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**Dr P R K Prasad Centre
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Setting up Low Vision Care services in the developing world

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Individuals with low vision benefit from vision rehabilitation services, which includes a clinical evaluation, prescription of optical and electronic devices, and training to make patients visually independent or to perform tasks using the vision and other senses.¹

Concern about the increasing burden of low vision globally, particularly in the developing world, has led to the stipulation of good quality low vision care as a key element of the 'Comprehensive Eye Service' model of programme development in the VISION 2020: The Right to Sight programme.² Although low vision does not fall in the category of blindness per se it has enormous social and economic consequences in terms of productivity losses and dependency.

About 45 million people worldwide are blind today and an additional 135 million have significant visual impairment or low vision. Nearly 90% of the world's blind live in the developing world.³ Evidence suggests that these numbers are growing at an alarming rate. Many reasons have been identified for the rising tide of blindness and low vision, prominent among them being an increase in the world's elderly population, particularly in developing countries. It is estimated that by the year 2025 there will be about 1.2 billion older people, with almost three quarters living in developing countries.⁴

In India, the current life expectancy at birth of 64.5 years is projected to increase to 73-77 years by 2020, and the percentage of the elderly is expected to increase from 8-10% to 20%. A population-based study has shown that the prevalence of low vision is 1.05% in southern India. If these data are extrapolated to the estimated 1014 million population of India, in the year 2000 10.6 million people would need low vision services.⁵

Surveys of schools for the blind in India have shown that 50% of children enrolled are in fact not blind, but have low vision. It has been reported that only 3% of all blind and visually impaired children in developing countries have access to basic low vision care.⁶ Low vision care, given to visually impaired children early in the life, could minimize long-term permanent visual disability and reduce the number of blind years.

Constraints in delivery of low vision care

- Lack of awareness among eye care professionals and the community
- Non-availability of good quality low vision training programmes
- Very little emphasis on low vision in existing eye care programmes
- Non-availability of low cost good quality low vision devices
- Unfavourable socio-economic conditions

Comprehensive low vision care

Despite the diversity of the settings and differences in each setting, certain elements are essential for the successful delivery of low vision services, such as trained personnel, suitable material, infrastructure, integration of low vision care, and proper evaluation.

Comprehensive low vision services are rarely given by a single service provider; often a team approach is called for, requiring the skills of trained ophthalmologists, optometrists, ophthalmic nurses and rehabilitation workers. Ophthalmologists have a key role to play, and an opportunity to offer low vision care every day. They should take into account optical and rehabilitative strategies, in addition to medical and surgical strategies. Many of the principles used in low vision assessment and management are easily integrated into routine ophthalmology practice.

Low vision evaluation

Low vision evaluation includes history, refraction, functional vision assessment, prescription of devices, appropriate and timely follow-up, and referrals to other services if required. The rehabilitation services include instruction in the use of devices, training in daily activities, orientation and mobility skills, educational and vocational guidance, and counseling.

1. Material

a. Basic diagnostic equipment

1. Refraction instrumentation
2. Acuity charts for distance and near
3. Continuous text reading cards with graduated print size
4. Functional tests: Contrast sensitivity test, Amsler grid, Ishihara test chart and Titmus fly test

b. Optical devices

1. High powered spectacle devices
2. Hand and stand magnifiers
3. Distance vision telescopes

c. Non-optical devices

1. Felt-tipped pen
2. Typoscope
3. Overhead reading lamp
4. Reading stand
5. Absorptive lenses (grey, brown and yellow tints)
6. Adaptive and assistive devices (closed circuit television and computer magnification software)



2. Infrastructure

There should be sufficient space and equipment to support a waiting room, a low vision examination room for functional tests, instructional and training room for training in the use of devices, and a counseling room for patient education.

3. Integration of Low Vision Care

Low vision care could be offered in a variety of settings, including hospital clinics, private practice, vision rehabilitation organizations and teaching institutions. Each setting has its own unique characteristics and constraints.

4. Evaluation

There should be an effective quantitative and qualitative evaluation mechanism that measures consumer satisfaction, outcome and cost-effectiveness of the rehabilitation services provided.

Strategies for service delivery

a. Awareness: There is a need to increase the level of awareness about low vision services for eye care professionals, other health care providers and the community (parents and teachers) through mass education using web-based information, media, brochures or leaflets, periodic newsletters and events organized around World Sight Day. Those who have no access to this medium can be targeted through traditional methods with simple messages and information.

b. Accessibility: Accessibility to low vision care should not be exclusively determined by clinical parameters such as visual acuity but should taken into account social, emotional, psychological, educational and occupational effects. It is essential to make eye professionals aware of the referral criteria for low vision services. Any person who has difficulty performing a visual task is potentially in need of low vision care.

c. Epidemiology: Planning for low vision services is hindered by the lack of population-based data about low vision and its magnitude.

d. Human Resources: The multidisciplinary team needed could be broadly categorized as institutional-based or community-based. The institutional-based core group would include an ophthalmologist, optometrist, orthopedist, teacher and rehabilitation specialist (multi-skilled worker). The community-based personnel would include primary health care and eye care field workers, community-based rehabilitation workers and teachers.

e. Training: Lack of technical expertise or support services by other professionals has also hindered the provision of low vision care. This can be addressed by short-term reorientation programmes, continuous medical education and long-term fellowship programmes at the institutional level. Efforts need to be made to include low vision into the curriculum of ophthalmology and optometry training programmes. The teaching methodology should have face-to-face case discussions, self-learning and practical learning through simulation.



f. Low Vision Devices: Availability of low cost good quality low vision devices is an essential pre-requisite for providing low vision care. Attempts have been made to make available simple optical devices at an affordable cost. They should have a pleasing cosmetic appearance and be comfortable to use. The production, distribution and marketing strategies would focus on creating awareness, a demand for services and developing accessibility. The strategic plan involves logistics for a distribution system, organizations to act as agency representatives for manufacturers, strengthening the existing resources, as well as mass production and bulk purchase by an international organization to reduce costs. Low vision services could be coupled with spectacles because of low demand.

Making low vision care accessible to those in need of it can make an enormous difference in the quality of life. Eye care professionals need to be more aware of these benefits so they can evolve an appropriate strategy to address low vision problems with the resources available in the developing world.

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Clinical Pearls in Low Vision Examination

These 'clinical pearls' for evaluation offer a quick review of key concepts for low vision practitioners. For newcomers to the field, we hope they will pique your interest, motivating you to learn more about low vision clinical care.

1. The management of low vision patients can be thought of as a continuum, beginning with medical and surgical intervention (if necessary) and proceeding through to the prescription of low vision devices and the requisite vision rehabilitation services.
2. The objective of comprehensive vision rehabilitation is to enhance the individual's ability to function as independently as possible using a variety of strategies.
3. Contrast sensitivity testing is integral to the management of low vision conditions and can be used to predict the need for higher magnification, increased illumination, or increased contrast.
4. Brightness acuity testing is recommended in the low vision battery when one of the complaints is too much glare.
5. Clinicians must be aware of the latest medical advances in ocular surgery or medical management of ocular disease that might result in unforeseen visual complaints.
6. No matter what method of predicting the add is used, it only gives you a starting point. The add predicted by the most commonly used methods - including Lighthouse, Kestenbaum, and the reciprocal of vision - will usually be on the low side.
7. The key concept in recording visual acuity is to record both the smallest letter size and the distance at which it is read (test distance). Metric recording is the primary notation used in low vision documentation. Example: 2/32, where the numerator (2) is a test distance of 2 meters and the denominator (32) is the smallest letter size read.
8. Tests that can be performed binocularly (visual acuity, Amsler grid and contrast sensitivity) are valuable indicators of the effect of pathology on the patient's binocular response, and the influence of the dominant eye when the eyes are used together.
9. The Amsler grid although not originally intended as a clinical tool for low vision evaluation, serves several useful purposes: locating a scotoma, sizing a scotoma and demonstrating the dominant eye; however, perceptual filling may be a factor and it may mask ring scotomas.
10. Instructing the patient in the use of prescribed devices, matching device and task, and providing information to the patient and family are essential steps in low vision care.

[Source: www.visionconnection.org/Content/ForProfessionals/PatientManagement/ClinicalPersons © 2003 Lighthouse International, 111 East 59th Street, New York, NY 10022-1202, USA; Tel: (800) 829 050]

IT Resource Centre set up at LVPEI

LVPEI's Vision Rehabilitation Centres have recently set up an IT Resource Centre, equipped with computer software like Kurzweil 1000, Jaws and MAGic - all assistive technology for the blind. A Braille printer has also been installed. The software technology will enable the visually impaired to read the screen, type or edit data, and access the internet for information on educational and employment opportunities.

Kurzweil 1000 is a voice-enabled, user-friendly software that converts printed word into speech. Users can scan in books, articles and bills - anything that can be scanned. The programme scans documents in the edit mode, allowing users to make changes. Unlike regular programmes, this software scans and saves large documents or books as one comprehensive file, allowing the user to go through it page by page.

Jaws is a screen reading software operating on the Windows platform, which converts a normal PC into a talking computer so that the blind can navigate the web, write e-mails and letters, and create presentations. MAGic is a magnification software with a speech option.

LVPEI received support for the IT Resource Centre from the Deshpande family and the Gottipalli family, both long term NRI supporters. Most of this special software can be loaded on to a regular computer. Though fairly expensive, the 45-minute demo version can be accessed free of cost from the Internet (**Website: www.freedomscientific.com**). The main distributor in India is Karishma Enterprises in Mumbai. email: ke@vsnl.com.



What's New!

The blind can 'see' with sound

A mobile camera phone has been developed by Dr Peter Meijer, senior scientist at Philips Research Laboratories in the Netherlands. Called The vOICe (the three middle letters stand for "Oh, I See") the system works by translating images from a camera on-the-fly into highly complex soundscapes, which are then transmitted to the user over headphones.

A wearable set-up consists of a head-mounted camera, stereo headphones and a notebook PC. Everything has its own unique sound and once you learn the principles involved you know what you're seeing. Brighter areas sound louder, height is indicated by pitch and a built-in color identifier speaks out color names when activated. While it can't track fast cars or read small print efficiently, it allows users to detect buildings, read a graph and even watch television.

The vOICe costs about \$2,500, the software is available as a free download at the vOICe site. (Source: Seeing with Sound - The vOICe; <http://www.seeingwithsound.com>)

Low Vision Awareness Programme

October 1-3, 2004

Short term fellowship programme in Low Vision Care

Three-month programmes for ophthalmologists and optometrists begin on July 1 and October 1, 2004.

The programmes are supported by the Sir Ratan Tata Trust, Mumbai, India.

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You can help the Vision Rehabilitation Centres of L V Prasad Eye Institute in several areas like discovering basic causes and treatment strategies for eye disease through research, restoring the vision of an indigent patient, or helping to expand the frontiers of ophthalmology.

Contributions to the Hyderabad Eye Institute or the Hyderabad Eye Research Foundation are tax deductible. Donations above Rs. 250 are exempt under Section 80G of the Income Tax Act, 1961 for the Hyderabad Eye Institute and under section 35(i) (ii) for the Hyderabad Eye Research Foundation. For more information please contact :

**You Can
Make A
Difference**

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