

## **NEUROLOGICAL VISION IMPAIRMENT: ASSESSMENT AND TRAINING PACKAGE.**

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**ABSTRACT:** *The **NVT Scanning Device (NVTSD)** is a unique computerized tool used for the assessment and training of people with a Neurological Vision Impairment. The **NVTSD** is portable and is provided with a dedicated laptop to run the unique client management, assessment, training and research software.*

*The training package consists of a competency based assessment and training manual, workbooks and exercises in proven techniques for O & M Instructors, Rehabilitation Instructors, Occupational Therapists and Optometric technicians, involving the **NVT Scanning Device** and standard mobility methodology.*

*The training programme objectives are to train a person with Neurological Vision Impairment to maximize the use of their remaining vision and to become as independent as possible.*

*The training programme provides:*

- *An understanding of the effects of an Acquired Brain Injury (ABI) on the neurological vision system.*
- *An understanding of additional cognitive deficits associated with ABI and their implications for safe, independent mobility.*
- *Training in the use of the software package for collecting and management of client data, providing standardised assessments and conducting training sequences.*
- *Training in the use of the **NVTSD** as an assessment tool for determining the presence of homonymous hemianopia and/or visuo-spatial neglect.*
- *A programme of compensatory scanning exercises that will enhance the client's functional use of residual vision.*
- *Skills that will enable the O & M Instructor/Vision Rehabilitation professional to transfer scanning strategies to the client's home and community setting.*
- *Skills that will enable the O & M Instructor to accurately determine the need for a mobility aid and /or restrictions to travel limits.*

Over the years many blindness agencies around the world have broadened their charter to allow an expansion of services to cater for people with different degrees of vision impairment. Many now consider their eligibility in terms of functional impairment rather than legal blindness criteria. Along with changes to eligibility has come the broadening of services to the point where now very few blindness agencies today only provide a single mobility service, such as guide dogs. Most have incorporated the training options of Orientation and Mobility through the use of a variety of travel aides, included provision of Low Vision services and embraced new technologies available in the area of electronic mobility aides. In doing so, blindness agencies have recognised that these specific client groups require staff with equally specialised knowledge and skills.

In Australia over the past twenty years another clearly differentiated client group, those with Neurological Vision Impairment, have been included into Orientation and Mobility services provided by staff specifically trained to deliver specialised rehabilitation programs. Those agencies that have been meeting the need for Orientation and Mobility services for clients with an acquired brain injury are finding that this service now comprises over half of all the referrals for mobility training. The growth in the incidence of diabetes, vascular disease, the increased survival rate from serious head injury and the overall aging of the population will all contribute to increasing demand for services for people with vision loss resulting from Stroke or traumatic brain injury.

The decision to move into a completely new area of service provision is one that has major implications to resource allocation, funding and staffing levels. One such agency that has taken up the challenge and embarked on a new service component was Fife Society for the Blind, based at Kirkcaldy in Scotland. In January this year they committed three staff to a training program conducted by Neuro Vision Technology Pty Ltd. I would like to outline what they encountered with the training program and what developments have occurred over the past six months since the inception of the rehabilitation program. I speak from the perspective of one of the trainers who delivered the program on behalf of Neuro Vision Technology Pty Ltd.

One of the key reasons why Fife Society for the Blind had embarked on this training package was that they had identified a client base that had previously been referred for mobility services but did not benefit from the use of traditional mobility aides. They had nominated three potential staff members who were committed to the course due to their interest in the area, the region in which they worked and the management skills they possessed to develop and market the new program locally. The experience of the staff ranged from twelve to twenty years in terms of direct delivery of client rehabilitation programs. Fife Society for the Blind had gained funding for the pilot project through the support from National Health Service (NHS) Fife and the Fife Stroke Managed Clinical Network (MCN). Fife is the first authority outside of Australia to train staff in the use of the NVT Scanning Device for the assessment and rehabilitation training service

## **What did the training entail?**

### **Preparation:**

A list of pre-reading relevant to the theory component of the course was provided two months prior to the start date of the lecture series. Reference lists of articles of interest and suggestions for essential texts recommended for purchase as an ongoing resource, were also provided well in advance.

Training staff from NVT Pty Ltd arrived in Fife one week prior to the commencement of the training course. In this preparation week training staff conducted preliminary assessments of existing clients to screen of suitability for scanning training and to gain the client's permission to participate in the training course. The opportunity was taken to liaise with key allied health professionals from nearby hospitals providing both acute stroke care and rehabilitation programs. Travel routes, sources of aides to learning and printing of lecture material also formed part of the preparation leading up to the three week intensive training course.

### **Intensive training course:**

Two trainers worked together in the three week program covering the following topics.

#### **WEEK 1:**

- Anatomy and Physiology of the Brain
- Normal brain function and localisation of brain function
- Effects of localised and global brain lesions.
- Cortical vision system.
- Training in the software component of the NVT device for the recording of client demographics, medical history and neurological sequelae to the ABI.
- Functional vision screening tool.
- Standardised assessment techniques for scanning.
- Familiarisation with conventional measures of visual perceptual skills, such as standardised measures of visual attention in ADL tasks, reading and mobility.

#### **Week 2:**

- Observation of trainers conducting client assessments conducted by trainers.
- Practice in assessment skills in static scanning exercises, table top tasks and mobility exercises.

- Step by step methodology in the transfer of scanning skills to mobility tasks in a graded fashion in a client's local community.
- Observation of working as a member of an interdisciplinary team in a hospital setting.
- Protocols and legalities for accessing client's medical records and recording results of vision assessments into relevant notes.

**Week 3:**

- Hands on practice of assessment processes with actual clients, under the supervision of training staff.
- A total of 6 existing clients were assessed and commenced training. These clients were previously referred to FSB with the onset of their Neurological Vision Impairment ranging between two months to ten years.
- A further three clients that were inpatients of the acute hospital setting were also seen for assessment and commencement of training.
- Training in the software facilities in this final week focused on the automatic generation of reports, establishing the templates for referral letters and client file documentation, outcome measures and research protocols.
- Exposure to educational and promotional activities, in the form of observation of NVT staff conducting workshops for rehabilitation staff, Ophthalmology staff, client support groups.
- A comprehensive array of printed material to accompany the theory lectures and consolidate their understanding of practical exercises, including an up to date review of the literature, tools for table top exercises to use in the transfer of scanning skills to reading tasks and other ADL's.
- An outline of the Competency measures that were to be used to assess acquisition of skills.

**Follow up:**

A follow up visit was made three months after the completion of initial training. One week per student was devoted to the observation of client training programs. A review of the use of the software program and the importance of data entry relevant to research data collection was conducted. The opportunity was also taken during this follow up visit to conduct additional marketing of the program with local health authorities, potential referral sources and the local media.

### **Formal accreditation process:**

A review of data collected from each student has been conducted.

The standardised nature of the data collection allows for easy review of training processes and progress with clients. The data obtained can be used to inform the training staff of each student's progress in the following areas:

- Numbers of training sessions per client.
- Numbers of clients per instructor.
- The nature of the deficits that clients are presenting with for training.
- The collection of information that can highlight the impact of cognitive issues on client's acquisition of scanning skills and guide appropriate progression through training program.
- It is possible to determine the suitability of training techniques being adopted by newly trained staff. We can advise them of strategies to use with more complex clients that they are inevitably going to encounter through the flood of referrals.

Support, in the form of regular email contact and review of client training data by experienced trainers, will continue until students are considered to have attained the specified competency levels. We envisage that staff will attain competency in the delivery of the program within a six month period. This will be followed by a period of consolidation after which those staff who show a high level of skills and interest may become involved in a 'train the trainer' program. This process should ensure that the service grows at a sustainable rate in line with increasing client referrals.

### **Outcomes of training:**

- Six months later;
- Referral numbers;
- Clients assessed, trained,
- Different referral sources.

### **Plans for the future:**

The standardisation of the assessment, training and follow up measurement of evidence based outcome measures was incorporated into the software component of the NVT training package with two aims in mind. Firstly to assist newly trained staff to be able to focus their attention towards the client responses in training, instead of their delivery of exercises. Second objective was to facilitate the gathering of useful

data for research purposes. Fife is looking to work in partnership with other sites around the world in a collaborative research project to provide further validation of the scanning training. The pooling of data from a number of sites will mean that the timeframe to gathering sufficient data for statistical analysis will be much shorter.

**The potential:**

- Expansion into other regions.
- Potential for training of clients Nos
- Potential for 'Train the Trainer' and income derived from this source.
- Sustainable from a business perspective.

Anyone here representing agencies that are interested in:

- Addressing the unmet need of a large number of clients with neurological vision impairment.
- Working as part of an interdisciplinary team with local service providers.
- Having a system in place that is based on evidence based outcome measures.
- Leading the way into the next era of vision impairment services that will put Orientation and Mobility instructors on the same professional level as Occupational therapists, physiotherapists and other allied health professionals.
- Embarking on the use of computer software as a management tool with potential use in all areas of data collection for client programs,

Speak with:

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