

Training a Cataract Surgeon

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Introduction

The major goal of Vision 2020: The Right to Sight is to make high quality eye care services available, accessible and affordable to all through a sustainable delivery system. One of the key pre-requisites to achieve the above goals is the development of adequate and appropriate human resources. An analysis of current practices reveals problems related to number, distribution, quality of training and utilization of various categories of eye care personnel. Fundamentally, most eye care delivery services in developing countries lack appropriate human resource development, including planning and training and, therefore, implementation of services is adversely affected.¹

Identification of Tasks

Cataract surgery is now, in effect, refractive surgery – which is more than just removing the opaque lens. It includes thorough pre-operative assessment, skilled surgical techniques and proper post-operative follow up with a focus on the best possible visual recovery.

An important step in cataract surgery training is the identification of tasks that a cataract surgeon is expected to learn and practice.

A cataract surgeon should take care of the following important steps (S's) of cataract surgery training:

- 1. Case selection (Selection).** The cataract surgeon should have thorough knowledge of the patients before surgery. Diseases such as corneal scars, age-related macular degeneration, diabetic retinopathy, advanced glaucoma, etc. may be present and cataract surgery will not give the desired and required results.¹
- 2. Sterility and the Surgical field (Sterility).** Procedures such as effective 'scrubbing', 'gowning' and 'gloving' should be strictly observed. Cleaning the periorbital skin prior to surgery with povidone iodine will reduce the

bacterial load and can prevent post-operative endophthalmitis.²

- 3. Anaesthesia and intraocular pressure (Soft eye).** A soft, well-anaesthetised eye is vital to the success of cataract surgery. Peribulbar injections and intermittent digital pressure are best suited for trainee surgeons or technicians.²

- 4. Intra-operative surgical complications (Safe surgery).** The cataract surgeon should have good control over:

- Wound construction
- Capsulotomy
- Hydrodissection
- Nuclear delivery
- Cortex irrigation and aspiration
- Lens implantation
- Wound reconstruction.

A safe cataract surgeon should know how to respect corneal endothelium, uveal tissues and posterior capsule and should avoid any damage to such tissues. In the case of posterior capsular rupture, he/she should know how to manage vitreous loss.

- 5. Uncorrected refractive errors (Spectacles).** Significant astigmatism and uncorrected refractive errors from lost or broken aphakic glasses is an important cause of low vision and blindness following cataract surgery. It can be overcome by:

- Biometry and the implantation of a customized intraocular lens that will ensure significant improvement in visual outcome
- The appropriate removal of sutures to reduce significant astigmatism, followed by spectacle correction of the residual refractive error 6–8 weeks after surgery.³

- 6. Post-operative complications (Sequelae).** There may be early or late complications. Persistent inflammation in the early post-operative period and posterior capsule opacification in the late period can adversely affect visual results. To avoid or minimise these, a cataract surgeon should take care of careful post-operative follow-up with early detection and treatment of post-operative complications. Routine follow-up on the first post-operative day, after 1 week and 6 weeks is recommended.³

Training

- 1. Length and content.** The cataract surgeon should have the opportunity of adequate supervised training. There



Bilateral cataract in an Afghan woman (pupils dilated)

Photo: M Murtaza Farrahmand

will be considerable individual variations but as a minimum standard, 2–4 weeks of training in ECCE with IOL of an already qualified person and a minimum of 50 surgeries is recommended to reach a desired level of competency.

Training should include:

- Didactic teaching
- Videos
- 'Hands on' training.

Training should be an ongoing process and not a one-time activity. Trainees should get an opportunity to refresh their skills and learn new techniques. Refresher training opportunities should be available according to the needs of the trainees. During the basic training period the trainee surgeon should not operate on 'only' eyes (the other eye being blind); eyes where the first eye has had a serious operative complication (e.g., vitreous loss), or children's eyes.

- 2. Monitoring and evaluation.** The trainee surgeons should monitor their own surgical skills. Monitoring for surgeons in the initial phase should be to compare 'themselves with themselves' over time.

Evaluation of training needs to be done by the trainer through regular close observation and assessment of skills.

- 3. Certification and competency.** Certification of training is the responsibility of the trainer, certifying trainees as safe cataract surgeons or recommending further training under supervision.

Training a Cataract Surgeon

Requirements of a Trainee

- A trainee cataract surgeon should have, at least, basic knowledge of the eye and some experience in ocular surgery
- A commitment to improvement which should provide the necessary motivation, enthusiasm and determination that is required
- A trainee cataract surgeon should have binocular single vision
- Should be comfortable with the use of the microscope
- A trainee in cataract surgery should be able to master and practise the safest and simplest techniques.

Equipment and Training Materials

A trainee should be given a kit containing the following:

- A curriculum of the cataract surgery training attended with information on sterilization, pre-operative assessment,

- operating room management and post-operative evaluation
- Videos of the surgery they have performed themselves
- A video on standard cataract surgical techniques
- A microscope
- Two cataract surgical sets
- 100 IOLs.

A Cataract Training Centre

A Centre should have:

- Adequate physical space
- Adequate equipment, good quality instruments and consumables, as requested and required
- 'Wet' laboratory for the trainees to familiarize themselves with the instruments and microscope
- Audio-visual system for the recording of surgeries, for learning, monitoring and further reference
- Careful ophthalmic instrument maintenance and care by a trained

ophthalmic technician / assistant / nurse who is also trained in the use of the microscope and other equipment maintenance and operating room management.

Requirements of a Surgical Instructor/Trainer

A trainer should be or have:

- A highly skilled surgeon
- An aptitude for teaching and training
- The necessary time and patience needed for surgical skills transfer
- Ready to take over the moment a patient's safety is at risk.

References

- 1 Rao G N. Human Resource Development. *J Comm Eye Health* 2000; **13**: 42-43.
- 2 Thomas R. Kuriakose T. Surgical Techniques for a Good Outcome in Cataract Surgery: Personal Perspectives. *J Comm Eye Health* 2000; **13**: 38-39.
- 3 Cook C. How to Improve the Outcome of Cataract Surgery. *J Comm Eye Health* 2000; **13**: 37-38. □

Review Article

Training in Trichiasis Surgery

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Introduction

It is estimated that each village in central Tanzania has between 5 – 25 persons with in-turned eyelashes due to trachoma. Half of these people constantly epilate their eyelashes to ease the irritation and pain from in-turned eyelashes.

Aims

The aims of training in trichiasis surgery are to teach:

- Identification of patients needing trichiasis surgery
- A good and safe surgical procedure
- The principles and practice of competent follow-up.

Selection of Trainees

Trainees are recommended by their respec-

tive Health authorities. They are required to have:

- Previous experience in eye examination
- Experience in giving injections
- Knowledge of sterile surgical techniques
- Previously observed eye surgery.

Two weeks is the minimum time recommended to train a trichiasis surgeon.

Objectives of Training in Trichiasis Surgery

At the end of the course the trainee should be able to:

- Perform the tarsal rotation method for trichiasis
- Complete at least 5 supervised operations to receive certification
- Follow-up trichiasis patients and recognise any complications
- Complete reports and keep records of trichiasis surgery
- Assess competence and improve surgical skills, under supervision
- Recognise the barriers to trichiasis surgery and how these can be overcome
- Assist in the planning and implementa-



Trichiasis surgery might have prevented blindness....

Photo: Murray McGavin

tion of mobile eye clinics (community-based)

- Demonstrate trachoma assessment methods
- Demonstrate skills in trachoma grading
- Implement SAFE interventions as part of comprehensive eye care.

Handouts

Handouts on the following topics, to support teaching sessions, are distributed to participants during the training period:

1. Primary Health Care.
2. The 8 Elements of Health Care.
3. The 5 Principles of Primary Health Care.
4. Anatomy of the Eye (main emphasis on the upper eyelid).
5. Checklist of Supplies and Materials.
6. Sterilization Methods.