Client follow-up is part of quality assurance. Rehab professionals should understand how regular contact with clients can improve their level of success with assistive technology.

Quality assurance is the responsibility of all providers of assistive technology, and the road that lies ahead is one where follow-up care should be included with every piece of technology a client receives. Follow-up allows for documentation of a successful device-user match, and where the match is not optimal, lets us look at possible reasons why. On the other hand, professionals who provide assistive technology do not always receive feedback on what positive changes can happen with a carefully evaluated, fabricated and delivered device.

In 1978, the Rehabilitation Engineering Center (REC) at Children’s Hospital at Stanford undertook a research effort to find out what happened to 196 mobility-assisted clients seen between 1975 and 1978. Seventy-nine percent of the devices delivered were “successful,” based on criteria of utility, goal attainment and client satisfaction.

Of the 196 devices delivered by the REC, 12 percent were not being used and were not outgrown. Of these, 63 percent, or about two-thirds, were not being used for mechanical reasons, and many of these clients had not made the REC aware of the problems. The researchers felt this was a strong argument for regular REC-initiated follow-up and education of clients to report malfunction and other problems.

In 1988, a study of consumer opinion regarding assistive technology was initiated and conducted at the Lucile Salter Packard Children’s Hospital at Stanford (LPCH). REC. As part of an on-going perspective study of consumer satisfaction with technology, the overall goal was to improve the transfer of rehabilitation technology from research and development to functional use by the disabled consumer. The following data and findings are part of the 1988 LPCH study.

**Methodology**
Twenty-eight children and adults were followed for one year upon receiving a new LPCH orthopedic seating system (OSS). Of those subjects, 86 percent were severely involved with minimal independent functioning. The remaining 14 percent were moderately involved with some independent functioning. (See charts, this page.)

All subjects received two functional assessments. The first assessment was conducted with subjects using their existing seating systems prior to delivery of their new OSS. The second functional evaluation was conducted while the subjects were using their new OSS at 12 months post delivery. Information was obtained before and after delivery on: the number of return visits to the center, device function and comfort, and general satisfaction with device use. This information was based on the functional evaluation form that combined clinical obser-

![Disability Type](chart1.png)

![Severity of Disability](chart2.png)
vations with direct client or caregiver feedback.

Since 86 percent were severely physically involved (poor head control, poor trunk control, not independent sitting balance and poor hand control), the general goals for these subjects were improved sitting position for function, increased comfort, and the time in the chair without being repositioned and/or removed from the OSS. The remaining 14 percent had additional objectives that were individualized for each subject.

Findings

Before receiving their new OSS, only 18 percent of the subjects were able to sit erect with good position compared with 68 percent after 12 months of use with their OSS.

Before receiving their new OSS, subjects were able to sit in comfort an average of approximately five and a half hours per day. After 12 months of use with their new OSS, those same subjects increased their sitting comfort to more than nine hours per day.

When asked about the appearance of their old device, 61 percent found it acceptable. After 12 months of use, approximately 96 percent found the appearance of their new OSS to be acceptable.

Fifty percent felt their existing devices were safe at all times. After 12 months of use with the OSS, 96 percent felt safe at all times.

After 12 months of use, 79 percent found that their overall comfort had improved when compared to their previous seat system.

Evaluation

Each of the 28 subjects followed in this study were unique in their technology needs and use patterns. There were some subjects who were very difficult to position, and it took longer than one year to reach the level where comfort could be achieved.

For example, a young boy had leukemia resulting in paraplegia. During the one year follow-up, he was seen five times for revisions to his system as a result of his deteriorating condition. The family was extremely grateful for the continuous modifications to the OSS and were pleased with the quality of work throughout the year. Because of medical problems, however, he was still uncomfortable at the 12-month evaluation.

This case is a good example of how factors other than quality or comfort of the device can impact the success. This study clearly shows that there is a wealth of information that can be extracted from the clients to whom we are providing technology. The numbers reflect that technology, an OSS in

![Functional Evaluation Results](image)
Professionals who provide assistive technology do not always receive feedback on what positive changes can happen with a carefully evaluated, fabricated and delivered device.

this case, is improving the quality of life of the clients that are served. It is not affecting all clients in the same way, but the positive changes can be seen.

In addition to the quality of life improvements that the follow-up process documented in this study, there are several other valid reasons why follow-up should be considered a vital link in the provision of assistive technology. Those reasons are to:

- Verify device performance in relation to objective established at assessment;
- Document client satisfaction;
- Solve performance problems before the client rejects the device;
- Evaluate clinician and facility performance;
- Prepare for review by funding agencies or write justification letters for replacement devices; and
- Inform manufacturers about mechanical failures, redesign needs and unmet needs.

In an ideal setting, all clients would initiate their own contacts with providers, thus allowing providers to keep track of the needs and outcomes of their customers. In practice, this often does not happen. Further education to empower clients on their own behalf will no doubt improve use of and satisfaction with technology. However, for the reasons given above, assistive technology providers need to be pro-active by tracking all clients they serve.

This study focused on only one type of device, but the findings clearly showed that the data gathered from technology users not only will improve the practical use of their technology interaction but will improve the clinicians, the facilities, and the perception of the field in how the human/technology interface is actually working.

It makes good clinical and business sense to take additional care of users of assistive technology through provider-initiated follow-up to improve function, comfort and satisfaction. With this information, funding agencies can learn the importance of follow-up and, while it might cost more initially, it will result in a better fitting, more frequently used device in the end.

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