

**SURVEY OF OUTPATIENT SERVICES FOR
CLIENTS WITH SPINAL CORD INJURY**

**Workgroup for Prevention of
Pressure Sores and Urinary Tract Infections in
Person with Spinal Cord Injury**

NEW YORK STATE DEPARTMENT OF HEALTH

**Disability Prevention Program
Division of Family and Local Health**

ABSTRACT

Among the population of persons with spinal cord injury (SCI), wellness promotion is widely believed to be effective in preventing secondary conditions such as pressure sores and urinary tract infections. Routine annual evaluations may be an ideal avenue for enhancing wellness promotion in this population. However, this approach is feasible only if clinic services are readily available and accessible. In 1993 and 1994, a mail survey was conducted of rehabilitation institutions in the State of New York in order to assess the availability and accessibility of outpatient clinic facilities that provide services to persons with SCI. Of the 219 mailed questionnaires, 193 were returned for a response rate of 88.1%. A total of 67 (34.7%) of these indicated that they provide clinic services for SCI clients. Information was obtained on the number and geographic dispersion of clinics, the mix of services offered, and the policies and practices concerning annual evaluations. Geographical accessibility was assessed by determining the proportion of the general Upstate New York population residing within given distances of clinic sites. Fully 87% of the upstate population lives within 25 miles of clinic sites, implying that clinic services are generally geographically available and potentially accessible to the population of persons with SCI. With the exceptions of urology (47.8%) and plastic surgery (37.3%), a broad spectrum of specialty services is offered on-site by these clinics. Most (86.6%) believe in the efficacy of annual evaluations in preventing secondary conditions among SCI clients. Fewer (67.2%), however, actually conduct annual evaluations as policy. The survey provided information from the perspective of the provider. Future investigation targeting the users of services, i.e., persons with SCI, is warranted.

Background

This survey had its genesis in discussions among members of the Workgroup for the Prevention of Pressure Sores and Urinary Tract Infections in Persons with Spinal Cord Injury (referred to hereafter as the "Workgroup"), a group established by the Disability Prevention Council, advisory body for the Disability Prevention Program (DPP), New York State Department of Health. Under the DPP's New York State Strategic Plan for the Prevention of Disabilities: 1991-1996, the Workgroup set as an objective the conduct of a survey of rehabilitation facilities providing outpatient services to clients with spinal cord injury (SCI). The general consensus among Workgroup members was that the most effective avenue to prevention of secondary conditions such as pressure sores is through health promotion and early detection of potentially preventable secondary conditions, and that this approach will lead to positive long-term results. The Workgroup also felt that wellness promotion would be greatly enhanced if persons with spinal cord injury routinely received annual evaluations. Furthermore, the belief among members was that the annual evaluation approach is feasible only if outpatient clinic services are both readily available and accessible to the population of spinal cord injured persons.

Availability of and access to medical services are major issues among populations of persons with special health care needs. These issues are of special concern to persons with SCI, to whom physical barriers to medical services alone may present a challenge to access. The definition of accessibility in medical geography literature has been refined by distinguishing between potential and realized accessibility (Joseph & Phillips, 1984). Potential accessibility refers to the locational relationship between service providers and surrounding populations. However, factors other than physical distance also influence the use of medical facilities. These include insurance status, income, education, occupation, age, gender, and individual preferences and perceptions (Love & Lindquist, 1995). Examination of actual utilization patterns incorporating these additional variables forms the basis for revealed accessibility. Information yielded by the current survey, however, is limited to only one measure of potential accessibility, geographical accessibility.

The perception among the Workgroup members was that information was lacking on the overall availability and accessibility of outpatient clinic facilities in the State of New York that provide services to the population of persons with SCI. Moreover, little was known about the policies of such facilities for the conduct of routine annual physical evaluations. To address the need for current information, the Workgroup, at their February, 1993, meeting, proposed a survey of facilities of this type. The survey was directed to health care providers and designed to address several questions:

- How many clinics in the state actually serve persons with spinal cord injury?
- Where are these clinics located around the state?
- What is the mix of services offered by these clinics?

- Do the clinic facilities share the belief in the effectiveness of annual evaluations?
- Do they put this belief into practice?

Methods

The target population of the survey was all facilities in New York State that provide outpatient clinic services for clients with spinal cord injury. Three sources, identified below, were used to generate the mailing lists of potentially eligible institutions.

Facilities identified as the initial target of the survey were those in the New York State listing of the National Association of Rehabilitation Facilities (NARF). A pilot postal survey of selected diverse NARF rehabilitation facilities was conducted as the initial activity. A pilot questionnaire was developed (Appendix A), and, along with the study protocol, was approved by the Office of Public Health Survey Review Committee.

The pilot survey of 10 facilities was conducted in June and July, 1993. Six completed questionnaires were returned. Based on responses and comments, the questionnaire was revised, and a final version was printed by the NYSDOH Office of Public Affairs (Appendix B).

On December 3, 1993, questionnaires were mailed out to 132 NARF facilities throughout the state. A second mailing was done on December 28, 1993, to 72 nonresponders to the initial mailout. A telephone follow-up of nonresponders to the mailouts was conducted in November, 1994.

Results from the initial mailout were discussed at the April 27, 1994, Workgroup meeting. At that time, several members expressed concerns that the initial distribution list (i.e., NARF institutions) may not have included other rehabilitation facilities around the state that also provide SCI outpatient services. Therefore the Workgroup recommended a second mailout to facilities included on a NYSDOH list of institutions certified as having beds in physical medicine and rehabilitation, both inpatient and outpatient. The list was obtained from the Bureau of Long-Term Care Services, NYSDOH. This second mailing went out to 77 additional institutions on October 26, 1994, with a follow-up mailing to 45 nonresponders on November 21, 1994.

The updated results from both mailings of the questionnaire were presented and discussed at the December 2, 1994, Workgroup meeting. It was suggested that Veterans Affairs (VA) hospitals, not being under the regulation of NYSDOH, may not have been totally represented on the first two mailing lists. Therefore, a list of all VA hospitals in New York State was obtained from the Eastern Paralyzed Veteran's Association. A third mailing was done on December 6, 1994, to ten VA hospitals throughout the state.

The questionnaire responses were summarized by use of SAS. Mapping of the clinic site zip code centroids and the geographical accessibility analyses used SAS/GRAPH along with the 1993 magnetic tape file of New York State zip code population data. For the accessibility analyses, clinic sites were first identified by their zip code centroids. Next, all surrounding zip code centroids that fell within a given straight distance from the site centroid were identified, and the populations of these zip code areas were totaled for each clinic site. These individual population totals were then summed across all upstate sites, and this summary total was expressed as a percentage of the 1993 upstate population. The resulting proportion was an expression of the percentage of the upstate population served within a given radius of the clinic sites. The analyses were done for both 10- and 25-mile radii.

Results

Response to Mailouts

As a result of the December, 1993, mailouts to and telephone follow-up of NARF institutions, completed questionnaires were returned from 116 facilities, for a response rate of 87.9% (116/132). Twenty-nine (25.0%) of the responding facilities indicated that they provide clinic services for people with spinal cord injury. Of the 19 institutions that were contacted in the November, 1994, telephone follow-up of nonresponders, only one was identified as providing clinic services for clients with SCI. Moreover, this facility subsequently returned a completed questionnaire and is included in the above totals.

The October, 1994, mailout to institutions on the NYSDOH list of certified facilities resulted in 69 completed questionnaires, a response rate of 89.6% (69/77). Thirty-three (47.8%) of the responding institutions indicated provision of clinic services for SCI clients.

The December, 1994, mailout to the VA hospitals resulted in eight returned questionnaires for a response rate of 80.0% (8/10). Five (62.5%) of the responding facilities indicated that they provide clinic services for SCI clients.

Information from all three mailouts was combined to generate a comprehensive look at statewide availability of outpatient clinic services for SCI clients. The overall response rate to the three mailouts was 88.1% (193/219).

Geographic Dispersion of Clinic Sites

A total of 67 (34.7%) of the responding institutions indicated that they provide clinic services for SCI clients (Appendix D). Of these 67 facilities, 26 (38.8%) are located in New York City, distributed in the following counties: Bronx (3), Kings (6), New York (12), Queens (4), Richmond (1) (Figure 1). Seven are (10.4%) in Nassau or Suffolk Counties (Figure 2), and 34 (50.7%) in the rest of the state (Figure 3). The 34 clinics outside the New York City/Long Island area are located in 19 of the 55 upstate counties (Figure 3).

The potential accessibility of the clinic sites to members of the spinal cord injured population was assessed by examining the geographic proximity of these sites to the surrounding general population. This was accomplished by determining the percentage of the population that resides within given distances of the sites. Because such a simplified approach is not meaningful in the New York City region, the analyses were done only for the 34 clinics outside the NYC/Long Island region. The results of using 10- and 25-mile radii to define the areas of analysis are presented in Figures 4 and 5. Figure 4 shows the percentage of the population that resides within a 10-mile radius of each clinic site, identified by the zip code centroid. As noted, just over half (54.7%) of the Upstate population resides within 10 miles of the clinics. Results from the analysis using a 25-mile radius are shown in Figure 5. Fully 87.0% of the Upstate population lives within this defined area.

Questionnaire Responses

The following results are based on responses from the 67 institutions that serve SCI clients. (See Appendix E for a complete item-by-item summary of responses.) These clinics treated an annual average of 55 outpatient clients with SCI in their clinics over the previous 3-year period. In general, the facilities provide a broad range of services. All but two clinics (97.0%) provide both physical therapy and occupational therapy. The majority provide services in psychiatry (85.1%), social work (79.1%), psychology (73.1%), and rehabilitation nursing (62.7%). However, urology services are available in slightly less than half (47.8%) of the clinics and plastic surgery services in only 25 (37.3%).

Clients are able to self refer to 45 (67.2%) of the clinics. An appointment for an initial assessment can be scheduled in less than 4 weeks in 58 (86.6%) of the facilities. Moreover, established clients can obtain advice by telephone in 61 (92.4%).

Only slightly more than half (58.2%) of the clinics treat established clients for acute onset of urinary tract infections. Of those that do, however, most (89.7%) are able to initiate treatment within 48 hours from when the client first reports the acute onset. More than half (55.2%) of the clinics also provide long-term urological management for SCI clients. Among those that do, the average length of time for an established client to obtain an appointment is 2.4 weeks.

Fifty-two (77.6%) of the clinics treat established clients for acute onset of pressure sores. Of those that do, 41 (80.4%) are able to schedule an appointment for pressure sore treatment within 48 hours. Fifty-two (77.6%) of the clinics also treat the clients for long-term pressure sore management, with an average time to appointment of 1.8 weeks for established clients.

Fifty-eight (86.6%) of the clinics think that an annual evaluation of clients with spinal cord injury is necessary. However, of those that do believe in the necessity of an annual evaluation, only 39 (67.2%) actually conduct such evaluations as part of their policy. One facility does not believe annual evaluations are necessary but still does them as part of their policy. Twenty-nine (43.3%) think that an annual evaluation is not frequent enough to prevent

urinary tract infections among asymptomatic SCI persons. They recommend that evaluations for this purpose be done, on average, every 4.9 months. Moreover, 22 (33.3%) of the facilities do not believe that an annual evaluation is frequent enough to prevent pressure sores among SCI individuals. [Note: Seventeen (24.2%) of the clinics failed to respond to this item.] Their recommended evaluation interval for this purpose is every 4.5 months on average. Most (83.6%) of the clinics are able to schedule an annual evaluation within 6 weeks of the client's request.

Forty-nine (73.1%) of the clinics that have an inpatient facility indicated that they routinely give appointments for follow-up at an outpatient clinic to the clients who are discharged from their facility. The initial assessment is scheduled an average of 4.1 weeks from the time of discharge.

The average time allocated for initial visits by new outpatient clients was reported as 55.0 minutes. Follow-up visits by these clients were allocated an average of 37.3 minutes. If a client cancels, the average waiting time for rescheduled appointments was 2.5 weeks.

Only 29 (43.3%) of the clinics reported that their staffing was determined according to the number of appointments scheduled.

When considered separately, each traditional form of payment (private insurance, Medicaid, Medicare, cash, workers' compensation) is accepted by most (at least 80%) of the facilities. Moreover, forty-seven (70.1%) of the facilities accept all these forms of payment.

Clinic accessibility is mainly limited to weekdays during traditional working hours. Nearly all (98.5%) clinics are open on weekdays before 5:00 p.m. However, only 11 (16.7%) are open on weekday evenings after 5:00 p.m., and most (90.9%) are not accessible for telephone consultation on weekday evenings. The majority are neither open on weekends nor provide telephone consultation during this time. Only five clinics have Saturday hours; one is open on Sunday. Telephone consultation is available at three clinics on Saturday and two on Sunday. Most (91.0%) of the clinics are wheelchair accessible via public transportation.

Fifty-nine (88.1%) have staff that are at least bilingual (English plus another language), primarily in Spanish (96.6%) and in American sign language (49.2%). Twenty-four (40.7%) have a French-speaking staff member; 13 (22.0%) a Creole-speaking staff member; and 24 (40.7%) a Chinese-speaking staff member.

In an attempt to assess the comprehensiveness of on-site services provided by the responding facilities, Dr. Martin Ferguson-Pell, Chairman of the Workgroup, suggested a combination of 11 services that might define the "complete" clinic: psychiatry, urology, physical therapy, social work, psychology, occupational therapy, rehabilitation nursing, treatment for acute onset of urinary tract infections, long-term urological management, treatment for acute onset of pressure sores, and a policy of conducting annual evaluations for all clients with spinal cord injury. By this definition, only eleven (16.4%) of the clinics can be considered as

comprehensive in their provision of services for SCI clients (Table 1). Six of these are located in New York City (Rusk Institute, Mt. Sinai MC, Brookdale MC, Harlem Hospital, Metropolitan Hospital, VAMC Bronx). Of the five located in the rest of the state, three are VA Medical Centers (Buffalo, Northport, Castle Point). Thus only two "complete" clinics (Helen Hayes Hospital and Erie County Medical Center) outside New York City serve non-veteran SCI clients. All five of the non-VA New York City institutions accept Medicaid as a form of payment. Both of the two upstate, non-VA facilities (Erie County Medical Center, Helen Hayes Hospital), accept Medicaid clients.

Recognizing that other interpretations of what constitutes a "complete" clinic may be acceptable, we also examined the effect of systematically reducing the original criteria list. The percentages of clinics that qualify as comprehensive under these reduced criteria are presented in Table 1. Various other combinations of defining criteria may also be considered. For example, when the urology-related services (provision of urology services and provision of long-term urological management) were dropped from the list of criteria, 19 (28.4%) of the clinics qualified as comprehensive under this less restrictive definition. Just over half (ten) are located in New York City; all eight non-VA facilities accept Medicaid payment. Six of the remaining nine facilities found outside NYC are non-VA institutions; five of them accept Medicaid payment.

Discussion

The excellent response rate (88.2%) was a major strength of the survey. Nevertheless, the characteristics of the nonresponders was a concern, given our goal of identifying all facilities that provide outpatient clinic services for clients with SCI. The results of the telephone follow-up of nonresponders to the first mailout, however, strengthened the belief that all institutions that do provide such services did respond to the survey. We are thus confident that our survey results represent the population of such clinics in New York State, assuming the accuracy of individual responses.

The survey revealed that the clinic services are generally geographically available and potentially accessible to New York State's population of persons with SCI, with the possible exception of sites in the extreme northern counties. It is probable, however, that clients in some locales may cross the state border in order to obtain services. For example, the services offered by the medical facilities at the University of Vermont in Burlington are potentially accessible to the population around the urban area of Plattsburg, New York, in Clinton County. It must be recognized that the analysis of geographic accessibility was based on the distribution of the general population around the clinic sites. However, if the highly simplified assumption is made that the population of persons with SCI is distributed in the same way as the general population, then the sites have a high potential accessibility to this subgroup as well. What is more probable is that persons with SCI may tend to live nearer to facilities that can best serve their special needs. Therefore the percentages of the general population captured within a given area may actually represent lower bounds when applied to the special subgroup of people with SCI.

Furthermore, it must be emphasized that this study was limited to reliance on the use of straight line distances for assessment of geographical access. The potential for bias exists if straight line distance does not accurately reflect travel time. However, support for the use of straight line distance as a proxy for travel time comes from a study by Phibbs and Luft (1995), who compared travel times for unimpeded travel between major intersections in upstate New York to distances between these points. The authors found the correlation between distance and travel time to be 0.987 for all observations and 0.826 for distances less than 15 miles. They concluded that straight line distance is a reasonable proxy for travel time in most models, but cautioned that the relationship may not hold for studies in dense urban areas.

A broad spectrum of services were found to be offered on-site by the clinic facilities. The exceptions were urology and plastic surgery. It is important, however, to note what was not asked in the survey. No items were included that addressed the availability of referral services in the community. It is therefore possible that adequate urology and plastic surgery services, for example, are readily available through referral, but not on-site.

Finally, it was found that the majority of institutions do share the belief that annual evaluations are indeed an effective means for preventing secondary conditions such as pressure sores and urinary tract infections. In fact, a substantial minority believe that periodic evaluations should be even more frequent than yearly.

In conclusion, the survey provided at least partial answers to most of the questions posed about the availability of clinic services in New York State, information that may prove valuable for policy recommendations. However, much, if not most, of the knowledge about accessibility and use of medical services is best obtained from the clients themselves. A future survey should be directed to the population of persons with SCI, and should include an assessment of access to services in dense urban areas such as New York City. Such a survey should also permit an examination of the role of distance coupled with other variables such as income, insurance status, gender, age, education, and mobility within the transportation system.

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Table 1. Percentage of Clinics for SCI Clients Offering Services, Number of "Complete" Clinics, and Number of "Complete" Clinics Accepting Medicaid Clients, Given Varying Criteria for Definition of "Complete"

Service	% Total Offering Service (N=67)	No. (% Total) "Complete" Clinics	No. (%) "Complete" Accepting Medicaid
1. Physical Therapy	98.5	66(98.5)	58(87.9)
2. Occupational Therapy	97.0	65(97.0)	57(87.7)
3. Psychiatry	85.1	55(82.1)	47(85.5)
4. Social Work	79.1	44(65.7)	37(84.1)
5. Treatment of acute PS onset	77.6	37(55.2)	30(81.1)
6. Psychology	73.1	33(49.3)	27(81.8)
7. Rehabilitation Nursing	62.7	29(43.3)	23(79.3)
8. Policy of annual evaluation	61.2	22(32.8)	16(72.7)
9. Treatment of acute UTI onset	58.2	19(28.4)	13(68.4)
10. Long-term urological mgnt.	55.2	14(20.9)	9(64.3)
11. Urology	47.8	11(16.4)	7(63.6)

Note. List of criteria for definition of "complete" clinic was sequentially reduced by one from least frequent (Urology) to most frequent (Physical Therapy). Row information for any particular service based on definition (list of criteria) that includes itself and all services listed above it.