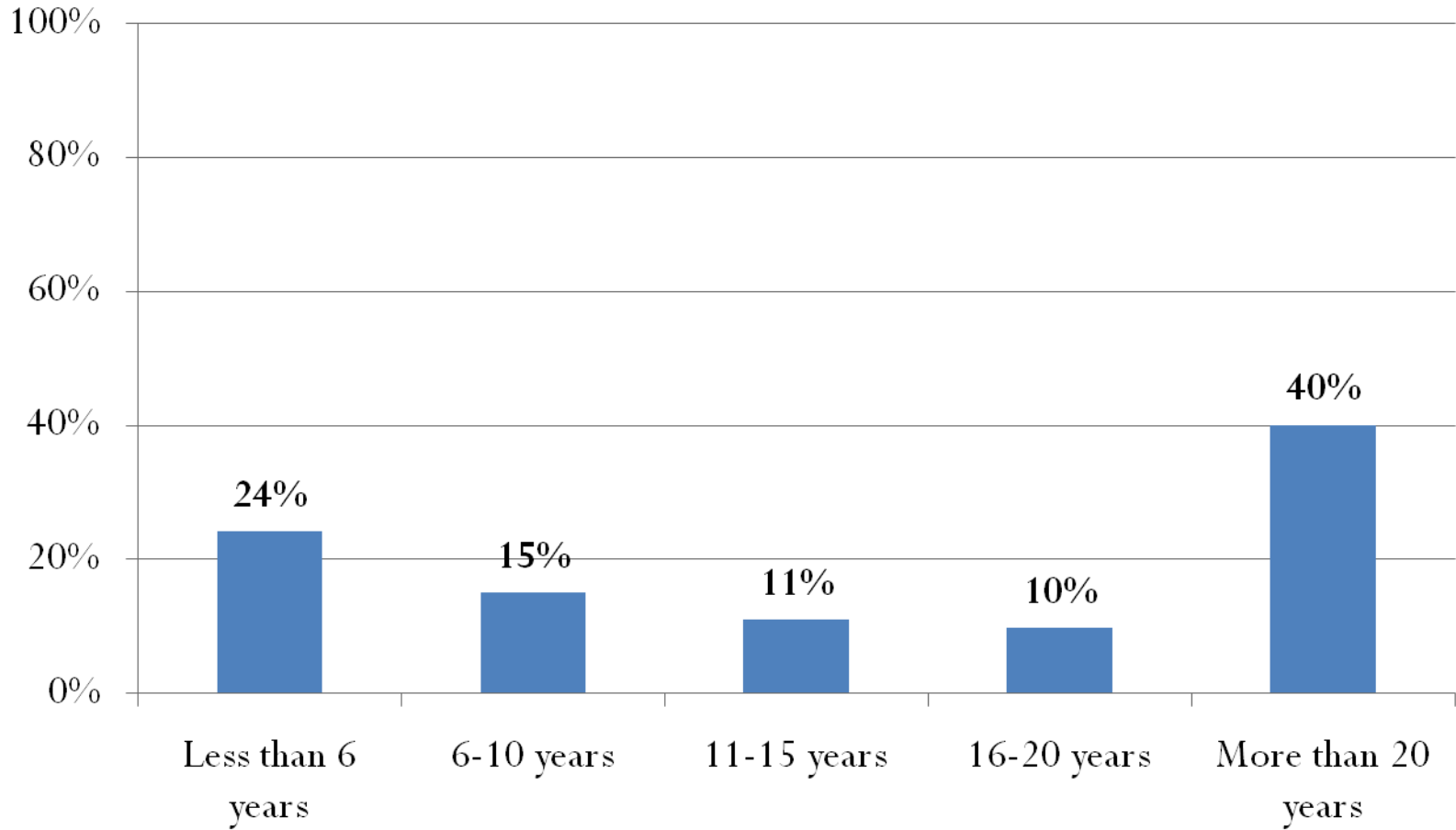
- MD 90%
- Bachelor 23%
- Master 11%
- PhD 8%
- DO 4%
- Other 4%

Nurses (n= 945)

- Bachelor 48%
- Master 25%
- Associate 21%
- Certified Nurse Practitioner 9%
- Diploma 8%
- Other 4%
- PhD 2%

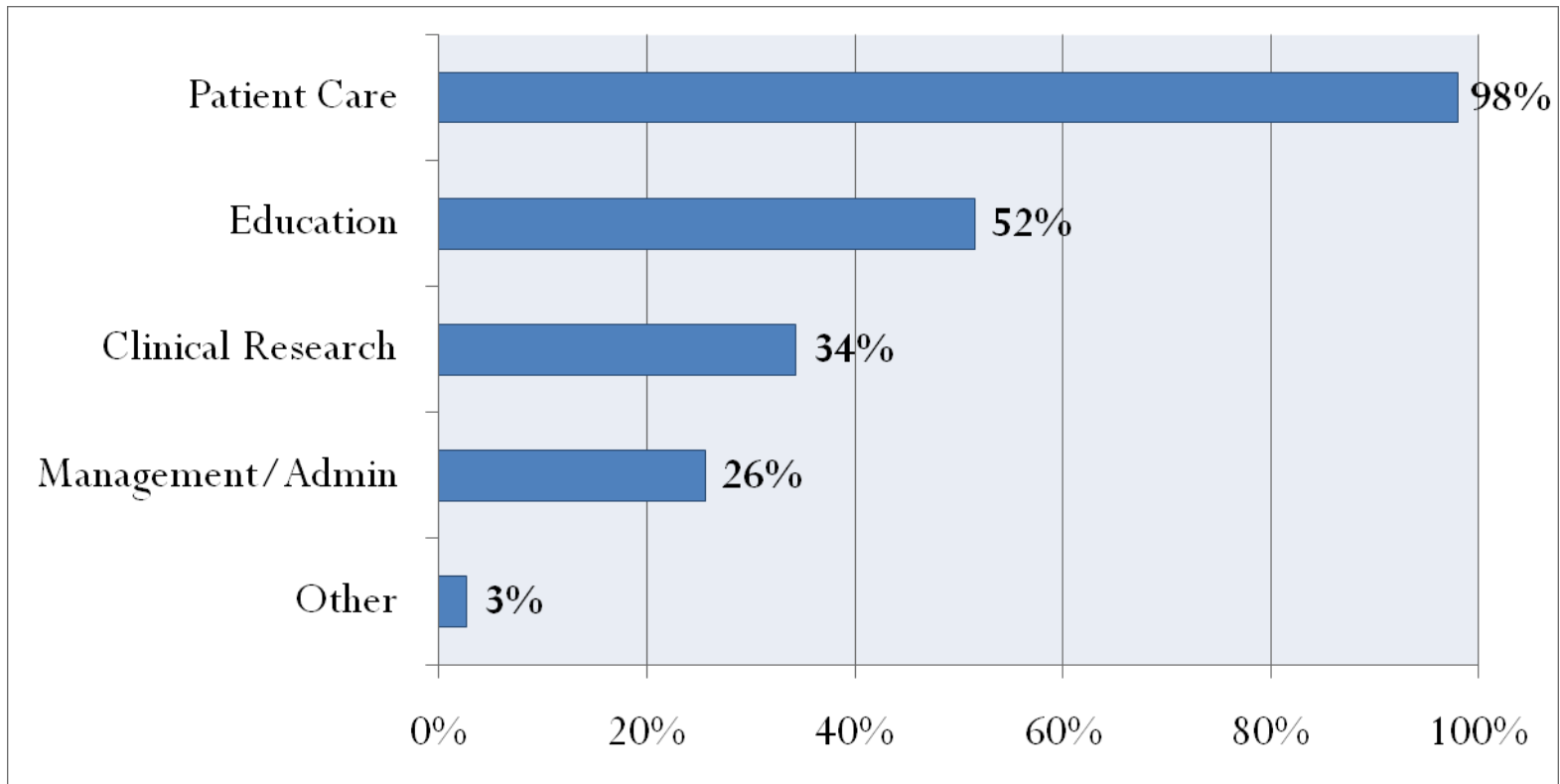
Note: For this question, respondents were able to check all that apply unless they selected Not applicable. The percents will not equal 100.

Years as a health care professional (n=2572)



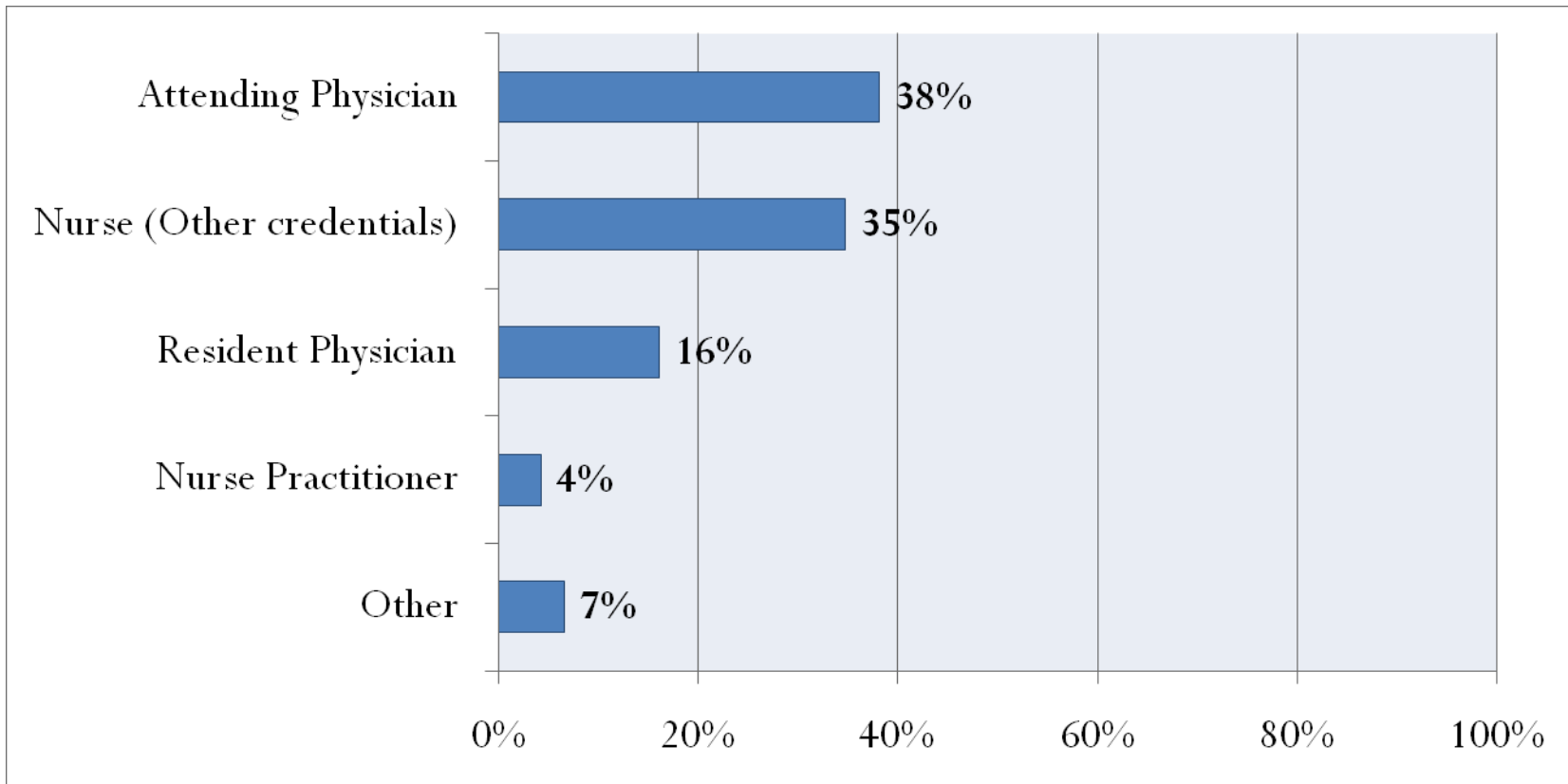
Job duties

Which of the following does your job involve?* (n=3105)



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

Positions held by respondents (n=3107)



Results: Value of library and information sources

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

	Overall (n=2755)	Attending physicians (n=1112)	Residents (n=455)	Nurses (n=1023)
Definitely Yes	28%	35%	31%	19%
Probably Yes	47%	48%	54%	42%
Probably No	20%	14%	15%	32%
Definitely No	4%	2%	1%	7%

Changes in patient care as a result of the information

Changes Reported	Overall (n=2655)	Attending physicians (n=1083)	Residents (n=435)	Nurses (n=976)
Advice given to patient or family	46%	47%	45%	46%
Choice of drugs	35%	47%	50%	16%
Choice of other treatments	31%	39%	40%	17%
Diagnosis	26%	36%	38%	9%
Choice of test	23%	33%	34%	6%
Post hospital care or treatment	11%	12%	11%	9%
Not applicable	16%	9%	8%	27%

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

Value of the information

Percent who agree that the information was...	Overall (n=2688)	Attending physicians (n=1095)	Residents (n=439)	Nurses (n=990)
Relevant	99%	99%	98%	98%
Was of clinical value	97%	99%	97%	95%
Accurate	97%	98%	97%	97%
Current	97%	98%	97%	95%
Will be of use in the future	96%	97%	98%	94%
Refreshed my memory of details or facts	90%	91%	94%	87%

Value of the information (continued)

Percent who agree that the information...	Overall (n=2688)	Attending physicians (n=1095)	Residents (n=439)	Nurses (n=990)
Contributed to higher quality of care	90%	94%	93%	85%
Provided new knowledge	90%	90%	95%	87%
Resulted in a better informed clinical decision	88%	95%	93%	79%
Substantiated my prior knowledge or belief	87%	89%	90%	85%
Having the information saved me time	74%	76%	79%	71%

If the information saved time, how many hours?

	Overall (n=1844)	Attending physicians (n=781)	Residents (n=322)	Nurses (n=640)
Mean	2.6	3.0	2.9	1.6
Median	1.0	1.0	1.0	1.0
Standard deviation	11.1	10.2	14.6	5.5

Key adverse events avoided as a result of the information

Adverse Event Avoided	Overall (n=2592)	Attending physicians (n=1063)	Residents (n=418)	Nurses (n=954)
Patient misunderstanding of disease	20%	17%	21%	24%
Additional tests or procedures	18%	25%	29%	5%
Adverse drug reaction or interaction	14%	16%	15%	11%
Misdiagnosis	13%	22%	19%	1%
Medication error	12%	14%	17%	9%
Patient mortality	5%	6%	7%	3%
Not applicable	45%	40%	39%	54%

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

Source	Overall (n=2523)	Attending physicians (n=1041)	Residents (n=413)	Nurses (n=915)
Library/Information resources	92%	93%	94%	89%
Discussion with colleagues	81%	75%	93%	80%
Lab tests	68%	71%	77%	60%
Diagnostic imaging	54%	58%	68%	42%

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

Source	Overall Mean (S.D.) (n=2523)	Attending physicians Mean (S.D.) (n=1041)	Residents Mean (S.D.) (n=413)	Nurse Mean (S.D.) (n=915)
Library/Information resource	3.5 (0.6)	3.6 (0.6)	3.5 (0.6)	3.4 (0.6)
Discussion with colleagues	3.4 (0.7)	3.2 (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 (0.9)	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

	Mean number of resources used (S. D.)
Overall (n=2926)	3.6 (2.5)
Attending physicians (n=1145)	3.8 (2.4)
Residents (n=474)	4.5 (2.7)
Nurses (n=1122)	2.8 (2.2)

Top five library resources used

	Overall (n=2926)	Attending physicians (n=1145)	Residents (n=474)	Nurses (n=1122)
Journals (online)	48%	60%	57%	30%
PubMed/ MEDLINE	45%	53%	61%	27%
UpToDate	42%	51%	77%	19%
Books (online)	30%	34%	44%	20%
Micromedex	26%	18%	23%	36%

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

Other library resources used

	Overall (n=2926)	Attending physicians (n=1145)	Residents (n=474)	Nurses (n=1122)
Ovid Medline	23%	29%	22%	16%
eMedicine	21%	20%	38%	14%
Books (print)	20%	24%	25%	14%
MD Consult	18%	22%	26%	10%
Journals (print)	15%	20%	11%	11%
ePocrates	13%	15%	26%	6%

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

	Overall (n=2926)	Attending physicians (n=1145)	Residents (n=474)	Nurses (n=1122)
Professional association websites	12%	12%	9%	12%
Clinical evidence (BMJ)	9%	10%	14%	7%
CINAHL	8%	1%	0%	18%
Nursing Reference Center	4%	0%	0	11%
Dynamed	1%	1%	3%	0%

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

	Overall (n=2801)	Attending Physicians (n=1116)	Residents (n=461)	Nurses (n=1054)
Completely	58%	64%	60%	52%
Partially- time constraints	21%	15%	22%	28%
Partially – information incomplete	16%	17%	14%	16%
Partially- other reason	4%	4%	4%	3%
Not at all	1%	0%	0%	2%

Access points used for all resources

	Overall (n=2917)	Attending physicians (n=1145)	Residents (n=474)	Nurses (n=1115)
On your institution's library web site	56%	66%	73%	38%
On your institution's intranet	56%	54%	71%	53%
Search engine such as Google	37%	39%	41%	35%
Personal/departmental subscription	23%	33%	23%	14%
In your institution's library	17%	19%	19%	12%
Patient electronic medical record	16%	14%	15%	16%
Mobile device	14%	17%	27%	7%
Asked librarian or library staff	9%	9%	8%	10%

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

Full Launch Overview

Participating site characteristics

	Sites (n=49)
Council of Teaching Hospitals member	54%
Located in an urban area	82%
Bed size:	
Less than 500	46%
500 or more	50%

Geographic distribution

	NN/LM Region (n=49)
Greater Midwest	12
Mid-continental	1
Middle Atlantic	16
Pacific Northwest	3
Pacific Southwest	4
South Central	2
Southeastern Atlantic	7
Canada	4

Participating Canadian sites

- Health Sciences Library, Hotel Dieu Grace Hospital, Windsor, Ontario
- Health Sciences Library & Archives, Regina Qu'Appelle Health Region, Regina, Saskatchewan
- Health Sciences Library, London Health Sciences Centre, London, Ontario
- Neil John Maclean Health Sciences Library, UM Health Sciences Libraries, University of Manitoba, Winnipeg, Manitoba

Preliminary full launch response rates

- Overall 13% (15,563)
 - 10% or less 35% (17)
 - 11% to 20% 51% (25)
 - 21% to 30% .06% (3)
 - 31% or more 1% (5)
-
- Total number of respondents (pilot and full launch) 18,776

Note: Response rates are estimates as the final data set has not yet prepared for analysis

Study Acknowledgment for use in all presentations and publications

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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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