*VIEW AND REVIEW*

# The need for mobile cataract surgical services in Jimma zone

**Negussie Zerihun, MD, DCEH, MPH**[1]

## Introduction

Blindness is one of the most depressing disabilities that can occur in life. Its social, psychological, and economical impacts are tremendous. In most developing countries where the economy is unable to establish or sustain rehabilitative programs, the blind are left to indulge in one and only one form of profession to sustain themselves- begarry. Those fortunate enough to have a supportive family may not go to such extremes. Atleast one member of their family will take the responsibility for the day to day care of the blind individual; depriving the family of an important source of income. The economical impact is, therefore, said to be double as two bread winners are isolated from income generation activities for the family.

According to the World Health Organization, an estimated 35 million people are blind; and the leading cause of this global blindness is cataract (1,2). Most of this blindness is commonly found in rural, often remote areas of developing countries of Asia, Africa, and Latin America (3,4). With an estimated 12,000 bilaterally blind people from cataract in Jimma Zone, Jimma Eye Unit will require more than 45 years to tackle the surgical demand in the area at the present rate of 250 surgeries/year.

Cataract is managed by surgical removal of the opaque lens followed by an optical correction. Absence or inadequacy of trained ophthalmic manpower coupled with inadequate surgical facilities and/or equipment are among the important barriers in play(5). The lack of ophthalmic health workers in poor countries is further aggravated by their inequitable distribution thus making the issue of cataract management a complex one. Even when manpower is available, there may be acute problems regarding equipment, instruments and/or other surgical consumable items. There may be no optical unit to insure the availability of low cost spectacles.

Even when one is fortunate enough to have a well equipped surgical unit in terms of personnel, money and materials, one may still face problems of cataract harvest. The ophthalmic facility may be located in a city or a town, far away from the utilizers whom it is intended to serve. In many developing countries, the majority of the people live in rural areas where transport facility may be very much limited or totally unavailable. Even when some transportation is available to overcome physical barriers, most patients may have very limited resources to afford the cost of surgery.

Availing of cataract surgical services to the rural community will not only improve accessibility to the service but it will also remarkably increase the surgical output. Hence, considering all the constraints operating in our country (poverty of the people, lack of trained ophthalmic health manpower and their inequitable distribution, limited number of eye facilities, etc...) more effort has to be made to make mobile ophthalmic surgical services available at a community level.

[1] Department of Ophthalmology, JIHS, P.O.Box 558, Jimma, Ethiopia.

**Brief background information and justification**

Jimma Zone is located in South Western Ethiopia covering an area of 16,186 sq. kms. It is divided in to 12 administrative districts with a total population of 2 million people about 90% of whom live in rural parts.

Health facilities - Jimma Eye Unit

The population is served by 90 health posts, 81 clinics, 5 health centers, and only one hospital. Jimma Eye Unit (JEU), which is part of Jimma hospital, is the only ophthalmic centre that provides major ophthalmic surgical services in the zone. JEU started with a bed capacity of 4 and slowly increased to 20; of which only 10 are functional at present for lack of finance. It is hoped that all the 20 beds will be utilized when adequate budget is made available in the near future. The man power at the unit consists of :

- two ophthalmologists
- 4 ophthalmic medical assistants (OMA's)
- 1 general medical practitioner
- 1 optometry technician
- 1 general nurse and
- 3 health assistants.

Base-line data

Two surveys carried out by the department of Ophthalmology, Jimma Institute of Health Sciences (JIHS), in collaboration with the Tropical Health and Education Trust (THET) and the International Center for Eye Health (ICEH), Institute of Ophthalmology, University of London, have pointed out that cataract is the leading cause of blindness in the Zone (6,7). According to the results of the population-based survey (6), the leading causes of blindness in Jimma zone are shown in table 1.

With an estimated 25,000 people that require cataract surgery (12,000 of whom are bilaterally blind), cataract remains to be the major blinding disease that has to be targeted upon in the planning of blindness prevention activities in the zone.

At present, an average of 200 to 250 cataract surgeries are performed yearly at JEU. The demand for more cataract surgery has always been tremendous with a very high backlog of cases waiting for surgery. One option applied to meet this high demand was to increase bed capacity. This has been successful to a limited degree. But the increment of bed capacity alone will not significantly alter basic problems operating in the area.

**Table 1.** Causes of bilateral blindness; Jimma, Ethiopia. 1995

| Ocular morbidities | Percent |
|---|---|
| cataract and aphakia | 52.4 |
| corneal scarring/phthisis | 25.4 |
| glaucoma | 9.5 |
| refractive errors | 3.2 |
| others | 9.5 |

Barriers to eye service utilization

The problems regarding the eye service in general, and its utilization by the public in particular, have been published elsewhere (8). To point out the main points, they include:

a. poverty of the utiliser (population) - can't afford the cost of transportation let alone that of hospitalization.

b. poor transport facility even for the

smaller portion of the population that may afford it.

c. inadequate ophthalmic service. This is due to inadequate budget allocated for eye work and:

- shortage of health manpower
- no mobility (no vehicle)
- lack of incentives
- frequent power failures
- unavailability of low cost eye glasses, eye medications, etc..

Because of these and other problems the eye unit couldn't be maximally utilized. There is, no doubt, a need to strengthen the static service to effect better eye care service. This will benefit those utilisers that are very close to the service physically and socially. One problem will, however, remain unanswered. **What about the majority of the people that are destitute and live in remote areas? Will they ever utilize the service?**

The point is, even if we increase bed capacity by an appreciable number, the community may not be able to utilize it fully because of the aforementioned constraints. **Hence, cataract surgery has to be made available freely or at a very low cost to needy members of the community very close to their habitations.** This will significantly alter the utilization of the service since it will bypass physical and social barriers.

**Mobile cataract surgical service**

In a community where 90% of the residents are in rural areas, and access to health facilities is limited, camp-based eye services will help improve access and provide effective utilization of available health resources.

As it has been mentioned earlier, in most rural areas of the developing world, cataract blindness is regarded as an aging phenomenon or as a curse or punishment for a sin committed. The belief is "as aging can not be reversed; neither can be blindness". And among the few elderly rural blind who may be aware of the possibility of a cure, there may be no one to accompany them to a health facility. In addition to these, fear of surgery and lack of motivation had been identified as barriers to surgery (9).

Even in developed countries, blind and visually impaired elderly persons contribute to a good portion of underserved population in terms of health and social service utilization (10,11). One can imagine what the picture would be in the developing world.

In a study conducted in India on the utilization of eye care facilities by cataract patients during a two year follow up period prior to admission for camp-based surgery, about 30% of the respondents had never consulted any health care facility; 49% had visited one facility atleast once while 21% had visited 2-3 facilities. Most have generally utilized only services that were provided by the eye care camps operating in the vicinity of their residences (12). Easy access to an eye care facility is among the important factors that increased utilization, along with free service and social marketting (13,14).

Poor utilization of services in urban-based government hospitals and private facilities is often attributed to distance (>2 hours travel time or a distance of 50 kms), monetary constraints, and the disinclination of other family members to escort patients to such facilities (12,15). Vicinity to a health facility is an important factor especially among the lower socioecnomic population group (16).

The impact that camp-based cataract surgery can make on human

suffering, economic loss, and social burden can not be over emphasized. In the analysis of the qualitative aspects of cataract surgery done in Maharashtra state of India where 50% of the operations were done in mobile cataract camps, an over all success rate (post operative v/a of >6/60) of 86% had been documented (17).

Another study that focused on visual outcomes of patients who had undergone intracapsular cataract extraction (ICCE) in a hospital and its satellite eye camps in central India, 92% of the cases had visual acuity of 6/18 or better one year after surgery (18). Visual outcomes of patients operated on in the camps was as favourable as those operated on in the hospital. Favourable visual outcomes of field surgeries resulting in patient satisfaction in terms of improvement in mobility, recognition of family members, and ability to resume home activity, etc.... are well documented (19-21).

The issue of cost is an important factor in the planning of any intervention programme. It has been shown that camp-based cataract surgery is a cost effective undertaking (22-27). The high volume of surgery and availability of free services by medical personnel contribute to its cost effectiveness (26). A study in Nepal, the Lumbini Zonal Eye Care Program, has suggested that cataract surgery may be even more cost effective than previously reported; placing it among the most cost effective public health interventions (22).

In rural India where most cataract surgeries are conducted in eye camps, it is apparent that these camps are more popular even when static eye care facilities are available in the vicinity (28). The camps have yet other important advantages. **They demonstrate to the people that cataract blindness can be cured.** They can serve as teaching grounds for the community. Health education on prevention of the major blinding diseases like trachoma, xerophthalmia and glaucoma, etc... can be accomplished in the camps (29).

The need for the organisation of mobile cataract surgical services in Jimma zone is very palpable. The organiser of such services has to make sure that good quality cataract surgical services have to be made available at the outreach centres. This will include the ICCE method with cryo-delivery of the lens. The ECCE+PC IOL method will slowly be incorporated in to the service in the near future. The surgical service has to be preceeded by a carefully planned screening system. Meticulous screening of patients is an important aspect of social marketing as the effectiveness of cataract services can be increased through a carefully implemented case selection (30).

**Institutional collaboration**

The Jimma Institute of Health Sciences (JIHS) is an ideal agent to plan and implement such an undertaking. Such planning has already been completed. A donour agency is identified and financial support secured; HelpAge International is supporting this project.

The department of Ophthalmology at JIHS will head the mobile service working together with the Zonal Health Department (ZHD), the National Program for the Prevention of Blindness, and the community for the successful and sustainable implementation of the program. The ZHD will make available health personnel, some equipment and utilities, and per diem for the field workers. The allocation of an adequate budget for the eye unit and for the mobile program are among the

priorities for the improvement of the ophthalmic service in the zone.

JIHS will play an active role in the planning, implementation and evaluation of the program along with the ZHD, Ministry of Health, and the funding agency. It will provide technical, material and advisory help. HelpAge International, the JIHS and ZHD will work toward the sustainability of the project in collaboration with the community, the Ministry of Health, and other governmental and non-governmental agencies.

Constant supervision, monitoring and evaluation have to be emphasized in all activities to guarantee satisfaction of the utilizers through a high quality clinical outcome (31).

**Sustainability**

This is a critical issue that has to be addressed in the planning of community-based programs. Right from the beginning, every attempt was made to secure a source of income to help sustain the program. This include:

a. Strengthening of the Zonal Prevention of Blindness
b. Establishment of district and village Prevention of Blindness Committes
c. Fund raising activities by these and other committees
d Approaching individuals, ministries and governmental and non governmental organizations for contributions
e. Cost recovery from the surgical procedures, the sell of eye drops and eye glasses from those patients that can afford to pay.
f. Convince the Regional Health Bureau to allocate budget for the programme.

**References**

1. Foster A, Johnson GJJ. 1990. Magnitude and causes of blindness in the developing world. Int. Ophthalmol. 14:135-40.

2. Thylefors B, et al. 1992. Epidemiologic aspects of global blindness prevention. Current Opinion in Ophthalmology. 3:824-34.

3. Ellwein LP and Kupfer C. 1995. Strategic issues in preventing cataract blindness in developing countries. Bull. WHO. 73 (5):681-90.

4. Thylefors D. 1987. A simplified methodology for the assessment of blindness and its main causes. Wld. Hlth. Stat. Quart. 40: 129-141.

5. Thylefors B. 1992. The WHO program for the prevention of blindness and cataract in developing countries. Doc. Ophthalmol. 81:339-344.

6. Zerihun N. and Mabey D. 1997. Prevalence of blindness and low vision in Jimma zone, Ethiopia: Results of a population-based survey. Ophthalmic Epidemiology. 4(1):19-26

7. Zerihun. N. 1996. Blindness in Jimma: a hospital-based survey. Ethiop. J. Health Dev. 10 (1):1-5.

8. Zerihun. N. 1994. Ophthalmology in Illubabor region, south western Ethiopia. Community Eye Health. 7(13): 9-11.

9. Kumar R, et al. 1995. Community eye care : experiences in pilot projects in Basti and Salim districts. Ind. J. Ophthalmol. 43:143-49.

10. Bowling A, et al. 1991. Use of services in old age: data from three surveys of elderly people. Soc. Sci. Med. 33: 689-700.

11. Biegel DE, et al. 1989. Unmet needs are barriers to service delivery for the blind and visually impaired elderly. Gerontologist. 29:86-81.

12. Gupta SK, Murthy GV. 1995. Where do persons with blindness caused by cataracts in rural areas of India seek treatment and why? Arch. Ophthalmol. 113(10):1337-40.

13. Thulasiraj RD. 1994. Social Marketing for effective eye care delivery. In: Bachari D, Limburg HL, eds. National Program for Control of Blindness: course material for training In District Program Management. New Delhi, India: Ophthalmology section, Directorate General of Health Services, Ministry of Health & Family Welfare; Gov't of India. 79-86.

14. Brilliant GE, et al. 1991. Social determinants of cataract surgery utilization in south India. The Operations Research Group. Arch. Ophthalmol. 109(4):584-9.

15. Das T, Venkataswamy G. 1985. Social, Economic and Behavioural Determinants of Utilization of Cataract Surgery in Mobile Eye Camps. Ind. J. Ophthalmol. 33:273-6.

16. Hays SM, et al. 1990. Spatial patterns of attendance at general practitioners' services. Soc. Sci. Med. 31: 773-781.

17. Mishra L, et al. 1996. Review of cataract intervention in Maharashtra State. Ophthalmic Epidemiology. 3(1):3 -11.

18. Reidy A, et al. 1991. Outcome of cataract surgery in central India:a longitudinal followup study. Br. J. Ophthalmol. 75(2):102 - 5.

19. Verma L, et al. 1996. A follow up study on visual outcome after camp-based intracapsular cataract extraction. J. Trop. Med. & Int. Health. 1(3):342-7.

20. Murthy GV, et al. 1996. Assessment of cataract surgery in rural India: Visual acuity outcome. Acta Ophthalmol. Scand. 74(1):60-3.

21. Murthy GV, Gupta SK. 1995. A community-based evaluation of eye sight and spectacle use after intra capsular cataract extraction in northern India. J. Trop. Med. Hyg. 98(2):84-8.

22. Marseilla E. 1996. Cost effectiveness of cataract surgery in a public health eye care program in Nepal. Bull. WHO. 74(3): 319-24.

23. Murthy GV, Sharma P. 1994. Cost analysis of eye camps and camp-based cataract surgery. National Medical J of India. 7(3):111-4.

24. Stress S. 1992. Cataract eye camp in India, xerophthalmia project, Experiences last January with in the scope of Combat Blindness Foundation at the Sitapur Ophthalmology Hospital in India. Klinische Monatsblatter fur Augenheilkunde. 200(5):585-7.

25. Javitt JC. 1993. The cost effectiveness of restoring sight. Arch. Ophthalmol. 111(12): 1615.

26. Liu HS, et al. 1977. Massive Cataract Relief in Eye Camps. Annals Ophthalmol. 503-8.

27. Natchiar G, et al. 1994. Attacking the backlog of India's curable blind. The Aravind Eye Hospital Model. Arch. Ophthalmol. 112(7):987-93.

28. Garg SP, et al. 1991. Is utilization of permanent ophthalmic health infra structure adequate? A reappraisal of camp-based versus hospital- based cataract surgery. Ind. J. Public Health. 35(4):100-2.

29. Venkataswamy G. 1975. Massive Eye Relief Project in India. Am. J. Ophthalmol. 79(1): 135-40.

30. Jose R and Bachani D. 1995. World Bank-assisted cataract blindness control project. Ind. J. Ophthalmol. 43(1):35-43.

31. Limburg H, et al. 1996. Monitoring and evaluating cataract intervention in India. Br . J. Ophthalmol. 80(11):951-5.