

Kenya. Nevertheless, this represents a fraction of the need, and the working group agreed that ways have to be found to expand maintenance training. One idea is the establishment of 'technology centres'.

5. Distribution networks. How often do we find that eye care personnel are hampered by the lack of appropriate and functioning equipment? Ministry of Health eye units, as the end users, often have little or no influence over the ordering and procurement process. This leads to problems such as inappropriate, incomplete, non-standard items being received, so that the equipment is unusable, the ophthalmic personnel cannot work effectively and their morale suffers, as indeed do their patients.

The working group considered the feasibility of a network of regional or national technology centres which could facilitate:

- Bulk purchasing of agreed high volume items
- Advocacy for the registration of essential items not yet included on national Essential Drugs and Appliances lists
- Importing procedures, storage, maintenance, and distribution.

While recognizing the difficulties of making this concept operational, the group agreed to investigate it further to see whether it would be workable in one or more countries.

These were some of the key issues discussed by the IAPB Technology for

VISION 2020 Group. They recognized that improving access to appropriate equipment and supplies is vital to the development of eye care services and the ultimate success of VISION 2020. The group acknowledged that more can quickly be done to make available existing information through the e-mail purchasing network, and potentially through the ICEH Resource Centre. However, some of the other proposals, such as the development of information on the internet, have financial implications which will take time to resolve. We hope to bring readers progress reports in future editions of the Journal.

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Review Article

Training in Surgical Skills

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It was very interesting to read the letters relating to ICCE / ECCE in the *Journal of Community Eye Health* 2000; 14: 30–31. Many of the comments relate to outcomes of cataract surgery and mention the necessary skills / experience needed to obtain good outcomes. For these to be the norm rather than the exception, a set of conditions is required.

1. Knowledge of the procedure concerned.
2. Supervised training.
3. Practical surgical exposure and practice which leads to
4. Experience.
5. Follow-up and audit of outcomes to inform the previous steps.
6. Changes to steps 1 – 4, as necessary, to improve or maintain outcomes.

In my experience, supervised training and practice are the cornerstones to reaching a level of expertise which allows competent practice and thus experience. In turn, outcomes will improve.

The Role of the Trainee

The old method of 'see one, do one, teach one' does not work as far as surgical training is concerned. In order to learn a practi-

cal procedure it is vital to understand what is happening at each stage of the procedure and, to this end, new trainees should first of all observe and question the trainer. When an experienced surgeon operates he or she is using many small 'tricks' and manoeuvres which may not be obvious to the inexperienced observer. It can be very helpful to write down the steps of an operation in a notebook, firstly, to help learn the order of the procedure and, secondly, as a permanent record of a particular trainer's method.

It can also be very helpful to scrub with the nursing team in order to learn the steps of a procedure, as it is good discipline to anticipate, ahead of the surgeon, what is required next. It has been said that 'a good scrub nurse gives you what you need, not what you ask for!'. Working with nurses in this way can also be useful in terms of team-building.

When learning a new procedure for the first time it is helpful to break it up into small sections.

Instruction in a surgical technique should first of all take place away from patients. The use of plastic eyes or animal eyes is helpful and there are several surgical models which can be used for this.

In my experience it is very useful to attend a micro-surgical skills training course. The importance of learning how to hold instruments, what a particular instrument is for, how to tie knots, etc. cannot be over-emphasised. Traditionally, this has been left to the trainee to pick up by observation and it is interesting to see how many senior surgeons still do not tie reef knots appropriately!

One of the duties of all trainees is to practise. Doing anything to a high level requires dedicated practice and time. Surgery is no exception. This may sound obvious but the number of trainees who practise regularly is very small. If a skills laboratory is not available, then the ordinary operating microscope can be used when the operating theatre is not in use. Only plastic eyes or other non-organic material should be used in the operating theatre and unused sutures (which are no longer sterile) can be saved so that trainees can practise with them. A good set of instruments should be set aside for practice because just as a bad workman blames his tools, a good workman does not use bad tools.

Fig. 1 shows a skills board that has been developed by the Royal College of Ophthalmologists. This allows a number of procedures to be practised.

Fig. 2 shows a skills head which can hold an animal eye or a plastic eye. This simulates a human head and can be used under a microscope.

Pieces of fruit such as grapes and tomatoes are useful for practising capsulorhexis under the operating microscope.

Trainers

Once the microscope and instruments have been mastered and the trainee is comfortable using them, progress will be much more rapid in the operating theatre.

When planning a teaching session in surgical training it is useful to have a well-defined end point.

It is critical that all trainees should have regular and frequent exposure to surgery and there are a number of ways to achieve this.

1. Dedicate a set time on each operating

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list for the trainee. I use 40 minutes at the beginning of each list to ensure that each trainee receives supervised training on each list. It is important to take over the case after 40 minutes and although, initially, the trainees may not achieve much in this time, with regular exposure to training they will progress rapidly and after a few months may be at the stage of completing an operation.

2. If a trainee needs to practise a specific part of an operation, it is possible to

supervise them doing this section for each one of the cases on the list. This way, very rapid progress is made in one surgical session but each case is still completed in a reasonable time by the trainer.

3. 'Reverse training' is a method of learning a procedure from the end

backwards. For example, a trainee would start by tying the sutures for an extracapsular cataract operation. If this has been done satisfactorily, they would progress the next time to putting stitches in and then tying them. Following this, they would carry out the irrigation/aspiration and then complete the operation. The principle behind this is that they should be operating with the eye in a good condition each time, as the training surgeon will have carried out each of the previous stages.

4. A positive attitude and approach provides essential encouragement to all trainees. The use of humiliation or shouting has



Fig. 1: Prototype of the Royal College of Ophthalmologists' skills board

Photo: Pharmabotics, UK

absolutely no part to play in surgical training. It is important to discuss which parts of the operation went well and then to talk about what might have been done differently. Identifying what needs to be practised for next time is useful. It is necessary that some of the practice is also supervised.

Modern cataract surgery can be very effective and therefore sight restoring. To give all patients maximum benefit, the surgery must be performed well and to attain a high level of surgical skill, good, supervised training and regular and frequent practice are essential.

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Fig. 2: The Royal College of Ophthalmologists' skills head

Photo: Pharmabotics, UK

OPHTHALMIC SKILLS BOARD TRAINERS



DryLab Skills Board OSB100 £200.00

Rubber Bands used for practising anastomosing flaps, for example in a DCR operation or simply for practising knot tying across the bands.

Suture Pad for practising knots and knot tying.

Capsulorhexis Module for practising capsulorhexis and for tying knots down a recess onto the hook.

Squint Module for practising suturing of muscles (fibrous strips) to a globe and to practise suturing muscles under tension which is something that happens during squint surgery.

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