Creating a Web-accessible, point-of-care, team-based information system (PoinTIS): the librarian as publisher*

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The Internet has created new opportunities for librarians to develop information systems that are readily accessible at the point of care. This paper describes the multiyear process used to justify, fund, design, develop, promote, and evaluate a rehabilitation prototype of a point-of-care, team-based information system (PoinTIS) and train health care providers to use this prototype for their spinal cord injury and traumatic brain injury patient care and education activities. PoinTIS is a successful model for librarians in the twenty-first century to serve as publishers of information created or used by their parent organizations and to respond to the opportunities for information dissemination provided by recent technological advances.

INTRODUCTION

In today's managed-care environment, health care is seen as a continuum, from prevention of illness to home health care and maintenance, and there is more and more emphasis on costs, outcomes, and shorter lengths of stay. In this environment, nurses, physical therapists, occupational therapists, and other team members are more actively involved in evidence-based, clinical decision making than ever before, and, with increasingly shorter lengths of stay, patients and their caregivers are assuming more responsibility for the delivery of health care. As a result, all health care providers, patients, and caregivers now need ready access to comprehensive, evidence-based information.

To determine if the necessary access to information was available, a needs assessment (Appendix A) was performed in 1996 at two clinical sites: the Rehabilitation Unit of Jackson Memorial Hospital, the primary teaching hospital for the University of Miami School of Medicine, serving a large indigent population, and Pinecrest Rehabilitation Hospital, a corporately owned rehabilitation facility in Palm Beach County, serving largely private patients. Rehabilitation was selected because it required keen assessment and team skills; emphasized teaching and motivating the patient to return to an independent life; boasted major clinical milestones in the past ten years, with new breakthroughs in care anticipated; and has been growing exponentially in an otherwise shrinking industry due to its cost effectiveness [1–3].

As can be seen from Table 1, 141 usable needs assessments were completed by a wide range of providers. The needs assessment documented the frequent need for information in rehabilitation settings and reasons necessary information was not obtained. The primary reasons given in 1996 were lack of sources at the time and point of need, lack of time, and cost of remote sources. Seventy-five percent of respondents indicated they delivered patient care or education with less than the desirable amount of information more than once each week. Eighty-one percent of respondents indicated they would use readily accessible, easy-to-use, and free sources of information at the point of care more than once each week.

Figure 1
RehabTeamSite
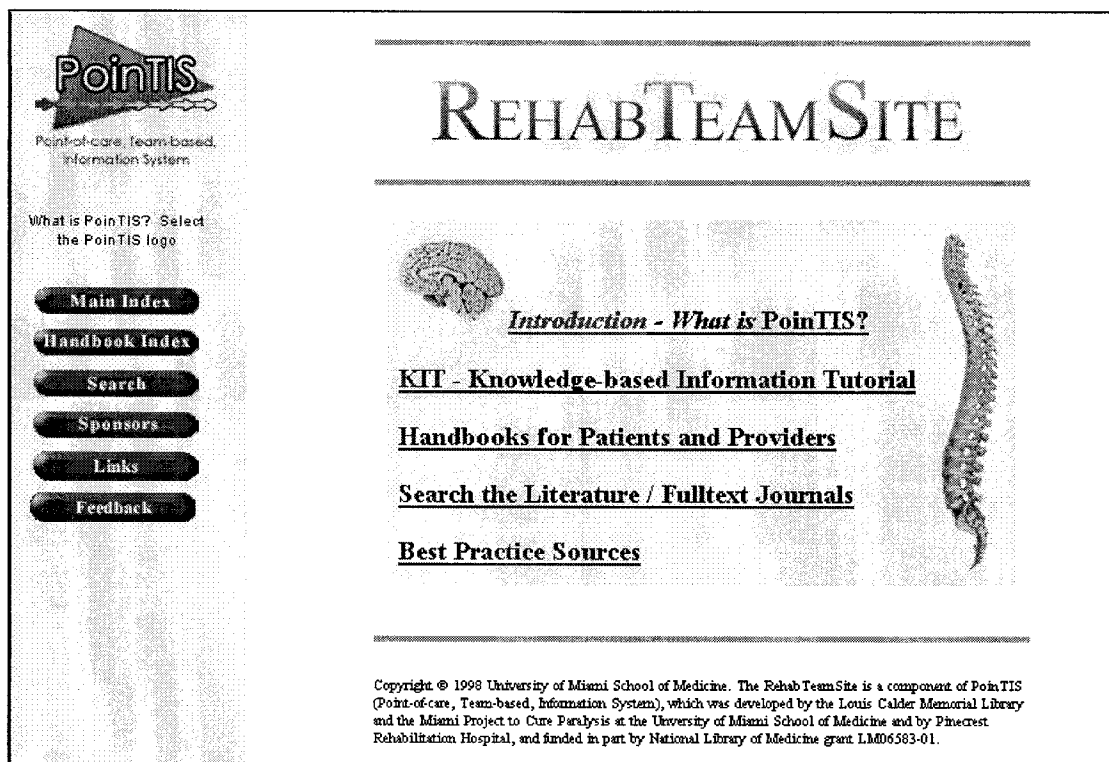
As a result of the needs assessment, a Web-based clinical information system was envisioned to ensure ready accessibility at the point of care to free, well-organized, context-sensitive, evidence-based information to support clinical decision making and patient education. A two-year NLM information systems grant was awarded in 1998 for librarians at the Louis Calder Memorial Library, serving the University of Miami/Jackson Memorial Medical Center (UM/JMMC) and Pinecrest Rehabilitation Hospital, to design and implement a rehabilitation prototype of a point-of-care, team-based information system (PoinTIS). This paper describes the development, promotion, training,

and evaluation of PoinTIS, an example of librarians serving as publishers of information created or used by their parent organizations, which, in the words of Lynch, is ''one way in which the medical library in the twenty-first century may respond to the technological and social developments that are fueled by information technology, bioinformatics, and networked information'' [4].

REHABTEAMSITE

Patient and provider manuals

The Website† created for PoinTIS is named the RehabTeamSite (Figure 1) and designed to follow traditional information-seeking behaviors for evidence-based clinical information. Information is first sought in basic tools, such as dictionaries and textbooks or manuals. If the needed information is not found in these sources, the search continues to include the journal literature, other authoritative Web-based sources, or input from colleagues. Two related rehabilitation topics, spi-

Table 1
Respondents to needs assessment

Providers		
Physical therapists	63	45%
Rehabilitation nurses	36	26%
Occupational therapists	27	20%
Speech therapists	7	5%
Psychologists	4	3%
Social workers	2	1%
Vocational therapists	2	1%
Total	141	100%

† The PoinTIS Website may be viewed at http://calder.med.miami.edu/pointis/.

Figure 2
SCI provider manuals

nal cord injury (SCI) and traumatic brain injury (TBI), were chosen for the site, based largely on the expertise and patient care activities of the UM/JMMC's Miami Project to Cure Paralysis, Model Spinal Cord Injury Center, and Traumatic Brain Injury Center.

During an eighteen-month period, existing patient manuals on SCI and TBI were edited and expanded for the site, and context-sensitive manuals were created for each type of provider on neurorehabilitation teams (Figures 2 and 3). The provider manuals were based on information in the most recent and authoritative textbooks and monographs and on evidence-based information in the hundreds of articles retrieved in searches of the MEDLINE and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) databases. The same topic sequence and design features were used for the patient and provider manuals to facilitate familiarity and use at the point of care. For example, the left frame includes a table of contents for each manual, a site search engine, a glossary, and links to other sites. Short hypertext markup language (HTML) documents were created for quick access and printing at the point of care. Numerous illustrations appear in the patient manuals; more than 100 photographs were taken for the SCI Physical Ther-

apy manual; and interactive, cognitive exercises were developed for the TBI Speech Therapy manual.

Each completed manual was reviewed by a specialist in the field who served on the Advisory Committee created for the project. Specialists included the medical directors of the SCI and TBI units at UM/JMMC; deans of the schools of nursing and physical therapy at the University of Miami; the directors of rehabilitation nursing, physical therapy, occupational therapy, recreational therapy, speech therapy, nutrition, and case management; the nursing educational technologist at Jackson Memorial Hospital; the scientific liaison of the Miami Project to Cure Paralysis; and the director of education at Pinecrest Rehabilitation Hospital. The Advisory Committee met quarterly during the two-year implementation period of the project.

LITERATURE SEARCH, TUTORIAL, AND OTHER LINKS

Links were made to the library's Web-based MEDLINE and CINAHL databases, full-text collections of leading medical and nursing journals, and Health Reference Center patient information database, as well as to Internet Grateful Med for patient searches.

Figure 3
TBI provider manuals

Email discussion lists, chat rooms, bulletin boards, and news groups for spinal cord and traumatic brain injuries were identified and linked to the site as ''best practice sources'' to support contact with colleagues and peers worldwide. With the help of members of the Advisory Committee, support groups, organizations, and research centers for SCI and TBI were identified, organized, described, and included as links. Glossaries were either created or identified and linked to the site.

A Knowledge-based Information Tutorial was developed to teach health care providers, with little or no previous searching experience, to recognize an information need; formulate the need as a search query; identify the best sources from the RehabTeamSite; modify and then execute the formulated query based on the structure and search engine of the selected source or sources; and evaluate, select from, and apply the retrieved information to the clinical problem at the point of care. A major component of the tutorial is an interactive, Web-based Ovid MEDLINE tutorial with sample spinal cord injury (SCI) searches, which bears an hour and a half of American Medical Association (AMA) Category 1 continuing medical education (CME) credit.

INFRASTRUCTURE AND TRAINING

To make the RehabTeamSite accessible at the point of care, ten state-of-the-art workstations were purchased and installed at five sites in each of the two rehabilitation hospitals during the first six months of 1998. With support from members of the Advisory Committee, workstations were installed at the nurses' stations in the SCI and TBI units and in the neurorehabilitation gyms, day rooms, education departments, and outpatient facilities. The PoinTIS educator gave preliminary training sessions to more than 200 providers in small groups or on a one-on-one basis about the Internet and the RehabTeamSite during the remaining months of 1998, followed by a formal training session, based largely on the Ovid Web tutorial and taken by more than 150 providers during the first eight months of 1999.

Again with assistance from members of the Advisory Committee, a wide range of health care providers representing all members of multidisciplinary rehabilitation teams were trained: physical therapists, nurses, occupational therapists, psychologists, speech-language pathologists, recreational therapists, physician assistants, and rehabilitation assistants. However, no

Table 2
RehabTeamSite server log

	January 1999	December 1999	% Change
PoinTIS hits	73,890	155,812	+ 111%
PoinTIS user sessions	1,944	10,014	+ 415%

physicians or nutritionists were trained. Training sessions were also developed for ambulatory patients, their families, and future caregivers. Non-ambulatory patients were trained at the bedside with laptops purchased for this purpose. Quadriplegics were trained on a special workstation that enabled patients to use a mouse with a special mouthpiece.

PROMOTION

To promote the site, 50,000 brochures were printed and mailed to more than 40,000 SCI and TBI providers and organizations. Five thousand were sent upon request to the National Spinal Cord Injury Association for inclusion in the information packets this organization sent to all new spinal cord–injured patients. Information about the site was sent to and made available by leading search engines and directories, such as AltaVista and Yahoo, and SCI and TBI email discussion lists. Presentations were given at local, regional, and national meetings of SCI, TBI, and rehabilitation provider organizations by members of the Advisory Committee and the authors. Notices were sent to and published in library association newsletters and in health care newsletters and journals [5].

EVALUATION

Server log statistics

Numerous quantitative and qualitative assessments, several of which required the support of Advisory Committee members, enabled the usage and efficacy of the RehabTeamSite to be evaluated. During 1999, the first full calendar year after the site debuted in October 1998, usage was worldwide and increased steadily according to the server log statistics. As shown in Table 2, there was more than a 100% increase in the overall number of hits and more than a 400% increase in the number of user sessions between January and December 1999. Although the majority of hits were from within the UM/JMMC Internet protocol (IP) domain, an analysis of hits during June 1999 revealed that the client host outside the UM/JMMC that accessed the site most frequently was the Internet service provider for the corporation that owns Pinecrest and other rehabilitation hospitals, with 4,231 hits. Following service providers in Europe, Asia, and South America, the fifth most-frequent client host out-

side the UM/JMMC was a leading rehabilitation facility, with 503 hits.

During 1999, all components of the site were accessed, and usage was predominantly for patient-education purposes according to the server log statistics. During December 1999, the SCI and TBI manuals had the highest number of hits worldwide, followed by the glossary, the literature search, the site search, the best practice option, and the Knowledge-based Information Tutorial. During June 1999, 73% of the 8,541 hits of the SCI and TBI manuals were to documents from the SCI and TBI manuals for patients and their families, while 27% were documents from the manuals for providers.

Patient chart project

To determine how health care providers at UM/JMMC used the site at the point of care, a chart was developed and included in the patient chart for each patient on the rehabilitation units during July and August 1999 (Figure 4). Providers on each of three shifts were asked to check the components of the RehabTeamSite that were used and to indicate if the information was for the patient or the provider and if it was useful.

Data from the eight-week study documented that providers used the site at the point of care at least eighty times during the course of treating 129 inpatients. The manuals were accessed 41% of the time and the bibliographic databases 58% of the time. Eighty percent of accesses were for patient and family education purposes, and 20% were for health care provider education. Eighty-eight percent resulted in useful information, and 12% did not. Approximately 75% of the accesses were performed during the 7:00 A.M. to 3:00 P.M. shift, 25% during the 11:00 P.M. to 7:00 A.M. shift, and none during the 3:00 P.M. to 11:00 P.M. shift. These data on site component usage and purpose and usefulness of the search at the point of care were similar to those from the server log data previously referenced, except there was greater use of the bibliographic databases at the point of care versus greater usage of the manuals worldwide.

Post-tutorial survey

A survey was mailed in October 1999 to the 128 providers who had taken the formal training course at UM/JMMC six to seven months earlier (Appendix B). Similar to the server log and point-of-care data above, data from the fifty-eight usable returned surveys demonstrated that the manuals and bibliographic databases were the most frequently used components and that a high number (98%) rated the site useful.

Of the forty-two (72%) respondents who used one or more of the site components, forty-one used one or more of the SCI and TBI manuals. Of these forty-one providers, thirty-five (85%) used the SCI and/or TBI

Figure 4
PoinTIS point-of-care, team-based information system patient information needs assessment

Please check components used																					
Day	**Sunday**			**Monday**			**Tuesday**			**Wednesday**			**Thursday**			**Friday**			**Saturday**		
SCI/TBI patient and provider manuals																					
Literature search																					
Best practice (news or chat)																					
Patient and family education																					
Health care provider education																					
Information *was* useful																					
Information was *not* useful																					
No information needed at this time																					
Nursing shift and rehabilitation specialty	11 p.m.–7 a.m.	7 a.m.–3 p.m.	3 p.m.–11 p.m.	11 p.m.–7 a.m.	7 a.m.–3 p.m.	3 p.m.–11 p.m.	11 p.m.–7 a.m.	7 a.m.–3 p.m.	3 p.m.–11 p.m.	11 p.m.–7 a.m.	7 a.m.–3 p.m.	3 p.m.–11 p.m.	11 p.m.–7 a.m.	7 a.m.–3 p.m.	3 p.m.–11 p.m.	11 p.m.–7 a.m.	7 a.m.–3 p.m.	3 p.m.–11 p.m.	11 p.m.–7 a.m.	7 a.m.–3 p.m.	3 p.m.–11 p.m.
	Psy/PT/OTR/ SLP/Rec			Psy/PT/OTR/ SLP/Rec			Psy/PT/OTR/ SLP/Rec			Psy/PT/OTR/ SLP/Rec			Psy/PT/OTR/ SLP/Rec			Psy/PT/OTR/ SLP/Rec			Psy/PT/OTR/ SLP/Rec		

* Each shift must indicate components used if none checked no information needed at this time.

patient manuals, and an equal number used one or more of the seventeen provider manuals. When compared with the data from the patient chart at the point-of-care project, these data documented more usage of the provider manuals by providers from locations other than at the point of care, such as the office. In all, the seventeen provider manuals were used a total of seventy-one times by the thirty-five respondents, for an average use of two manuals by each provider. The medicine manuals were used the most (24%), followed by nursing (20%), physical therapy (14%), nutrition (13%), occupational therapy (7%), psychology (6%), speech therapy (14%), recreational therapy (3%), and case management (3%). Because no physicians or nutritionists were trained or surveyed, these data documented high usage of the medicine and nutrition manuals by other members of the rehabilitation team. This usage demonstrated that the site supported and promoted the multidisciplinary team approach to rehabilitation by offering ready access by each provider type to the information used by all provider types.

Forty-one respondents used the literature search component a total of sixty-one times. MEDLINE was the most frequently used database (51%), followed by Health Reference Center (35%) and CINAHL (13%). Of the forty-two respondents who used the site, 38% searched either once or twice each week (30%) or more than six times each month (8%), as opposed to 62% who searched less than six times each month. Of the 69% who used a computer at a point of care, 53% used one at a nurse's station, and 16% used a computer in one of the neurorehabilitation gyms. Of the sixteen respondents (28%) who did not use the site, eight (53%) gave "no time" as the reason, five (33%) "no need," four (3%) "too difficult," three (2%) "other" reasons, and two (1%) indicated that the computer was either in use or not conveniently located. Thirteen respondents (32%) took the time to comment that the site is "necessary," and the PoinTIS educator had provided outstanding support and assistance.

Focus groups and feedback link

Two focus groups of rehabilitation care providers at UM/JMMC, including providers who had served on the Advisory Committee, were held in December 1999 to identify strengths and weaknesses of PoinTIS. The group of frequent users of the RehabTeamSite agree that patients need and ask for more information than ever before, because they are more educated, more routinely exposed to health information in the media, and discharged from the rehabilitation center earlier than patients were in the past. Sources such as the RehabTeamSite are useful to help patients learn and understand the terminology of their condition, because these sources are readily accessible and easily transported from the inpatient facility to the home. The site satisfies both the sophisticated patient who wants a lot

of information and the unsophisticated patients who need a lot of information. It is useful to brain-injured patients who are frequently cognitively impaired and benefit from information that is concise, well illustrated, and printable. Websites are particularly useful for the many South American patients seen in Miami who can educate providers when they return home regarding their care and therapy in the United States.

PoinTIS was considered beneficial to providers in their patient and family education and advisory roles to expedite the identification of authoritative information on unfamiliar diseases and to keep up with advances in their fields. Comments on the site's Feedback link from health care providers, students, and patients worldwide praised the site's comprehensiveness, detail, usefulness, and ease of use. Providers in the focus group of frequent users admitted to a level of discomfort when searching databases such as MEDLINE, particularly within the time constraints at the point of care, and agreed that more instruction and an information resource person were necessary. Providers in the second focus group cited the following reasons for their infrequent or non-use of the RehabTeamSite: insufficient knowledge and difficulty structuring a literature search and ''feeling good about the results''; lack of a resource person at the point of care, particularly for providers of the older ''slinky generation'' who are computer illiterate; lack of time; inconvenient location of the nearest computer; and insufficient awareness by administrators of the need for quality information.

CONCLUSIONS AND DISCUSSION

The quantitative and qualitative assessments document that Web-accessible bibliographic resources, such as MEDLINE, and comprehensive, context-sensitive, organized, easy-to-use, and free full-text sources, such as the SCI and TBI manuals and glossaries on the RehabTeamSite, are frequently and successfully used by providers at the point of care and by individuals worldwide at other Web-accessible locations. Between 88% and 98% of providers who participated in the patient chart (88%) and post-tutorial survey (98%) reported that the information they retrieved was useful. These data are similar to those from a study in which 92% of nurses who used knowledge-based sources at the point of care reported that the information they retrieved was useful [6]. The RehabTeamSite contains information about common and uncommon medical problems, supports the needs of international users, and is included in the major Web search engines and general and medical indexes. These are the criteria for Web-based resources being of optimal assistance to health care providers and patients established by D'Alessandro [7].

Approximately 75% of all RehabTeamSite usage is for patient-education purposes. There is an increased awareness of health information among the patient population as a result of higher levels of education and increased coverage of health by the media. There is an increased need for information by patients and their caregivers as a result of managed care and shorter lengths of stay in hospitals and rehabilitation centers. Resources such as the RehabTeamSite support and enhance the multidisciplinary team approach to rehabilitation care along the continuum of care from prevention of illness to home health care and maintenance. Patients and providers benefit from training programs and from the ongoing availability of information specialists as they continue to use and improve their information retrieval skills.

PoinTIS is an example of a library becoming, in the words of Lynch, ''engaged with the process and activities of the parent organization and the acquisition, capture, and management of information created by or used by that organization, even when such information falls far outside the published literature that has been the primary historical focus of most libraries'' [8]. PoinTIS is ''one way in which the medical library in the twenty-first century may respond to the technological and social developments that are fueled by information technology, bioinformatics, and networked information.''

PoinTIS also illustrates the six ''compelling reasons'' for librarians' involvement in publishing on the Web identified by Stover: to support the scholarly communication process and the libraries' traditional dissemination of information role, share librarians' expertise in organizing and providing access to information, give libraries higher profiles on campus, involve libraries in new technology on the publishing level, give libraries' parent institutions positive reputations in national and international academic communities, and permit libraries to bypass the profit-based system of print publishing [9]. PoinTIS illustrates the need to create and use tools other than search engines, which cover only a small fraction of the Web [10], and for librarians to highlight reliable content by producing directories of Internet resources from dependable sources [11].

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APPENDIX A

Needs assessment

The hospital wishes to determine if the information you need to deliver a high level of quality care to your patients is available to you. Thank you for taking a few minutes to answer just ten questions.

Questions 1 through 3 may look identical, but they will document *why* you need information, *how often* you turn the need into an actual *search* for additional information, and how often you *get* the additional information you need. Questions 4 to 9 document where and how you obtain the additional information to deliver the highest possible level of care. Question 10 asks that you relate *three* information needs you have had in the past several months.

Age: 20–30 _____ 31–40 _____ 41–50 _____ 51–60 _____ over 61 _____
Years of professional experience: 1–5 _____ 5–10 _____ 10–20 _____ over 20 _____
Gender: Female _____ Male _____
Education (*check all that apply*): CNA _____ RN _____ Other: _____ (BSN, BA, MSN, MA, Ph.D., Ed.D.)
COTA _____ OTR _____ Other: _____
PTA _____ PT _____ Other: _____
MSW _____ Other: _____
SLPA _____ SLP _____ Audiologist _____ Other: _____
Psychologist _____ Other: _____
CTRS _____ Other: _____
Shift: Days _____ Evenings _____ Nights _____

Please check *one*: ''never,'' ''less than once a week,'' or ''more than once a week'' for each of the following:

1. How frequently do you *need* additional information for the following *reasons*:

	Less than once a week	More than once a week	Never
Solve *specific* patient care problems	_____	_____	_____
Get *general* (background) care information	_____	_____	_____
Get information for *patient education*	_____	_____	_____
Conduct *research* in patient care	_____	_____	_____
Keep up with the literature	_____	_____	_____
Other (*please specify*): _____	_____	_____	_____

2. How frequently do you *seek* information needed for the following *reasons*:

	Less than once a week	More than once a week	Never
Solve *specific* patient care problems	_____	_____	_____
Get *general* (background) care information	_____	_____	_____
Get information for *patient education*	_____	_____	_____
Conduct *research* in patient care	_____	_____	_____
Keep up with the literature	_____	_____	_____
Other (*please specify*): _____	_____	_____	_____

3. How frequently do you *obtain* needed information for the following *reasons:*

	Less than once a week	More than once a week	Never
Solve *specific* patient care problems	——	——	——
Get *general* (background) care information	——	——	——
Get information for *patient education*	——	——	——
Conduct *research* in patient care	——	——	——
Keep up with the literature	——	——	——
Other *(please specify):* _____		——	——

4. How frequently do you *obtain* needed information by the following *methods:*

	Less than once a week	More than once a week	Never
Voice conversation—in person or telephone	——	——	——
Trip for a book, journal, brochure, manual audio-visual, or CD-ROM program	——	——	——
Dial-up modem	——	——	——
Direct Internet connection	——	——	——
Other *(please specify):* _____	——	——	——

5. How frequently do you *obtain* needed information from the following *sources:*

	Less than once a week	More than once a week	Never
Procedure manual, pocket guide, or handy reference book	——	——	——
Book, journal, audio-visual (video, audiotape etc.), or CD-ROM (multimedia program) owned by the hospital or personally	——	——	——
Electronic bibliographic database (e.g., MEDLINE, CINAHL, etc.)	——	——	——
Other electronic knowledgebase (e.g., Internet or Web file or electronic mail service)	——	——	——
Colleague, expert, or researcher (onsite or offsite)	——	——	——
Drug company or representative	——	——	——
Hospital librarian or library/information manager	——	——	——
Continuing-education course	——	——	——
Other *(please specify):* _____			
	——	——	——

6. How frequently do you choose a *source* or *method* for the following *reasons:*

	Less than once a week	More than once a week	Never
Response time	——	——	——
Accuracy and currency of information	——	——	——
Ease and familiarity of access	——	——	——
Available at no charge	——	——	——
Expense	——	——	——
Other *(please specify):* ——	——	——	——

7. How frequently is *needed* information *not* obtained because of:

	Less than once a week	More than once a week	Never
Time or energy to seek for information and/or wait for response	——	——	——
Costs incurred	——	——	——
Lack of necessary equipment	——	——	——
Lack of knowledge necessary to efficiently and effectively seek or request information	——	——	——
Lack of knowledge necessary to select an appropriate source	——	——	——
Other *(please specify):* _____	——	——	——

8. How frequently do you proceed to deliver patient care or answer a patient's question with what you feel is less than a desirable amount of information *(please check only one of the following):*
Less than once a week _____   More than once a week _____   Never _____

9. If instruction on easy to use, effective, free, and readily accessible sources of information were made available to you during working hours, how often do you think you would use these sources for patient care or patient education *(please check only one of the following):*
Less than once a week _____   More than once a week _____   Never _____

10. Comments: Please describe three information needs related to patient care or education that you had in the past month or two. If the need was met, please describe in what way and the effect of the information on patient care. If the need was *not* met, please give the reason or reasons as you remember them for not getting the information and the effect on patient care. For example:

''I needed information on chronic pain–related TMJ. I received the information by submitting a search request to the education department. The given information confirmed that biofeedback is an effective short- and long-term therapy for TMJ chronic pain.''

''I needed information on the William's back brace, but the education department was unable to find any. Therefore, I was unable to identify an alternative orthosis for a patient.''

Need #1 _____

Need #2 _____

Need #3 _____

APPENDIX B

PoinTIS final questionnaire

You have been selected to receive this questionnaire because you received one-and-one-half hours of continuing-education credit for your participation in the PoinTIS Training Session given by Kelly Moore earlier this year. Thank you for taking a few minutes to tell us briefly about yourself and your current methods of looking for information about spinal cord and/or traumatic brain injury.

A. Personal data

1. Age (please check *one*): 20–29 _____   30–39 _____
40–49 _____   50–59 _____   60–69 _____
70 or older _____

2. Specialty (please check *one*):
Nurse _____   Physician assistant _____
Nutritionist _____   Psychologist _____
Occupational   Recreational therapist _____
therapist _____   Speech/Language
Physical therapist _____   pathologist _____
Physician _____   Other (please specify): _____

3. Native language (please check *one*):
English _____   Spanish _____   Creole _____
Other (please specify): _____

B. PoinTIS components (please check *each* of the following components, numbered 4 through 9, that were used in the past year):

4. SCI or TBI manuals (check *all used*):
Patient manual _____
Provider manual (check all *used*):
Medicine _____
Neuropsychology _____ Occupational therapy _____
Nursing _____   Physical therapy _____
Nutrition _____   Recreational therapy _____
Case management _____ Speech therapy _____

5. Site search _____

6. Literature search (check *each* database used):
CINAHL _____   Health Reference Center _____
MEDLINE _____

7. Links to other SCI/TBI sites _____

8. Knowledge-based Information Tutorial (KIT), other than for the PoinTIS training session _____

9. Best practices (e.g., chat rooms, email discussion lists, news, etc.) _____

10. None used (if none, please check the reason or reasons you did not use PoinTIS and skip questions 11 through 13):
No need for information _____
No time to use PoinTIS _____
Too difficult _____
Language problem _____
Prefer other sources (please specify): _____
Colleague _____   Print book or manual _____
CE course _____   Print journal article _____
Conference _____   CD ROM or video _____
Other (please specify): _____

C. Search characteristics

11. Frequency: How often do you use PoinTIS? (please check *one* of the following):
1–2 times/week _____   3–6 times/month _____
1–2 times/month _____   More than 6 times/month _____

12. Location: Where do you search PoinTIS? (please check *all that apply*):
Nurses' station _____   Home _____
Day room _____   Other (please specify): _____
Office _____

13. Usefulness: In general, how useful did you find the information? (please check *one*):
Extremely useful ____   Somewhat useful ____
Very useful ____   Not very useful ____
Not useful at all ____

D. Comments _____ _____

Please return by October 30, 1999, to Suzetta Burrows, PoinTIS coordinator, Louis Calder Memorial Library (R-950). An addressed, stamped envelope is enclosed for your convenience