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# Study on the Status of Ophthalmic Medical Education in the South-East Asia Region- An Overview

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## ACKNOWLEDGEMENTS

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*The support of Ms Neena John, Data Manager, Community Ophthalmology Section, Dr. Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi, for the analysis and preparation of the report are deeply appreciated.*

*It is hoped that the report will prove useful in reorienting ophthalmic medical education in the Region to meet the needs of the respective countries and to achieve the goals of Vision 2020: The Right to Sight.*

## EXECUTIVE SUMMARY

### 1. Overview

A study on the status of ophthalmic medical education in the South-East Asia Region of WHO was conducted during 2000-2001. The study used the following mix of approaches:

- (1) Questionnaires were sent to all the medical schools in Bangladesh, Democratic Peoples' Republic of Korea, Myanmar, Indonesia, Nepal, Sri Lanka and Thailand and 50 randomly selected medical schools in India. These questionnaires were completed by the heads of the respective ophthalmology departments and institutions and returned to the WHO Regional Office.
- (2) Principal Investigators conducted in depth interviews and coordinated focus group discussions in five countries of the Region. These were: Bangladesh, Indonesia, Nepal, Sri Lanka and Thailand. Because of limited resources, only five countries were randomly chosen to obtain data which could be generalized to the entire Region.

The Principal Investigators conducted the following:

- (1) A sample of ophthalmologists in five countries – Bangladesh, Indonesia, Nepal, Sri Lanka and Thailand were interviewed to elicit their views on current ophthalmic education as well as their training experiences.
- (2) Focus group discussions were conducted in these five countries with clients of eye care services. Their perceptions regarding the interactions and opinions on their treating consultants were recorded.
- (3) Senior policy makers and personnel at the national level in these five countries were interviewed to ascertain their views on the current status and future needs of ophthalmic medical education in these countries.

- (4) Senior personnel from the respective national medical councils in these five countries were also interviewed regarding the strengths and weaknesses of ophthalmic education at graduate and postgraduate level in these countries.

A total of 53 medical colleges returned the completed questionnaires. These included 8 from Bangladesh, 9 from DPR Korea, 17 from India, 5 from Indonesia, 1 from Myanmar, 4 from Nepal, 3 from Sri Lanka and 6 from Thailand. A total of 39 ophthalmologists were interviewed in five countries. These included 9 each from Bangladesh, Indonesia, Nepal, and 6 each from Sri Lanka and Thailand.

Ten focus group discussions, two each in Bangladesh, Indonesia, Nepal, Sri Lanka and Thailand were conducted with clients of eye care services. Five groups were scheduled for males suffering from low vision and five groups were scheduled for females with low vision. A total of 64 patients participated in these focus group discussions.

Of the responding medical schools in the Region, 86.8 per cent (46/53) were run by the respective governments while 88.7 per cent (47/53) of these institutions offered undergraduate medical courses, 67.9 per cent (36/53) provided training in post graduate ophthalmology and 22.6 per cent (12/53) also offered para professional ophthalmic training courses.

## **2. Perceptions of Heads of Ophthalmology Departments and Medical Schools in the Region**

### **(1) Undergraduate ophthalmic education**

Undergraduate medical courses in the Region were relatively uniform in terms of duration and recommended clinical curricula. However, there was a wide variation in the type of postgraduate courses offered by institutions in the Region. In some countries diploma and masters courses were offered while in others (Sri Lanka and Thailand), fellowship programmes in Ophthalmology were in vogue.

Student: **faculty ratios**, both for undergraduate as well as for specialty training in Ophthalmology were found to vary significantly across the Region.

Most colleges had adverse faculty: student ratios for undergraduate courses, while the situation was marginally better for postgraduate specialty courses. In 69.7 per cent of the colleges, there was one teaching faculty for 10 students while in 21.2 per cent there was only one faculty for 20 students for the undergraduate ophthalmic course. For specialty studies in more than half the responding institutions, there were not more than 2 students per teaching faculty.

The number of lectures scheduled for Ophthalmology as well as the clinical posting in Ophthalmology for undergraduate training was reported to be inadequate by the heads of institutions in most countries of the Region.

In nearly a third of the responding medical institutions, there was no separate examination in Ophthalmology at the undergraduate level. This was usually clubbed with General Surgery. There was no uniformity in the examination pattern with most institutions examining students at the end of the final clinical year, while some conducted examinations in the second clinical year or six months before the final clinical examination. There was no uniformity in the pattern of internal assessment of undergraduate students in Ophthalmology.

In more than half the responding institutions, no specific curricula or teaching hours were designated for Community Ophthalmology. Although most institutions felt that there is a need for augmenting skills for Community Eye Care, in practice this was observed to be a neglected area.

Nearly three out of every four responding institutions felt that the current level of ophthalmic education was adequate for undergraduate courses. Only one out of every four responding colleges felt that exposure to Community Ophthalmology was adequate.

The lack of adequate clinical, diagnostic and surgical exposure, less emphasis on community orientation, poor quality teaching material, faulty examination and assessment systems and adverse faculty student: ratios were the major deficiencies highlighted by the responding colleges in the Region.

In Bangladesh, DPR Korea and Indonesia, heads of institutions stated that Ophthalmology was not perceived to be a popular choice for specialization by the medical students.

## **(2) Postgraduate ophthalmic education**

There was wide variation both within and between the countries in relation to the duration, content, training methodology and evaluation of postgraduate specialization in Ophthalmology.

Surgical exposure during postgraduate training in the Region seemed to be limited largely to cataract surgery (both with and without IOLs) and exposure to other surgical procedures seemed to be limited.

The heads of departments stated that students were exposed to most of the common diagnostic procedures but the extent of 'hands on experience' was inadequate as the number of procedures handled by the trainees were limited. Exposure to procedures like fluorescein angiography and automated perimetry was reported to be inadequate.

It was reported by the heads of departments that most students at the post graduate level have adequate exposure to refractions but "hands-on" experience in relation to low vision prescriptions was inadequate.

The exposure to Community Ophthalmology at the postgraduate level was reported to be grossly inadequate in most countries of the Region.

Most responding institutions stated that their students had good access to library resources but exposure to wet lab or internet facilities was inadequate.

## **(3) Perceptions of practicing ophthalmologists**

- (1) Thirty-nine ophthalmologists were interviewed in five countries of the Region. Of those interviewed 82 per cent (32/39) were trained in the country where they were later employed.
- (2) Cataract seems to be the most common surgery performed by most ophthalmologists in the Region. Though only half the respondents stated that their major area of interest was Cataract, in actual practice, 92.3 % (36/39) of them were routinely doing cataract surgery. Nearly 87.9 % (35/39) of the ophthalmologists felt that they had adequate exposure to surgery during their specialization period. However, a third of the

respondents stated that their overall training was poor or inadequate (all aspects of specialization courses). Cataract surgery was the most common surgical skill to which the ophthalmologists were exposed to during their training. A fifth of the respondents stated that their training in diagnostic techniques like ERG/EOG, fluorescein angiography and indirect ophthalmoscopy were inadequate.

- (3) Poorly trained faculty, paucity of teaching faculty in some countries, poor training infrastructure, lack of instruments, lack of proper curricula, lack of clinical/surgical material and poor teacher/student interaction were cited as important reasons for inadequate training during the Postgraduate training phase. Urgent attention needs to be paid to improving the teaching skills of the faculty.
- (4) Ophthalmologists also felt that they were poorly exposed to managerial and communication skills during their training though these skills were perceived to be very important in actual practice. All the respondents were unanimous that Community Eye Care needs to be emphasized much more than is currently being done if the needs of the countries of the Region were to be fully met.

**(4) *Perceptions of clients regarding their interaction with eye care personnel***

Most clients were satisfied with information provided by their consultants. Most clients, however, felt that ophthalmologists seldom gave proper advice on matters related to rehabilitation. Similarly, prognosis and side effects of medications were never adequately explained.

It was universally perceived that the treating ophthalmologists spent very little time with their patients and never assessed their psychological and social problems. This was perceived to be very important by the client. Most clients praised the behaviour of the doctors but were unhappy about their interactions with other hospital staff.

Clients stated that doctors should be exposed to communication skills so that they could understand their patients' needs much better.

**(5) *Perceptions of policy makers and senior personnel***

The strengths and weaknesses of the eye care delivery system in the Region were highlighted. The issues varied significantly between the countries. However, the lack of a national policy on prevention of blindness was highlighted as a major weakness in many countries. This was perceived to influence medical education. Most countries also highlighted the Maldistribution of available resources for the control of blindness.

Centralized academic control of medical education, improved training infrastructure, augmented referral network, financial commitment for blindness control activities both from the government as well as NGOs, reorientation of primary care physicians and increased emphasis on primary eye care and Community Ophthalmology in graduate and postgraduate education were considered as important issues in improving medical education and eye care service delivery in the Region.

**(6) *Perceptions of senior officials in the medical councils***

The need for a uniform curriculum and training inputs in the different countries of the Region were emphasized very strongly. It was stated that adequate attention should be given to proper monitoring of the training inputs by using appropriate instruments such as log books.

Officials felt that ethics, basic sciences and community ophthalmology should be included in the training courses. It was felt in most countries that undergraduate education should expose students to all types of problems but this should not be too detailed. The objective of training a basic doctor to be able to tackle all common diseases should be met, and only those skills which are needed for managing common conditions, should be imparted to the undergraduate students.

## 1. BACKGROUND OF THE STUDY

The South-East Asia Region is one of the most populous regions of the world being home to countries like India, Indonesia and Bangladesh. Most countries in the Region were former European colonies. Thus the modern medicine practiced in many of these countries is greatly influenced by their colonial past. Medical education is also similarly influenced in these countries.

There has been no previous attempt to document the pattern of ophthalmic medical education in the Region. This is important because if the goal of Vision 2020 is to be realized, ophthalmic medical education will need to be geared to the needs of this new initiative.

There is a widespread belief even in developed countries that ophthalmologists have played a relatively peripheral role in the education of medical students and residents. With the technological revolution that has characterized ophthalmology in the recent past, it is imperative that the discipline plays a more proactive role in current medical education. This is only possible by combining conventional educational methods with innovative teaching initiatives, based on the needs of the countries in the Region.

Over the last several years, many educators, employers, government authorities and the public in general have expressed their unhappiness with the practice of medical doctors in general, including ophthalmologists. For obvious reasons, the perception of each group varies as they all relate it to their own personal experiences. The study was designed to systematically inquire into the training of medical students and ophthalmologists. This was expected to provide information on the strengths and weaknesses of the present training programmes in the Region.

## 2. OBJECTIVES

The study objectives are as follows:

- (1) Conduct a situational analysis on the training of currently available ophthalmic manpower in selected Member Countries of the Region.
- (2) To conduct an appraisal of the quality of technical, managerial and communication skills imparted during ophthalmic training.
- (3) To identify the lacunae in the current medical education system in relation to eye care and prevention of blindness.
- (4) To suggest methods to improve the technical, managerial and communication skills of trained ophthalmic manpower in the Region, to meet the goals of Vision 2020: The Right to Sight.

### *Expected outcome*

It is hoped that the results of the study will provide much needed information for policy orientation regarding development of ophthalmic workforce in the Region.

## 3. METHODOLOGY

### 3.1 Area Covered

The study was conducted in eight countries of the Region with medical colleges. Two countries where there were no medical colleges were excluded – Bhutan and Maldives. In addition, Principal Investigators were identified in five countries (Bangladesh, Indonesia, Nepal, Sri Lanka and Thailand) to obtain detailed information on perceptions of ophthalmologists, policy makers, health administrators, medical council chairpersons or secretaries, chairpersons of ophthalmic societies and patients attending eye OPDs. The five countries were randomly selected from among the eight countries with medical colleges in the Region. A sample of five countries was taken rather than all the eight countries due to resource constraints and to obtain data, which would be generalizable across the countries of the Region. The study was initiated in early 2000 and was completed in early 2001.

### **3.2 Study Approaches**

A number of study approaches were utilized to obtain the desired information. Relevant information was obtained by using a combination of different methods. The different methods used were:

**(1) *General questionnaires to medical colleges in eight countries in the Region***

A pre-tested Questionnaire was sent to Deans/Directors/Heads of Ophthalmic Department at 50 randomly selected medical colleges in India and all medical colleges in Indonesia, DPR Korea, Sri Lanka, Bangladesh, Nepal, Myanmar and Thailand. The questionnaire was designed to obtain information regarding ophthalmic medical education both at the undergraduate and the postgraduate levels. Since India has a large number of medical colleges, 50 colleges were selected randomly so as to provide information representative of the entire Region rather than only of India.

**(2) *Detailed enquiries through principal investigators in randomly selected countries***

*Interviews with leading ophthalmologists in five selected countries*

The principal investigators appointed for the study held in-depth discussions with 6-10 leading ophthalmologists in five selected countries of the Region. The interviews were designed to be informal. Anonymity of responses was assured to enable the interviewees to answer freely. The ophthalmologists who were interviewed were stratified as follows:

- 2-3 ophthalmologists trained within the past five years
- 2-3 ophthalmologists trained between five – fifteen years
- 2-3 ophthalmologists trained more than 15 years ago.

In case the above stratification was not possible, it was advised that the overall mix should be such that at least half the interviewed ophthalmologists should have been trained within the past decade and the remaining before that.

### *Interviews with representatives of major professional ophthalmic associations*

Discussions were also held with the Presidents of the major professional ophthalmic associations in these five countries. Their views on the strengths and weaknesses of the eye care delivery systems in their countries were elicited and suggestions sought on how ophthalmic medical education could be improved. An interview guide was prepared and used so that structured interviews could be conducted.

### *Focus group discussions with patients*

To ascertain the perceptions of the patients regarding eye care service providers in their respective countries, a series of focus group discussions covering 12-20 clients (stratified by gender) were conducted at 1–2 leading eye care institutions in the respective country. The participants in the focus group discussions were patients attending the ophthalmic OPD in an eye hospital or a medical college hospital. Only patients suffering from severe visual impairment were included.

### *Interviews with Policy makers and administrators*

The principal investigators also held discussions with policy makers and employers of eye care personnel (Government/Nongovernmental/private sector) in these countries. An interview guide was provided for these interviews.

## **3.3 Questionnaire**

The questionnaire sent to the medical schools in the Region attempted to obtain information on undergraduate and postgraduate ophthalmic medical education. The major issues addressed by the questionnaire related to professional/technical skills, managerial training and communication skills imparted to the students during formal training. All information was to be collected only for the formal medical education system.

The questionnaire was to be completed by the Head of the Department of Ophthalmology and the Director/ Dean of the medical school.

The principal investigators were provided with a list of such medical schools in their countries. They were requested to discuss the questionnaire and follow up with the concerned medical schools and ensure that completed questionnaires were returned in time. The principal investigators were advised to collect the same questionnaire, if possible, and to transmit them to the WHO at the earliest or expedite the process through their contacts in the medical schools

### **3.4 Interviewing Leading Ophthalmologists.**

It was ensured that at least a quarter of the interviewed ophthalmologists were working in medical schools while the remaining were working in non-teaching government / private/ NGO sectors. In some countries, more than 25 per cent of the ophthalmologists were working in teaching institutions not necessarily in the government sector.

The interviewers used an interview guide to facilitate the interview. If the interviews were conducted in the local language, the transcripts were translated into English and a hard copy sent to the WHO Regional Office at New Delhi. Basic demographic information was collected from each interviewee and the details were recorded.

A copy of the interview guide is attached as an annexure.

### **3.5 Interviews with Senior Personnel of Medical Councils in the Country**

Senior personnel of the designated medical councils in the five Member Countries were interviewed. They provided useful information on some of the major concerns. Attempts were made to contact one senior person (i.e. Registrar of the Medical Council etc.). The objectives of the training, at both the undergraduate and postgraduate levels were elicited. Similarly, the course content and the curricula for training at the undergraduate and postgraduate levels was collected. The interview notes were translated into English before being sent to the WHO office. The following information was generally collected from the medical councils:

- (a) Duration of basic undergraduate medical training and postgraduate ophthalmic training.

- (b) Eligibility criteria for joining these courses.
- (c) Objectives of the training courses.
- (d) Recommended hours of ophthalmology teaching in undergraduate medical education, as a proportion of total undergraduate teaching.
- (e) Recommended methods for imparting ophthalmic training in undergraduate medical education, including duration of posting at different stations like OPD, wards, OT etc.
- (f) Recommended methods of postgraduate ophthalmic education.
- (g) System of ophthalmic examination and evaluation at both the undergraduate and Postgraduate levels.
- (h) Community Ophthalmology training at the undergraduate and postgraduate levels.
- (i) Imparting managerial, epidemiological and communication skills to students.
- (j) Issues related to ethical practices of ophthalmology.
- (k) Impressions of the interviewee on the current status of ophthalmic medical education in the country.
- (l) Suggestions for improvement of ophthalmic medical education both at the undergraduate and postgraduate levels.

### **3.6 Discussions with Policy Makers, Programme Administrators at the National Level and Employers of Eye Care Personnel in Different Sectors**

Interviews were held in order to capture the perceptions of the policy makers and employers regarding eye care practitioners in the country. The findings were expected to provide information on the strengths and weaknesses of the eye care delivery and medical education systems. The interviewers were advised, wherever possible, to identify factors, which hamper the service delivery, networks in the country. Suggestions on how the situation could be improved and how the trainee ophthalmologists and medical students could be sensitized to the needs of the country and the community were also elicited. Such discussions were also thought to be useful in providing information on why medical and ophthalmic personnel do not serve in rural/

remote areas, though the burden of blindness is concentrated in these areas. The discussions also provided leads on how the different agencies were gearing themselves to the goal of Vision 2020- The Right to Sight. The findings of this part of the enquiry was expected to provide clues on reforms in basic and specialist medical education so as to bring about attitudinal and other desired changes in the personnel to meet the goals of Vision 2020: The Right To Sight.

### **3.7 Focus Group Discussions**

A focus group is a qualitative research tool wherein in-depth group discussions are used to examine peoples' views about a particular subject. These discussions explore *what, how and why* people think, feel or behave the way they do.

Focus groups are interactive discussions between participants in a group. The format allows people in the group to listen to what others say and then react to their comments. It therefore offers rich data on peoples' perceptions. The participants are strangers to each other and come together because they suffer from some common problem. For the purpose of this study only two focus groups were planned at each centre. One group consisted of 6-8 female visually impaired patients (vision < 6/18 in the better eye) who were receiving treatment at an identified eye care institution. The institution identified for this purpose was one of the big hospitals with a good turnover of patients. The other group similarly consisted of 6-8 males with similar problems and visual impairment.

The investigators were given guidelines on how the focus group discussions should be conducted, including the role of the facilitators and assistants. A topic guide was given to the principal investigators in each country, so that major areas were covered.

The participants were to be selected randomly from those who satisfied the inclusion criteria i.e. visual acuity < 6/18 in the better eye. Only patients attending the hospital clinics at least three times in the recent past were included, irrespective of the gap between each attendance. Only outpatients were included. The underlying eye condition, which prompted the

participants to present to the hospital was not included in the eligibility criteria as long as the participants satisfied the visual acuity criteria. The identification of the patients was done from those routinely attending the hospital, they were not specifically invited for the focus group discussion. Proper contact addresses of these patients were recorded. Since 6-8 people were required, it was decided to identify 12-14 persons, meeting the eligibility criteria, initially, so that at least 6-8 people would be available for the discussion.

Informed consent was obtained verbally from all participants in accordance with the Helsinki Convention guidelines. The basic demographic information (age, sex) and the provisional diagnosis should be recorded for all persons on a separate sheet (Patient recruitment form).

The focus groups were intended to provide an insight into patient perceptions regarding the doctor-patient relationship and whether eye care providers were meeting patients' expectations. This was expected to provide inputs for reorientation of training, if necessary.

A copy of the topic guide used in the focus group discussions is appended.

## **4. RESULTS**

The study was undertaken using different approaches to evaluate the current status of ophthalmic medical education in South-East Asia. The results are therefore reported separately for each of these.

### **4.1 Responses of Heads of Medical Colleges in the Region**

#### **(1) Overview**

- (1) A pre-tested, semi-open-ended questionnaire was sent to 50 medical colleges in India and all medical colleges in Bangladesh, Democratic Peoples' Republic of Korea, Indonesia, Myanmar, Nepal, Sri Lanka and Thailand.

The list of medical colleges responding to the questionnaire in the Region is included in Appendix – 1.

- (2) A total of 53 medical colleges responded. There were 8 institutions from Bangladesh, 9 from DPR Korea, 17 from India, 5 from Indonesia, 1 from (ii) Myanmar, 4 from Nepal, 3 from Sri Lanka and 6 from Thailand. Few questionnaires were complete in all respects. However, despite this limitation, data provided was sufficient to make qualitative observations on the status of ophthalmic medical education in the Region.

- (3) Ownership pattern of medical colleges

Of the 53 respondent institutions, 86.8 per cent (46), were fully owned by the respective Governments, while 3.8 per cent (2) each were owned by private bodies or charitable trusts. The remaining 5.7 per cent (3) were either autonomous institutions or were owned by Universities. In 5 countries of the Region – DPR Korea, Indonesia, Myanmar, Sri Lanka and Thailand, all the responding institutions were fully owned by the respective Governments.

- (4) Eye Care Training Programmes Offered by Respondent Institutions

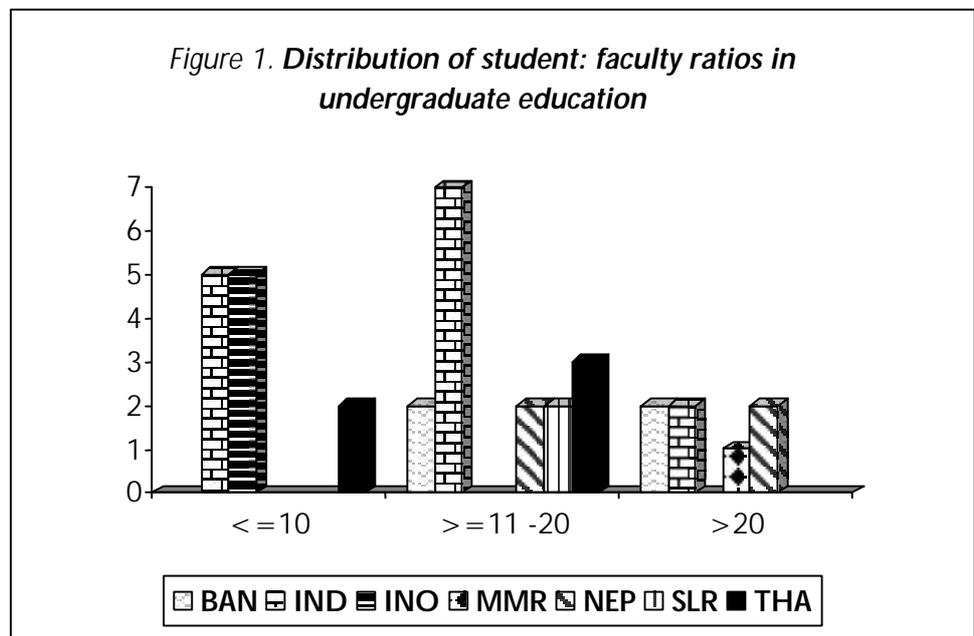
Among the 53 institutions, 88.7 per cent (47) offered undergraduate medical training, 67.9 per cent (36) offered postgraduate training in Ophthalmology (diploma/ MD/ Fellowship) while 22.6 per cent (12) offered training in para-professional ophthalmic courses. Para-professional training was offered only by the responding institutions from India and Nepal (Table 1). One institution from Bangladesh offered an exclusive Diploma course in Community Ophthalmology.

- (5) Duration of under graduate and postgraduate courses

The duration of undergraduate and postgraduate studies was different in the different countries of the Region. There was more uniformity in undergraduate training, where most such courses spanned 5 – 6 years of study (Table 2). Postgraduate ophthalmic training was dependent on the type of courses offered. Most diploma courses were of a two-year duration while most Masters or Fellowship programmes were of 3-4 years duration.

(6) Student: faculty ratios

The student faculty ratios for both undergraduate (Table 3) and Postgraduate ophthalmic education (Table 4) were observed to vary significantly in the Region. In 69.7 per cent (23) of the institutions in the Region, there was only one faculty member for more than 10 undergraduate students. In 21.2 per cent (7), there were more than 20 undergraduate students per teaching faculty. Only in Indonesia, there were less than 5 undergraduate students per faculty in all the colleges. In Bangladesh, in one college there were 150 students being taught by one faculty member. In Sri Lanka, consultants in attached eye hospitals handled undergraduate teaching in Ophthalmology, as eye consultants are not posted in the medical college.



In relation to postgraduate ophthalmic education, in more than half (51.4 %) of the colleges, there were only 2 students attached to each faculty member. This ratio is most conducive to adequate supervision during training. In 11.4% (4) colleges, there were more than 5 students attached to one faculty (Table 4). Therefore, postgraduate ophthalmic education seemed to be better placed compared to undergraduate ophthalmic education in the Region, as far as student faculty ratios are concerned.

In most countries, the directors of institutions felt that current ophthalmic education at undergraduate level was adequate. In 72.1 % (31/43) of the responding institutions, heads of departments/institutions held this view (Table 12). However, in Myanmar and Sri Lanka, heads of institutions reported that ophthalmic education at undergraduate level was inadequate. Overall, more than 80 per cent stated that community ophthalmology training in the Region was inadequate.

### *Deficiencies of the undergraduate programme*

Many important deficiencies were pointed out by the institutions in relation to graduate ophthalmic medical education in the Region (Table 13). The lack of adequate clinical diagnostic and surgical exposure, less emphasis on community orientation, poor quality teaching material, faulty examination systems and adverse faculty: student ratios were some of the major concerns highlighted.

A number of useful suggestions were received from the institutions on ways of improving graduate ophthalmic education (Table 14). Increased duration of clinical posting, hands on training in diagnostic and surgical skills, increased emphasis on prevention of blindness activities, problem-based learning, augmenting competencies of teaching faculty and enhancing the training infrastructure in the different teaching institutions were among the important ones.

For improving the Community Ophthalmology training (Table 15), designing specific curricula for Community Ophthalmology, community based teaching, modifications in the examination system, integrated teaching and augmenting trained faculty were important suggestions received.

### *Choice of a career in Ophthalmology*

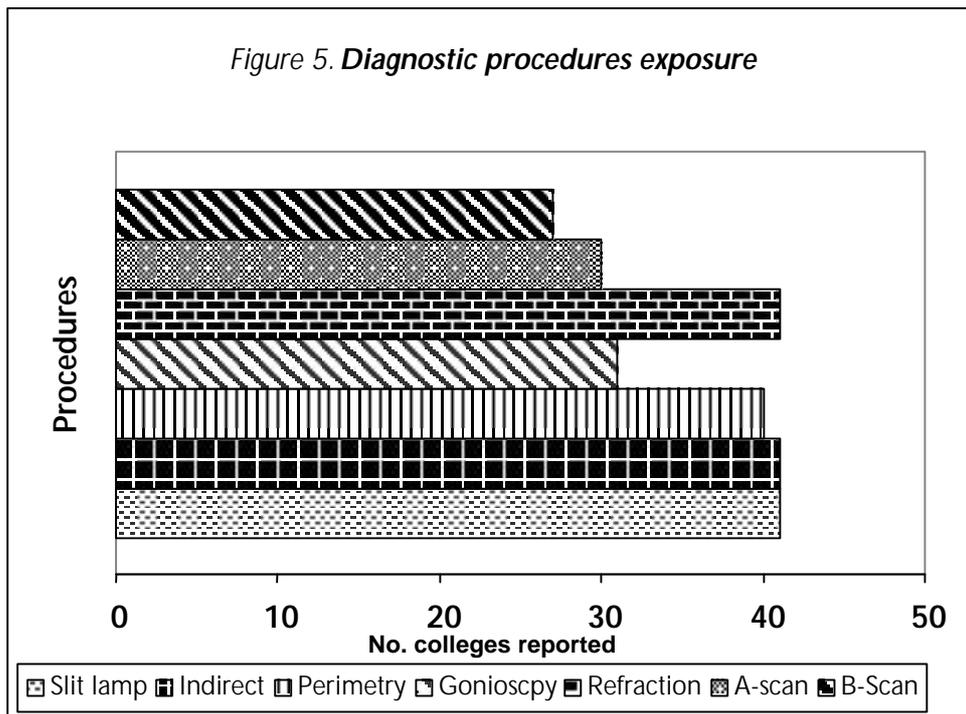
In Bangladesh, DPR Korea and Indonesia, ophthalmology was not perceived as a popular choice for specialization (Table 16). This was attributed to lack of sufficient jobs, less scope for private practice, inadequate financial returns and high cost of setting up an eye care infrastructure.

**(3) Postgraduate ophthalmic medical education**

Responses regarding postgraduate ophthalmic education were received from 41 medical colleges in the Region. For the purpose of this study all categories of postgraduate ophthalmic education (degree, diploma, fellowship) were considered together because the clinical exposure was observed to be similar. The major differences between the diploma and masters courses in ophthalmology were reported to be due to specific dissertation and research exposure rather than clinical exposure.

*Diagnostic skills*

All colleges reported that postgraduate trainees were routinely exposed to a number of diagnostic procedures (Table 17). All students were reported to routinely use slit lamps and indirect ophthalmoscopes. All postgraduates did refractions and most were exposed to Gonioscopy, A and B scans and Goldman/ Automated perimetry.



### *Surgical skills*

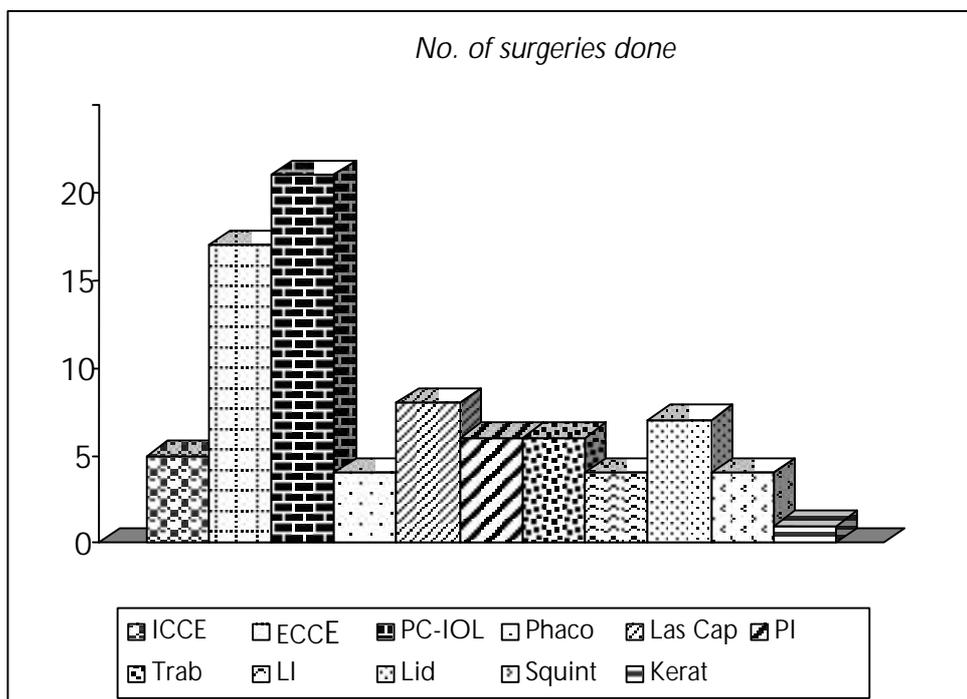
Surgical exposure and experience of the post- graduate students (cataract related) was also elicited (Table 18).

#### (1) Exposure to cataract surgery

In almost all countries of the Region, the exposure to Intracapsular Cataract Extraction (ICCE) seems to have come down significantly. This trend was observed in India also, where a large number of ICCE camps were held every year till very recently. Nearly half (48.4%) of the students were performing more than 20 such surgeries (Table 19). More than 60 % of Postgraduate trainees were reported to be doing more than 20 IOL surgeries during their training. 39.4% were doing more than 50 IOL surgeries during training. This is a positive trend. However, exposure to phaco surgery was less common except in Thailand. With increasing IOL surgery it is important that students get more opportunities for laser capsulotomy. Unfortunately, nearly half (48.5%) of the colleges stated that their students do not do a single laser capsulotomy.

#### (2) Non-Cataract surgical training

The exposure of postgraduate trainees to non-cataract surgical procedures seemed to be much less in comparison to exposure and opportunity for cataract surgery (Table 20) which is generally expected. Exposure to these surgical procedures is very important in training a comprehensive ophthalmologist. Nearly a third of the colleges stated that their trainees were not exposed to procedures like peripheral iridectomy and trabeculotomy while more than half were not exposed to laser iridectomy and keratoplasty. About 6-10 cases of lid correction surgery and less than 5 squint surgeries was the common exposure in most countries. Surgical exposure was even poorer in India and Myanmar compared to the other countries of the Region.



### Specialized diagnostic procedures

The status regarding the hands-on experience in specialized diagnostic procedures was also reported to be inadequate in most countries of the Region (Table 21). In all countries, exposure to fluorescein angiography was poor. Exposure to automated perimetry and A-scan was marginally better but still inadequate. Hands-on experience in low vision prescriptions was reported to be very poor in most countries. In 79.6% (27/34) of the medical colleges, during the entire training period, students were reported to be performing less than 10 prescriptions for low vision (Table 20).

### Community ophthalmology training

Community Ophthalmology training had a specific curriculum in 60% of the colleges. In DPR Korea, Indonesia and Sri Lanka, there was no prescribed syllabus for Community Ophthalmology (Table 21). The exposure to specific cognitive and skill areas in Community Ophthalmology seemed to be adequate in most countries (Table 22). However, areas like Management

Information Systems, evaluation of eye care programmes, quality assurance, team approach, communication methods and organization of out-reach activities were less emphasized.

### *Adequacy of postgraduate training*

Most of the responding colleges stated that the quality of postgraduate training was satisfactory (Table 23). 78.9% stated that the training provided adequate technical skills, while 89.5 % stated that the training provides confidence to the doctors to handle most cases independently. 97.4 % stated that the training exposes students to the most commonly prevalent eye diseases in the respective countries. However, nearly half the respondents stated that managerial and communication skills imparted were not adequate and that training did not, in any way, prepare and motivate the students to go and work in underserved areas later.

### *Suggestions for improving postgraduate ophthalmic training*

Many suggestions were received regarding the modalities to improve postgraduate training. Structured curriculum, log books, exposure to latest technology, hands-on experience, wet lab facilities, augmenting community ophthalmology training, training in managerial and communication skills, strengthening information resources, uniformity of training and regular student exchange programmes were some of the important suggestions made (Table 24).

### *Teaching methods used in postgraduate training*

There was more emphasis on conventional teaching methods like didactic sessions (90.3%) and seminars/ symposia (80.6%) in all countries (Table 25). Use of more innovative methods like surveys/ field exercises/ projects/ quiz, management games and simulation techniques did not seem to be popular in many countries.

Most colleges reported that students had access to latest journals (92.7%) but exposure to wet lab facilities or internet access was limited (34.1%) (Table 26).

## 4.2 Perceptions of Practicing Ophthalmologists in the Region

### (1) *Overview*

To obtain perceptions of practitioners trained earlier, 39 ophthalmologists working in five countries were interviewed. Of these ophthalmologists, nine each were from Bangladesh, Indonesia and Nepal while six each were from Sri Lanka and Thailand. While 64.1 per cent of the responding ophthalmologists were male (25) the remaining 20.5 per cent were female (8). All the interviewees were trained personnel with specialization in Ophthalmology. Among these ophthalmologists, 82 per cent (32/39) were trained within their respective countries while the remaining were trained in other countries. All these seven ophthalmologists who were trained outside their country were from Nepal. In addition, all six ophthalmologists from Sri Lanka had been exposed to a training stint outside Sri Lanka as is compulsory under the board regulations. Most commonly they were trained in the United Kingdom. 48.7% (19/39) were employed in government teaching institutions, 20.5% (8/39) in non-teaching government institutions, 12.8% (5/39) in universities or autonomous bodies while the remaining 2.6% (1/39) were employed in the private sector.

### (2) *Specialties of interest*

The major specialty of interest was cataract in 48.7 % (19/39) of the respondents (Table 27). An additional 15.4% (6/39) stated that their main interest was Retina. Interestingly an equal proportion (15.4%), stated that their main area of interest was Community Ophthalmology, more than 80% of these respondents were from Indonesia. Glaucoma, Cornea and Anterior Segment were the other major specialties of interest. It was also observed that nearly all the practitioners regularly saw general cases besides their major areas of interest.

### (3) *Specialty commonly practiced*

Though a number of practitioners stated that they were interested in many specialties beside cataract, in terms of the common surgeries performed, cataract was the most commonly performed surgery cited by all the

respondents (Table 28). While 92.3 % (36/39) were routinely performing cataract surgery 25.6 % (10) were performing glaucoma surgery. Only 10-20% of the interviewed ophthalmologists reported performing Dacro Cysto Rhinostomy (DCR), Squint, lid and keratoplasty.

**(4) Perception about adequacy of training during postgraduation**

Most of the ophthalmologists (87.9% – 29/39) felt that they had received adequate exposure to surgery during their postgraduate training (Table 29). Ophthalmologists reported this from all the countries. The most common surgical skill to which they were exposed was cataract surgery (Table 30). 89. % (35/39) had such exposure. About 11% of recent graduates had poor exposure to cataract surgery. Many of them had hands-on experience in IOL implantation (38.5% - 15/39). However, exposure to most other surgical procedures was minimal.

The respondent ophthalmologists were requested to rate their postgraduate training (Table 31). A third (33.3%) of the respondents rated their training as inadequate or poor, while a fifth rated it as very good/adequate or comprehensive while another quarter rated their training as satisfactory. Urgent attention therefore needs to be paid to augmenting hands-on training during the postgraduate training in different countries of the Region. The inadequacy of training may reflect future performance of graduates as is seen in the case of more than 50% ophthalmologists in the Region not performing any surgery after graduation.

Respondents were also queried about which diagnostic skills were not adequately taught during their training (Table 32). Electro Retinogram (ERG)/Vestibulo Ocular Reflex (EOG), Fluorescein angiography and Indirect ophthalmoscopy were the commonest deficiency areas identified by nearly a fifth of the respondents.

**(5) Perceived lacunae in postgraduate training**

The respondents were also asked to identify what they perceived to be the main lacunae in postgraduate education (Table 33). Poorly trained faculty (33.3%), paucity of teachers (27.3%), poor training infrastructure (24.2%), lack

of instruments (21.2%), lack of a proper curriculum (18.2%), poor teacher-student communication (15.1%) and lack of clinical / surgical case material (12.1%) were the most common lacunae identified. The expectations of students from their teachers seemed not to have been met in most instances.

The stated reasons for inadequacy of postgraduate training were also more faculty oriented (Table 34). While 36.4% respondents felt that poorly skilled or disinterested faculty was responsible for inadequate training, lack of infrastructure and instruments for training (24.2%) was the other important reason cited. Poor quality of teaching human resource was perceived by recent graduates to be responsible for inadequacy of postgraduate training more than the infrastructure. However, both these factors need urgent attention if postgraduate training is to become more meaningful in the Region.

#### **(6) *Suggestions for improving postgraduate training***

Problem-based training (30.3%), better training infrastructure (24.2%), computer/ internet/information access (21.2%), better curriculum for postgraduate training (24.2%) and additional hands-on training (21.2%) were among the important suggestions for improving postgraduate training (Table 35).

Most ophthalmologists (92.9%) felt that current postgraduate training was much better compared what they were exposed to during their training. This perception was common across the countries of the Region.

#### **(7) *Managerial and communication skills***

Overall, 67.6% of the respondents felt that they were confident of being good managers when they completed their training (Table 36). Ophthalmologists shared this view across the Region. However, only 12.9% stated that they were taught such management skills during their training (Table 37). While 81.8% (27/39) of the ophthalmologists felt that managerial skills were as important as clinical skills (Table 38), 69.7% (23/33) respondents felt that formal management training courses should be a part of postgraduate education (Table 39). Practical management apprenticeship (33.3%) and maintenance of log books (27.3%) were the other commonly mentioned methods for imparting management training.

All the interviewed ophthalmologists stated that there was a need for teaching communication methods to postgraduate ophthalmic students (Table 40). However, overall, 60.6% stated that they were not exposed to communication methods during training. Ophthalmologists from Nepal and Thailand, however, had a different perspective as they were exposed to communication methods during their training. Even in these countries, only 12.1 per cent felt that their training was adequate. Only half the responding ophthalmologists were confident of their communication skills after completing training (Table 41). All the responding ophthalmologists stated that communication skills were extremely important in practice. It is also important to note that less than half (48.7%) the respondents were actually exposed to the intricacies of a doctor-patient relationship as part of their postgraduate training. According to 48.5 % of the respondents, formal training in communication methods should be part of the training curriculum (Table 42). Adequate exposure to audiovisual aids and media and practical exercises were identified by the respondents as important methods to acquire communication skills.

#### **(8) Exposure to community eye care**

Nearly all respondents (97.1%) across the Region felt that there was an urgent need to expose the trainees to community eye care. (Table 43). However, only 42.9% were actually exposed to such training. As compared with other countries, ophthalmologists from Indonesia perceived that they had been adequately trained in Community Eye Care. Universally, across the Region, few ophthalmologists stated that the training was adequate for primary eye care (34.3%). Of the six respondents from Thailand , only 16.7 % stated that graduates were adequately trained in primary eye care.

An **emphasis** on primary eye care, augmenting basic skills for diagnosis and management of common eye conditions, emphasis on community ophthalmology, community-based and community-oriented teaching, integrated teaching and uniform curricula were identified as major inputs for improving training of graduate doctors to met the needs of the Member Countries. (Table 44). Most of these issues were common across the Region.

**(9) *Suggestions on motivating young doctors to work in rural areas***

The opinion of the practicing ophthalmologists on how to motivate graduate doctors to work in the rural areas was also sought (Table 45). Monetary incentives, appreciation and rewards, security considerations, provision of basic amenities, family benefits, career growth and promotional avenues, scholarships for advanced training, better infrastructure, enabling work environment and special allowances were some of the motivational factors identified. In addition, a carrot-and-stick policy, compulsory rural service and counselling of junior doctors to work in rural areas were the other suggestions.

**4.3 Perceptions of Clients (Focus Group Discussions)**

**(1) *Overview***

Ten focus group discussions were conducted in five countries to determine the clients' perceptions regarding the eye care service providers. An equal number of male and female focus group discussions were conducted. A total of 64 clients participated in these discussions (Table 46). All participants had a vision < 6/18 in the better eye.

**(2) *Perceptions on interaction with Ophthalmologists***

One aspect deliberated was the perception of the clients regarding the information provided by the consultant ophthalmologists on the disease process (Table 46). Most participants were satisfied with the information provided by their treating ophthalmologists. However, in Nepal and Thailand, a significant number of patients expressed their dissatisfaction with the information provided by the doctors. One issue highlighted by many patients was that ophthalmologists seldom provided information on the rehabilitation of the patients. Participants felt that simply stating that there is no cure does not help a patient materially and indicates the lack of balance between 'cure' and 'care' in medical practice. Participants also stated that adequate information on prognosis and side effects of medications were not provided. The ophthalmologists were viewed in some countries as being too busy to explain about patients' disease process properly.

Regarding their experiences on interaction with the doctors and the hospital staff, most participants in all the five countries stated that the ophthalmologists spent very little time with the patients (Table 47), though the behaviour of the ophthalmologist was generally cordial and courteous. In almost all the countries patients stated that they would prefer to go back to the same ophthalmologists in future also. Some participants also felt that the ophthalmologists did not examine their patients properly. Some participants also felt that doctors do not have any empathy for the patient. What came out very strongly was that patients felt that the doctors should spend some time on their psychosocial needs rather than on just their clinical evaluation.

**(3) *Interactions with other hospital staff***

Regarding other hospital staff, participants were generally bitter about their experiences as they felt that such staff behaved rudely and did not provide sufficient information and guidance. The lack of promptness of hospitals to attend to their needs was also highlighted.

**(4) *Perceptions on desirable attributes of doctors***

The attributes of treating doctors that clients desired were very similar across the five countries in spite of the diverse cultures (Table 48). Patients wanted doctors to be kind and caring and easily approachable. They felt that the doctors should provide moral support to the patients rather than make them feel helpless. Sufficient attention to the patients' living conditions and their social needs were important for doctors to consider while dealing with their patients.

Views were also expressed that doctors should not be driven just by financial motives. In all countries people preferred to go to a doctor who had credibility and was known to be an expert in his field.

Patients felt that doctors need to be adequately trained to respect the social and psychological problems of patients (Table 49). Communication skills were highlighted as an area where doctors needed to be trained more. Some also stated that doctors should regularly update their technical skills and that the doctors had failed to appreciate the value of good doctor- patient relationships.

#### **4.4 Perceptions Regarding Improvement in Service Delivery**

Adequate supervision of staff, discipline, mechanisms of reducing waiting time, questionnaires to elicit patient problems before the appointment, punctuality and fast service were concerns that patients wanted to be addressed.

##### **(1) *Perceptions of policy makers and senior personnel***

The perceptions of policy makers on the strengths (Table 50) and weaknesses (Table 51) of the eye care delivery systems and its impact on the educational system in the five countries varied significantly. In Bangladesh, the introduction of log books was considered a major achievement which allowed better monitoring of postgraduate training, while in Indonesia, the creation of a network of community eye care institutions were felt to be an important gain which exposed the students to important problems in the community and provided an infrastructure for better community-oriented and community-based training (Table 50). The decentralization process was also appreciated in Indonesia. In Nepal, the good network of eye care institutions in the South were felt to be major gains as was international donor institutions confidence in the programmes running in the country. This gave a fillip to new aspirants who started taking interest in ophthalmology as a career choice. This also provided a better training infrastructure.

In Thailand, the primary eye care approach and the referral system came in for adulation. This gave a better perspective regarding the importance of primary eye care to trainee ophthalmologists and provided them a good training exposure. The infrastructural strengths like road network and transportation facilities as well as the insurance/social benefit schemes were perceived to be important gains in Thailand.

The lack of a centralized command for eye care services and medical education was perceived to be a major problem in Bangladesh (Table 51). The other problems were limited teaching faculty, lack of physical infrastructure, lack of uniformity in ophthalmic education and the fact that medical education was not need based. Maldistribution of available resources were highlighted in almost all the countries of the Region. In Indonesia, the paucity of eye surgeons and facilities and inadequate technical skills of the ophthalmologists were also perceived to be major problems.

In Nepal, the lack of a national policy for prevention of blindness was felt to be a major problem, as this was not seen as a priority by the government. The poor literacy and traditional beliefs were also thought to impede the progress of eye care activities. The lack of a coordination mechanism between NGOs and the government were also highlighted as major concerns. In Sri Lanka also it was perceived that blindness control activities were not given importance in comparison to programmes like reproductive and child health.

In Thailand, the temporary nature of primary eye care workers was cited as a problem as was the shortage of eye surgeons at the provincial level. The resource constraints in the Government sector were also highlighted.

Centralized academic control, improved infrastructure, improved referral network, increasing job opportunities in the rural areas, need for a firm financial commitment for blindness control, reorientation of primary care physicians to eye care, scholarships for overseas training, increased emphasis on community ophthalmology and prevention/promotion, augmentation of screening programmes, provision of low vision services at primary level (in Thailand) and augmenting community based learning were recommended as solutions to some of the problems being faced by the countries of the Region (Table 52).

#### **4.5 Perceptions of Senior Officials in Medical Councils**

The salient features of the discussions with senior personnel of the medical councils are presented in Table 53. In all the five countries, the basic objective of the medical curriculum was to train a doctor who possessed basic diagnostic and management skills to tackle the common eye problems in respective countries. In some countries, the exact skills to be taught to the graduate doctors had also been enunciated. Community-based learning was thought to be an important means of exposing students to the common problems in the country. The need for a uniform curriculum and additional training inputs in the different countries of the Region were also emphasized. Restructuring the current examination and assessment system was also suggested as a remedial measure.

The introduction of logbooks to monitor training was also emphasized. The importance of providing adequate hands-on surgical and diagnostic experience was also highlighted. Exposing the graduate doctors to management of ocular emergencies was also considered to be important.

The need for teaching ethics, basic sciences and community ophthalmology was also stressed. It was also felt that undergraduate training in ophthalmology should encompass all relevant areas without going too much into the depth of the subject so that students received a better exposure to eye problems.

## **5. DISCUSSION**

Medical education in the South-East Asia Region follows the legacy of its colonial past and is generally perceived to be divorced from the real needs of the people<sup>1</sup>. The same appears to be true for ophthalmology. Though 90 per cent of common eye conditions are either preventable or curable, yet most participants across various groups felt that the emphasis on the common conditions in the Region was inadequate. Cataract was the only exception. Most with specialization training overemphasized the management of cataract. However, undergraduate students are not adequately exposed to primary eye care, which is essential for proper eye care in all countries of the Region. Studies in other parts of the world have shown that primary care doctors generally view their undergraduate ophthalmic medical education as inadequate and this is reflected in their confidence and understanding<sup>2</sup>. The same appears to be true in the South-East Asia Region based upon the perceptions of the directors of medical schools and practicing ophthalmologists.

Insufficient number of lectures and inadequate clinical exposure at the undergraduate level may be an important reason why many general practitioners do not themselves treat eye conditions but refer them to eye specialists. The same may also be responsible for the lack of popularity of ophthalmology as a first choice for specialization. In addition, since in many institutions there was no separate examination for ophthalmology, the students may not take ophthalmology seriously, resulting in apprehension in treating eye ailments later on in life. This may also result in students considering ophthalmology as a lack-luster discipline. The study also showed that internal assessment and examination systems at the undergraduate level need to be standardized.

The need for well-grounded experience in community ophthalmology was expressed uniformly by medical school teachers, recent and senior ophthalmology consultants, policy makers and medical council

representatives. Yet, many medical schools in the Region do not have a well-defined curriculum for community eye care, nor does it have hours designated to its teaching. This reveals a wide gap between a need felt by policy makers and educationists and the existing curricula in training institutions. This would need to be rectified.

At a time when newer innovations like computer simulated eye surgery are revolutionizing medical education technology in many parts of the world<sup>3</sup>, the South-East Asia Region is still grappling with problems like inadequate clinical/ surgical teaching material, poor faculty:student ratios, lack of adequate training infrastructure and lack of equipment. Concerted efforts are needed to urgently redress the situation. Networking among the medical councils in the Region needs priority attention and systems for technical cooperation, uniformity and accreditation need to be developed at the earliest. Computer-assisted education is now widely used in many countries with the advent of personal computers<sup>4</sup>, but this technology has not been put to good use in the Region. There is a wide variation in the available training infrastructure between countries of the Region in access with respect to computers and computer- aided learning. There is also a need to develop interactive training material, which would be useful for ophthalmologists and general primary care physicians.

In most countries of the Region, though faculty are well trained technically, most teachers are not trained in medical education technology and this may be the reason why the teaching faculty in the Region is perceived to be inadequately trained. There is an urgent need to devise and implement suitable orientation programmes for the faculty. Continuing medical education for ophthalmologists is important and is also demanded by boards of many ophthalmic organizations<sup>5</sup>. However, this is an exception rather than the norm in the Region.

Though the curricula of all the countries of the Region emphasize the objective of undergraduate medical education as the training of a basic doctor with skills to diagnose and manage all common conditions, in practice, training inputs do not cater to the need of primary eye care of the community. Most eye diseases are easily preventable or curable, yet high emphasis continues to be laid on treatment, preferably using high-tech equipment. There is an urgent need to reorient medical education, including the teaching faculty, to make eye care services more responsive to the needs of the community.

## **6. CONCLUSIONS**

Undergraduate medical courses in the Region are more uniform in terms of duration and training curricula. However, there is a wide variation in the type of postgraduate courses offered by institutions.

Adverse student faculty ratios characterize undergraduate training in ophthalmology. Undergraduate ophthalmic education was more disadvantaged compared to specialty education in most countries of the Region.

The number of lectures scheduled for ophthalmology as well as the clinical posting in ophthalmology is inadequate in most countries of the Region for undergraduate training. The exposure to primary eye care and community ophthalmology is also inadequate in most countries.

In nearly a third of the responding medical institutions, there was no separate examination in ophthalmology at the undergraduate level. There was a lack of uniformity in the examination pattern. There was no uniformity in the pattern of internal assessment of undergraduate students in ophthalmology.

In most countries of the Region, no specific curricula or teaching hours are designated for community ophthalmology. Even though most institutions felt that there is need for augmenting skills for community eye care, in practice, this was observed to be a neglected area.

Nearly three out of every four responding institutions felt that the current level of ophthalmic education was adequate for undergraduate courses. Only one out of every four responding colleges felt that exposure to community ophthalmology was adequate.

The lack of adequate clinical, diagnostic and surgical exposure, less emphasis on community orientation, poor quality teaching material, faulty examination and assessment systems and adverse faculty:student ratios were the major deficiencies highlighted by the responding colleges in the Region, in relation to graduate medical education.

There is wide variation both within and between the countries in relation to the duration, content, training methodology and evaluation of Postgraduate specialization in ophthalmology.

Surgical exposure during postgraduate training in the Region seems to be limited mostly to cataract surgery (both with and without IOLs) with extremely limited exposure to other surgeries.

Though students are exposed to most of the common diagnostic procedures, the extent of hands on experience seems to be grossly inadequate as the number of procedures handled by the trainees seems inadequate to meet their learning needs.

Most students at the Postgraduate level have adequate exposure to refractions but the hands-on experience in relation to low vision prescriptions is observed to be grossly inadequate.

The exposure to community ophthalmology at the postgraduate level is observed to be grossly inadequate in most countries of the region.

Though only half the interviewed ophthalmologists stated that their major area of interest was cataract, in actual practice, 92.3 % (36/39) were routinely doing cataract surgeries. While 87.9 % (35/39) of the ophthalmologists felt that they had adequate exposure to surgery during their specialization period, third of the respondents, however, rated their overall specialization training as poor or inadequate. Cataract surgery was the most common surgical skill to which the ophthalmologists were exposed to during their training. A fifth of the respondents stated that their training in diagnostic techniques like ERG/EOG, fluorescein angiography and indirect ophthalmoscopy were inadequate.

Poorly trained faculty, paucity of teaching faculty, poor training infrastructure, lack of instruments, lack of proper curricula, lack of clinical/surgical material and poor teacher student interaction were cited as important reasons for inadequate training during the postgraduate training phase. Urgent attention needs to be paid to improving the teaching skills of faculty in the Region and to improving the faculty:student ratios.

Ophthalmologists also felt that they were poorly exposed to managerial and communication skills during their training though they themselves considered these skills as being very important in actual practice. All the respondents were unanimous that community eye care needs to be emphasized much more to meet the needs of the countries.

Most clients were satisfied with information provided by their consultants. Most clients, however, felt that ophthalmologists seldom gave proper advice on matters related to rehabilitation.

It was universally perceived that the treating ophthalmologists spent very little time with their patients and they seldom assessed their psychological and social problems. This was perceived to be a very serious deficiency.

Clients stated that doctors should be exposed to communication skills so that they could understand the needs much better of their patients.

The lack of a national policy on prevention of blindness was highlighted as a major weakness in many countries. Most countries also highlighted the Maldistribution of the available resources for control of blindness..

Centralized academic control, improved infrastructure, augmented referral network, financial commitment for blindness control activities both from the government as well as NGOs, reorientation of primary care physicians and increased emphasis on primary eye care and community ophthalmology were considered as important issues in improving the eye care service delivery in the Region.

The need for a uniform curriculum and training inputs in the different countries of the Region were emphasized very strongly. It was stated that adequate attention should be given to proper monitoring of the training inputs.

Respondents felt that ethics, basic sciences and community ophthalmology should be included in the training courses. It was felt in most countries that undergraduate education should expose students to all types of problems but this should not be too detailed. The objective of training a basic doctor to tackle all common diseases should be met, and only those skills, which are needed for managing the common conditions, should be imparted to the undergraduate students.

## **7. RECOMMENDATIONS**

- (1) There is an urgent need to augment the training faculty for undergraduate ophthalmic education.

- (2) It is important to initiate measures for augmenting the teaching skills of ophthalmic teachers. Methods of medical education need to be imparted to ophthalmic faculty.
- (3) The posting of undergraduate students in eye wards and OPDs is generally inadequate and measures should be taken to ensure that students are exposed to clinical skills for an adequate period. At least a two-week posting in eye wards and two weeks in OPDs should be the minimum exposure to clinical ophthalmology. This is in addition to didactic sessions planned for the students.
- (4) The curriculum for ophthalmology, both at the undergraduate and postgraduate levels needs to be restructured urgently. Since policy makers in all countries of the Region are committed towards Vision 2020 and Primary Eye Care, the ophthalmic curriculum needs to incorporate these aspects.
- (5) Medical councils in each Member Country of the Region should prepare printed curricula which should be circulated widely within the countries.
- (6) Community eye care needs more attention in all colleges of the Region. Community-oriented and community-based teaching should be an integral part of all curricula. Exposure of students to the different levels of eye care delivery is necessary if students are to be exposed to common eye problems in countries of the Region.
- (7) Attention needs to be paid to the internal assessment mechanisms and examination systems in the different medical colleges in the Region. There is no uniform pattern of examination even in the same country. Internal assessment at the end of each module / posting should be seriously contemplated. Such assessments should use methods like Objective Structured Clinical Examination (OSCE).
- (8) Increased use of newer methods of training like symposia, quiz, field epidemiological exercises, small-scale surveys and problem-based learning should be used more often. In most colleges, conventional methods like didactic teaching, lecture demonstrations etc. are the only teaching methods used by the faculty.
- (9) Hands-on experience in surgical procedures, refraction and diagnostic techniques like use of slit lamp, ophthalmoscope etc. is essential during undergraduate training. Many students do not feel confident in tackling

eye problems in the community and tend to refer all eye cases to specialists. This is despite the fact that most eye problems are easily treatable or preventable at the primary care level.

- (10) Management and communication skills need to be incorporated into the curricula of postgraduate medical education. Currently, no formal teaching on these aspects is imparted. Adequate sensitization to doctor-patient relationships and medical ethics is essential.
- (11) The training of ophthalmologists should encompass aspects of prevention and care in addition to cure.
- (12) There is a need to augment surgical skills of postgraduate students especially in relation to non-cataract surgical procedures. Postgraduate education should emphasize comprehensive training rather than on piecemeal methods. Similarly, exposure to specialized diagnostic techniques is also very important.
- (13) With regard to cataract surgery, many students, especially in India were still exposed to a sufficient number of ICCE but not enough of ECCE + PC-IOL surgery. Very few students were adequately exposed to phacoemulsification. Since most practitioners were routinely doing only cataract surgery, exposure to all the modern techniques of cataract surgery should be emphasized in training.
- (14) Training infrastructure and provision of appropriate instruments are another area of concern. Efforts should be made to evolve a minimum package of training infrastructure and instruments, which should be available in all medical colleges.
- (15) Innovative methods like logbooks during postgraduate training should be used in all colleges.
- (16) There is an urgent need to devise comparable curricula, both at the undergraduate and postgraduate levels in Member countries. It is not possible to have exactly the same curricula in all countries of the Region, because of differences in the needs of each country. An equivalent certification process for the Region is desirable.
- (17) It should be the endeavour of all Member countries to develop a uniform curriculum and examination system, within each country. Currently, there are wide disparities within each country.

- (18) Low vision services have not received adequate attention. All postgraduate students should be sensitized so that they can manage these cases without any problem. Hands-on experience on prescribing low vision aids is important as more and more low vision patients will need treatment with increasing life expectancy in the Region and consequently, increase in prevalence of conditions like Age-related Macular Degeneration (ARMD).

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**Table 1.** Courses offered by respondent institutions

Countries	Undergraduate Medical training	Postgraduate Ophthalmology training	Para professional Ophthalmic training	Total Colleges
BAN	5	3*		8
DPRK	8	4		9
IND	16	17	9	17
INO	5	4		5
MMR	1	1		1
NEP	4	2	3	4
SRL	2	1	0	3
THA	6	5	0	6
Total	47 (88.68%)	36 (67.9%)	12 (22.6%)	53

\* One Institute only offers Diploma in Community Ophthalmology

**Table 2.** Duration of courses in different countries

Countries	Undergraduate Medical training	Postgraduate Ophthalmology training MS/ Fellowship	Postgraduate Diploma Courses
BAN	5 years	3 yrs	1 yr
DPRK	NA	NA	2 yrs
IND	4.6 – 5.6 yrs	3 yrs	2 yr
INO	6 yrs	4 yrs	
MMR	6 yrs	2 yrs	2 yrs
NEP	4.6 – 5.6 yrs	3 yrs	-
SRL	5 yrs	4 yrs	2 yrs
THA	6 yrs	3 yrs	-

**Table 3.** Student Faculty ratios distribution in undergraduate courses in different countries

Countries	= < 5	6-10	11-15	16-20	= > 21
BAN (4 colleges)	-	-	1 (25%)	1 (25%)	2* (50%)
DPRK (0 colleges)	NA	NA	NA	NA	NA
IND (14 colleges)	1 (7.1%)	4 (28.6%)	4 (28.6%)	3 (21.4%)	2 (14.3%)
INO (5 colleges)	5 (100%)	-	-	-	-
MMR (1 college)	-	-	-	-	1 (100%)
NEP (4 colleges)	-	-	1 (25.0%)	1 (25.0%)	2 (50.0%)
SRL (2 colleges)	-	-	-	2** (100%)	-
THA (5 colleges)	-	2 (40%)	2 (40%)	1 (20%)	-
Total (33 colleges)	6 (18.2%)	6 (18.2%)	8 (24.2%)	8 (24.2%)	6 (21.2%)

\* In one college, there is only one faculty for 150 students

\*\* In Sri Lanka undergraduate students are attached to a consultant in an eye hospital for training. This training is not provided at the medical colleges.

**Table 4.** Faculty student ratios for postgraduate ophthalmology course in different countries

Countries	Colleges Reporting	< = 2	2.1 – 3	3.1 – 5	> 5
BAN	4	3 (75%)	1 (25%)	-	-
DPRK	4	2 (50%)	2 (50%)	-	-
IND	15	5 (33.3%)	8 (53.3%)	-	2 (13.3%)
INO	4	4 (100%)	-	-	-
MMR	1	-	-	1 (100%)	-
NEP	2	1(50.0%)	-	-	1 (50.0%)
SRL	1	-	-	-	1 (100%)
THA	4	3 (75%)	1 (25%)	-	-
Total	35	18 (51.4%)	12 (34.3%)	1 (2.9%)	4 (11.4%)

**Table 5.** No. of ophthalmology lectures scheduled for undergraduate students

Countries	No. of colleges reporting	= < 30	31 - 60	61 – 100	> 100
BAN	6	4 (66.7%)	–	2 (33.3%)	–
DPRK	0	NA	NA	NA	NA
IND	15	2 (13.3%)	8 (23.3%)	5 (33.3%)	–
INO	5	5 (100%)	–	–	–
MMR	1	1 (100%)	–	–	–
NEP	4	1 (25.0%)	2 (50.0%)	1 (25.0%)	–
SRL	2	2 (100%)	–	–	–
THA	6	4 (66.7%)	2 (33.3%)	–	–
Total	39	19 (48.7%)	12 (30.8%)	8 (20.5%)	–

**Table 6.** Days of posting in eye OPD in different countries during graduation

Countries	7 days	8 – 15 days	16- 30 days	31 – 45 days	> 45 days
BAN (5 colleges)	2 (40%)	1 (20%)	–	2 (40%)	–
DPRK (0 colleges)	NA	NA	NA	NA	NA
IND (14 colleges)	–	1 (7.1%)	4 (28.6%)	6 (42.9%)	3 (21.4%)
INO (5 colleges)	–	–	5 (100%)	–	–
MMR (1 college)	–	1 (100%)	–	–	–
NEP (3 colleges)	1 (33.3%)	1 (33.3%)	1 (33.3%)	–	–
SRL (2 colleges)	–	2 (100%)	–	–	–
THA (6 colleges)	1 (16.7%)	4 (66.7%)	1 (16.7%)	–	–
Total (36 colleges)	4 (11.1%)	9 (25.0%)	11 (30.5%)	8 (22.2%)	3 (8.3%)

**Table 7.** Days of posting in eye ward in different countries during graduation

Countries	7 days	8 –15 days	16- 30 days	31 –45 days	> 45 days
BAN (6 colleges)	–	1 (16.7%)	-	5 (83.3%)	–
DPRK (0 colleges)	NA	NA	NA	NA	NA
IND (14 colleges)	–	–	4 (28.6%)	7 (50%)	3 (21.4%)
INO (5 colleges)	–	–	5 (100%)	–	–
MMR (1 colleges)	–	1 (100%)	–	–	–
NEP (3 colleges)	–	2 (66.7%)	1 (33.3%)	–	–
SRL (1 college)	–	1 (100%)	-	–	–
THA (6 colleges)	–	–	6 (100%)	–	–
Total (36 colleges)	–	5 (13.9%)	16 (44.4%)	12 (33.3%)	3 (8.3%)

**Table 8.** Examination system in Ophthalmology in different countries

Countries	Separate Paper	1 <sup>st</sup> clinical year	2 <sup>nd</sup> clinical year	3 <sup>rd</sup> clinical yr, part 1	3 <sup>rd</sup> clinical yr - final
BAN (6 colleges)	3 (50%)	–	–	–	6 (100%)
DPRK (4 colleges)	4 (100%)	–	–	–	4 (100%)
IND (16 colleges)	14 (87.5%)	–	3 (18.75%)	3 (18.75%)	10 (62.5%)
INO (5 colleges)	5 (100%)	–	–	–	5 (100%)
MMR (1 college)	0	–	–	–	1 (100%)
NEP (4 colleges)	3 (75.0%)	–	–	4 (100.0%)	-
SRL (2 colleges)	0	–	–	–	2* (100%)
THA (6 colleges)	6 (100%)	–	–	–	6 (100%)
Total (44 colleges)	30 (68.2%)	–	3 (6.8%)	7 (15.9%)	34 (77.3%)

\* Ophthalmology examination is part of surgery examination where half an essay question relates to Ophthalmology

**Table 9.** Assessment system in graduate ophthalmology in different countries

Countries	Colleges reporting internal assessment	Type of Internal Assessment		
		Theory	Theory + Clinical	OSCE
BAN (6 colleges)	6	–	6	–
DPRK (3 colleges)	3	–	3	–
IND (16 colleges)	14	–	14	–
INO (5 colleges)	5	–	5	–
MMR (1 college)	1	–	–	–
NEP (4 colleges)	–	–	3	2
SRL (1 colleges)	–	–	–	1
THA (6 colleges)	6	2	4	–
Total (42 colleges)	40 (95.2%)	3 (7.1%)	35 (83.3%)	3 (7.1%)

**Table 10.** No. of hours spent on community ophthalmology teaching

Countries	Colleges Reporting	No hours specified hours	< = 5 hours	6 – 10 hours	> 10 hours
BAN	4	–	2	1	1
DPRK	0	NA	NA	NA	NA
IND	16	4	5	1	6
INO	5	5	–	–	–
MMR	1	–	1	–	–
NEP	4	2	–	1	1
SRL	2	2	–	–	–
THA	5	3	2	–	–
Total	37	16(43.2%)	10(27.0%)	3(8.1%)	8(21.6%)

**Table 11.** Topics Covered in Graduate Medical Education in SEAR Countries

Topics	BAN	DPK	IND	INO	MMR	NEP	SRL	THA	All
Colleges Reporting	8	9	16	5	1	4	2	6	49
Magnitude of Blindness	5	4	16	5	1	4	1	5	41 (83.7)
Strategies for PBL	4	4	16	5	1	4	0	5	39 (79.6)
Ocular epidemiology	4	4	15	5	1	4	1	5	39 (79.6)
National level blindness control activities	1	2	16	5	1	4	0	3	32 (65.3)
Organization of Community based activities	2	3	12	0	1	4	0	4	26 (53.1)
Role of paramedics	1	0	12	0	1	1	0	3	18 (36.7)
Team approach	2	1	12	5	1	4	0	5	30 (61.2)
Doc-pt relationship	6	3	12	5	1	3	1	5	36 (73.5)
Health Management	2	3	10	5	0	3	0	3	26 (53.1)
IEC	2	2	14	5	0	4	0	5	32 (65.3)
Community organization & participation	1	1	13	0	0	3	0	3	21 (42.9)
MIS / Health information	2	1	11	5	0	3	0	4	26 (53.0)
Data presentation techniques	0	1	10	5	0	4	0	3	23 (46.9)
Computer applications	0	1	5	0	0	2	0	4	12 (24.5)

Figures in parentheses denote percentages

**Table 12.** Perception regarding adequacy of graduate ophthalmic education in SEAR

Countries	Colleges Reporting	Reporting Ophthalmic Education As Adequate	Reporting Community Ophthalmology Teaching as Adequate
BAN	7	1 (14.3%)	0 (0%)
DPRK	2	0 (0%)	0 (0%)
IND	16	15 (93.75%)	7 (43.75%)
INO	5	5 (100%)	0 (0%)
MMR	1	0 (0%)	0 (0%)
NEP	4	4 (100%)	3 (75.0%)
SRL	2	0 (0%)	0 (0%)
THA	6	6 (100%)	0 (0%)
Total	43	31 (72.1)	10 (23.2)

**Table 13. Deficiencies Highlighted in graduate ophthalmic education**

<b>Deficiencies Highlighted by Medical College Faculty</b>	
BAN	<ul style="list-style-type: none"> <li>- Less emphasis on community orientation</li> <li>- Inadequate training period</li> <li>- Short clinical posting</li> <li>- Poor exposure to surgical skills &amp; training</li> <li>- Mostly theoretical - Needs to be more practically oriented</li> <li>- Inadequate orientation to ophthalmic instruments</li> <li>- Local common eye problems not emphasized</li> <li>- Time gap between theoretical lectures and clinical postings</li> <li>- Inadequate exposure to community ophthalmology</li> <li>- Adverse faculty: student ratio</li> </ul>
DPK	<ul style="list-style-type: none"> <li>- Paucity of information provided to students</li> <li>- Inadequate clinical and diagnostic skill training</li> <li>- Inadequate orientation to ophthalmic instruments</li> </ul>
IND	<ul style="list-style-type: none"> <li>- Examination system does not evaluate skills and what is taught</li> <li>- Lack of emphasis on common eye conditions</li> <li>- Poor exposure to surgical skills &amp; training</li> <li>- Short posting in wards &amp; OPD</li> <li>- Time gap between theoretical lectures and clinical postings</li> <li>- Poor teaching material including slide sets &amp; other A-V material</li> <li>- Shortage of faculty</li> <li>- Curriculum objectives not defined properly.</li> <li>- Lack of community based/oriented teaching</li> <li>- Lack of exposure to rural set ups.</li> <li>- Inadequate exposure to community ophthalmology</li> </ul>
INO	<ul style="list-style-type: none"> <li>- Lack of ophthalmic literature</li> <li>- Inadequate clinical posting</li> <li>- Not enough emphasis on community ophthalmology</li> <li>- Limited availability of English language journals and other information resources.</li> </ul>

<b>Deficiencies Highlighted by Medical College Faculty</b>	
MMR	<ul style="list-style-type: none"><li>- Short clinical posting</li></ul>
NEP	<ul style="list-style-type: none"><li>- Less exposure to community settings</li><li>- Less emphasis on common eye conditions</li><li>- Inadequate exposure to community ophthalmology</li><li>- No involvement of students in seminars &amp; symposia</li><li>- More emphasis on theory</li></ul>
SRL	<ul style="list-style-type: none"><li>- Short posting in OPD &amp; wards</li><li>- Inadequate time allocation for ophthalmology</li><li>- Lack of a planned curriculum</li><li>- Inadequate exposure to community ophthalmology</li></ul>
THA	<ul style="list-style-type: none"><li>- Lack of hands-on experience in clinical and surgical ophthalmology</li><li>- Inadequate time allocation for ophthalmology</li><li>- No planned curriculum for ophthalmology</li><li>- Lack of training in ophthalmic pathology</li><li>- Inadequate exposure to community ophthalmology</li></ul>

**Table 14.** Suggestions for improving graduate ophthalmic education in SEAR

Country	Suggested Improvements
BAN	<ul style="list-style-type: none"> <li>- Augmenting training duration in wards &amp; OPD</li> <li>- Emphasis on practical clinical &amp; diagnostic skills</li> <li>- Hands- on training</li> <li>- Introduction of log book and periodic assessment</li> <li>- Increased emphasis on PBL activities and Community Eye Care</li> <li>- Separate examination for ophthalmology</li> </ul>
DPRK	<ul style="list-style-type: none"> <li>- Augmenting instruments availability for training</li> <li>- Emphasis on common eye conditions and their management</li> <li>- Emphasis on health education and prevention</li> </ul>
IND	<ul style="list-style-type: none"> <li>- Separate examination for ophthalmology</li> <li>- Emphasis on practical clinical &amp; diagnostic skills</li> <li>- Emphasis on common eye conditions and their management</li> <li>- Increased emphasis on PBL activities and Community Eye Care</li> <li>- Integrated teaching with PSM departments</li> <li>- Coordination between theory and clinical postings</li> <li>- Teaching infrastructure including A-V aids to be improved</li> <li>- Demonstration of surgical procedures and skills</li> <li>- Community based teaching and rural postings</li> <li>- Learning objectives should be clear and problem based teaching approaches should be adopted</li> </ul>
INO	<ul style="list-style-type: none"> <li>- Subsidizing cost of ophthalmic books</li> <li>- Augmenting library and information resource facilities</li> </ul>
MMR	<ul style="list-style-type: none"> <li>- Augmenting training duration in wards &amp; OPD</li> <li>- Summative assessment at end of eye posting</li> </ul>
NEP	<ul style="list-style-type: none"> <li>- Problem based teaching to be emphasized</li> <li>- Integrated teaching with PSM departments</li> <li>- Reinforcing community based teaching by visits, group interactions, epidemiological data collection</li> <li>- Periodic seminars and symposia</li> <li>- Students should be encouraged to use clinical tools like scopes, slit lamps etc. during training.</li> </ul>

Country	Suggested Improvements
SRL	<ul style="list-style-type: none"><li>- Increased time allocation for ophthalmology teaching</li><li>- Curriculum to be devised in consultation with practicing ophthalmologists</li></ul>
THA	<ul style="list-style-type: none"><li>- Emphasis on common eye conditions and their Management.</li><li>- Increased emphasis on urgent eye problems and preventive ophthalmology</li><li>- Augmenting competencies of teaching faculty</li><li>- Problem based teaching to be emphasized</li><li>- Integrated teaching with PSM departments</li><li>- Period of posting in ophthalmology to be increased</li></ul>

**Table 15. Suggestions for augmenting training of graduates in community eye care**

Country	Suggested Improvements
BAN	<ol style="list-style-type: none"> <li>1. Specific curriculum for community ophthalmology</li> <li>2. Community based teaching and orientation</li> <li>3. Involving students in community based activities</li> <li>4. Posting students to rural health care &amp; eye care institutions including those in NGO sector</li> <li>5. Students should qualify separately in community ophthalmology examination as part of ophthalmology</li> <li>6. Emphasis on common eye problems and primary eye care</li> <li>7. Students to undertake community based projects as part of graduate training</li> </ol>
DPRK	<ol style="list-style-type: none"> <li>1. Increase interest of students</li> <li>2. Expose students to updated information</li> </ol>
IND	<ol style="list-style-type: none"> <li>1. Specific curriculum for community ophthalmology</li> <li>2. Community based teaching and orientation</li> <li>3. Involving students in community based activities like eye camps, screening camps, rural hospitals etc.</li> <li>4. More hours allocated to community ophthalmology teaching</li> <li>5. Emphasis on common eye problems and primary eye care</li> <li>6. Students to undertake community based projects as part of graduate training including surveys</li> <li>7. Integrated teaching with PSM departments</li> </ol>
INO	<ol style="list-style-type: none"> <li>1. 1. More emphasis on community ophthalmology needed</li> </ol>
MMR	<ol style="list-style-type: none"> <li>1. Community based teaching and orientation</li> <li>2. Integrated teaching with PSM departments</li> </ol>
NEP	<ol style="list-style-type: none"> <li>1. Involving students in community based activities like eye camps, screening camps, rural hospitals etc.</li> <li>2. Students to undertake community based projects as part of graduate training</li> <li>3. Structured community based curriculum</li> </ol>

<b>Country</b>	<b>Suggested Improvements</b>
	<ol style="list-style-type: none"><li>4. Exposure of students to existing sub health post environment for tackling common eye problems</li><li>5. Mandatory evaluation in community ophthalmology</li></ol>
SRL	<ol style="list-style-type: none"><li>1. Inclusion of community ophthalmology in ophthalmic curriculum</li><li>2. Trained faculty should be involved in teaching</li></ol>
THA	<ol style="list-style-type: none"><li>1. Integrated teaching with PSM departments</li><li>2. Specific curriculum for community ophthalmology</li><li>3. More hours allocated to community ophthalmology teaching</li><li>4. Postings students to rural health care &amp; eye care institutions</li><li>5. Good cooperation with Ministry of Health and Faculty of Medicine</li></ol>

**Table 16.** *Is ophthalmology a preferred choice for post graduate studies in SEAR*

Country	No.	No. stating popular choice	Common Reasons if Unpopular
BAN	6	0	<ol style="list-style-type: none"> <li>1. Few job opportunities in government</li> <li>2. Poor practice prospects</li> <li>3. Cost of instruments for private practice</li> <li>4. Long duration of training</li> <li>5. Heavy financial investment needed after post-graduation</li> <li>6. Considered minor subject</li> </ol>
DPRK	3	0	<ol style="list-style-type: none"> <li>1. Scope not as much as other specialties for practice</li> <li>2. Lack of skillful and experienced teachers</li> <li>3. Available instruments technically outdated</li> </ol>
IND	16	15	<ol style="list-style-type: none"> <li>1. Inadequate financial returns</li> <li>2. Costly equipment for setting up practice</li> </ol>
INO	5	0	<ol style="list-style-type: none"> <li>1. Cost of equipment for clinical practice is exorbitant</li> <li>2. Postgraduate students have to pay tuition fee unlike major specialties</li> </ol>
MMR	1	1	
NEP	3	1	<ol style="list-style-type: none"> <li>1. Considered minor subject</li> <li>2. Initial exposure during Undergraduate course is limited</li> <li>3. Very high initial investment for private practice</li> <li>4. Viewed as having lesser profile compared to Medicine, Surgery, Gynae</li> </ol>
SRL	2	2	
THA	6	6	

**Table 17.** Exposure to different investigative procedures during ophthalmic post-graduation in SEAR

Investigative Procedures	BAN	DPK	IND	INO	MMR	NEP	SRL	THA	All
Reporting Colleges	6	4	17	4	1	2	1	6	41
Slit lamp exam	6	4	17	4	1	2	1	6	41 (100)
Indirect Ophthalmoscopy	6	4	17	3	1	2	1	6	40 (97.6)
Goldman/ Automated Perimetry	3	2	11	4	1	1	1	5	28 (68.3)
Gonioscopy	3	1	17	4	1	1	1	6	31 (75.6)
Refraction	6	4	17	4	1	2	1	6	41 (100)
A-scan	5	0	16	0	1	1	1	6	30 (73.2)
B-scan	5	0	13	0	1	1	1	6	27 (65.8)

\*Figures in parentheses denote percentages

**Table 18.** Average no. of surgeries performed during postgraduate training by students in SEAR (Cataract Related)

Surgeries	BAN (1)	DPRK (3)	IND (17)	INO (4)	MMR (1)	NEP (1)	SRL (1)	THA (6)	ALL (34) (%)
<b>ICCE</b>									
None	1		3	4	1	1			10 (22.7)
<=5		2	1					6	9 (20.4)
6-10		1	4						5 (11.4)
11-20			4						4 (9.1)
21-50			4						4 (9.1)
> 50			1						1 (2.3)
<b>ECCE</b>									
None			1						1 (2.3)
<=5		2			1		1		4 (9.1)
6-10		1	2					5	8 (18.2)
11-20			3						3 (6.8)
21-50			8						8 (18.2)
> 50	1		3	4		1			9 (20.4)
<b>ECCE + PC-IOL</b>									
None		1	1						2 (4.5)
<=5		1	1		1				3 (6.8)
6-10			2						2 (4.5)
11-20			3						3 (6.8)
21-50			4					3	7 (15.9)
> 50	1		5	4		1	1	2	14 (31.8)

Surgeries	BAN (1)	DPRK (3)	IND (17)	INO (4)	MMR (1)	NEP (1)	SRL (1)	THA (6)	ALL (34) (%)
<b>Phaco</b>									
None	1	1	15	4	1	1			23 (52.3)
<=5		1	1						2 (4.5)
6-10									-
11-20			1					2	3 (6.8)
21-50							1	2	3 (6.8)
> 50								1	1 (2.3)
<b>Laser Capsulotomy</b>									
None	1	1	10	4					16 (36.4)
<=5			1		1				2 (4.5)
6-10		1	2						3 (6.8)
11-20			1					2	3 (6.8)
21-50			2			1		2	5 (11.4)
> 50			1				1	1	3 (6.8)

**Table 19.** Other surgical procedures in postgraduate training

Surgeries	BAN (1)	DPRK (3)	IND (17)	INO (4)	MMR (1)	NEP (1)	SRL (1)	THA (6)	ALL (34) (%)
<b>Peripheral Iridectomy</b>									
None		1	9		1			1	12 (35.3)
<=5			2					2	4 (11.8)
6-10		1	4			1	1	1	7 (20.6)
11-20			2						2 (5.9)
21-50	1			4				1	6 (17.6)
<b>Trabeculotomy /Trabeculectomy</b>									
None			10		1			1	12 (35.3)
<=5			2					3	5 (14.7)
6-10		1	3			1		1	6 (17.6)
11-20		1	2						3 (8.8)
21-50				4			1		5 (14.7)
> 50	1								1 (2.9)
<b>Laser Iridectomy</b>									
None	1	1	12	4	1	1			20 (58.8)
<=5			2						2 (5.9)
6-10								1	1 (2.9)
11-20			1					3	4 (11.8)
21-50			2				1	1	4 (11.8)
<b>Lid Correction surgery</b>									
None			3						3 (8.8)
<=5			1	4					5 (14.7)
6-10		2	6		1			3	12 (35.3)
11-20		1	4					2	7 (20.6)
21-50	1	1	3			1	1		7 (20.6)

Surgeries	BAN (1)	DPRK (3)	IND (17)	INO (4)	MMR (1)	NEP (1)	SRL (1)	THA (6)	ALL (34) (%)
<b>Squint</b>									
None			7		1				8 (23.5)
<=5	1	1	7	4		1		1	15 (44.1)
6-10		1	2						3 (8.8)
11-20		2	1						3 (8.8)
21-50							1	4	5 (14.7)
<b>Keratoplasty</b>									
None			11	3	1			2	17 (50.0)
<=5		3	4			1		3	11 (32.3)
6-10	1		2						3 (8.8)
11-20									
21-50							1		1 (2.9)

**Table 20.** Specialized Diagnostic Procedures in Post graduation

Surgeries	BAN (1)	DPRK (2)	IND (17)	INO (4)	MMR (1)	NEP (1)	SRL (1)	THA (6)	ALL (34) (%)
<b>Fluoresce in Angiography</b>									
None	1	1	10	3	1			1	17(50.0)
<=5			1	1		1		3	6 (17.6)
6-10			1					1	2 (5.9)
11-20			2						2 (5.9)
21-50			3				1		4 (11.8)
<b>Goldman / Automated Perimetry</b>									
None			7		1			1	9 (26.5)
<=5			1						1 (2.9)
6-10	1		1					1	3 (8.8)
11-20		2							2 (5.9)
21-50			5			1	1	2	9 (26.5)
> 50			2					1	3 (8.8)
<b>A-scan</b>									
None	1	1	4	4				1	11(32.3)
<=5									
6-10			1					1	2 (5.9)
11-20			3						3 (8.8)
21-50			9		1	1	1	1	13 (38.2)
<b>Keratometry</b>									
None	1		2						3 (8.8)
<=5		2						1	3 (8.8)
6-10					1			1	2 (5.9)
11-20								1	1 (2.9)
21-50			5			1	1	1	8(23.5)
> 50			10	4				1	15(44.1)

<b>Lensometry</b>									
None	1	1	5						7 (20.6)
<=5									
6-10			1				1	1	3 (8.8)
11-20									
21-50			4		1			1	6 (17.6)
> 50			7	4		1		3	15(44.1)
<b>Low vision prescriptions</b>									
None			11	4	1	1	1	2	20 (58.8)
<=5	1		3					2	6 (17.6)
6-10								1	1 (2.9)
11-20									
21-50		2	2						4 (11.8)
>50		1							1 (2.9)

**Table 21.** Teaching of community ophthalmology

Countries	CO taught	Specific syllabus	Not fixed*	<5 hrs	6-10 hrs	11-20 hrs	21- 50 hrs	>50 hrs
BAN (2 colleges)	2 (100)	2 (100)		1 (50)				1 (50)
DPRK (3 colleges)	3 (100)	0 (0)				2 (66.7)		
IND (17 colleges)	16 (94.1)	11 (68.75)	5 (31.2)	3 (18.7)	3 (18.7)	1 (6.3)	3 (18.7)	1 (6.3)
INO (4 Colleges)	4 (100)	0 (0)						
MMR (1 college)	1 (100)	1 (100)				1 (100)		
NEP (2 college)	2 (100)	1 (50)						1 (50)
SRL (0 colleges)	0	0						
THA (5 colleges)	3 (60)	3 (100)	1 (33.3)	1 (33.3)	1 (33.3)			
Total (35 colleges)	31 (88.6)	18 (58.1)	6 (22.6)	5 (16.1)	4 (12.9)	4 (12.9)	3 (9.7)	3 (9.7)

Percentage of institutes where community ophthalmology taught

\*\* All figures in parentheses are percentages

**Table 22.** Community Ophthalmology Topics Covered During Post graduate training

Topics	BAN	DPRK	IND	INO	MMR	NEP	SRL	THA	All
Responding Colleges	6	4	13	4	1	2	1	6	37
Concepts	1	4	11	4	1	2	0	3	26 (70.2%)
Ocular Epidemiology	3	4	12	4	1	2	0	4	30 (81.1%)
Research Methods in Ophthalmology	3	3	12	4	1	2	0	5	30 (81.1%)
Survey Methods in Ophthalmology	3	3	10	4	1	2	0	3	26 (70.2%)
Screening Methods in Ophthalmology	4	3	12	4	1	2	0	2	28 (75.7%)
Planning for Eye Care	4	4	12	4	1	2	0	1	28 (75.7%)
MIS	0	1	9	4	1	2	0	2	19 (51.3%)
Evaluation of Eye care	1	2	8	4	1	2	0	1	19 (51.3%)
Quality Assurance	3	2	9	4	1	2	0	0	21 (56.8%)
Team Approach	2	1	9	4	1	2	0	2	21 (56.8%)
PBL Strategies	2	3	11	4	1	2	0	1	24 (64.9%)
Organizing Outreach Services	3	0	12	4	0	2	0	0	21 (56.8%)

Topics	BAN	DPRK	IND	INO	MMR	NEP	SRL	THA	All
Ethics	4	0	10	4	0	2	0	5	25 (67.6%)
Doc-pt relationship	5	4	9	4	0	2	0	5	29 (78.4%)
Communicatio n Methods	4	2	10	1	0	2	0	2	21 (56.8%)
IEC in eye care	4	0	12	4	1	2	0	1	24 (56.8%)
Primary Eye Care	5	4	12	4	1	2	0	5	33 (89.2%)
Medical Education Technology	2	0	10	4	0	2	0	5	23 (62.2%)

**Table 23.** Evaluation of postgraduate ophthalmic education

Perceptions regarding postgraduate ophthalmic education	BAN	DPK	IND	INO	MMR	NEP	SRL	THA	ALL
Responding Colleges	5	2	17	4	1	2	1	6	38
Provide adequate technical skills	1	2	13	4	1	2	1	6	30 (78.9%)
Provides confidence to handle independently	3	0	17	4	1	2	1	6	34 (89.5%)
Exposes to most prevalent diseases	5	1	17	4	1	2	1	6	37 (97.4%)
Imparts managerial & communication skills	1	2	13	0	1	2	0	3	22 (57.9%)
Motivates students to work in under served areas	3	0	13	NR	1	2	0	1	20 (52.6%)

**Table 24.** *Suggestions on improvement of ophthalmic postgraduate studies*

Country	Suggestions
BAN	<ul style="list-style-type: none"> <li>- Curriculum should be structured</li> <li>- Clearly defined objectives</li> <li>- Introducing log books for monitoring</li> <li>- Assessing surgical skills during examination</li> <li>- Separate section for community ophthalmology</li> <li>- Curriculum should be need-oriented with sufficient flexibility</li> <li>- Full time three year residency system needed</li> <li>- Students should have access to all the latest technology</li> </ul>
DPRK	<ul style="list-style-type: none"> <li>- Hands-on experience with latest instruments and procedures</li> <li>- Wet lab facilities should be available</li> <li>- Community ophthalmology training needs to be augmented</li> </ul>
IND	<ul style="list-style-type: none"> <li>- Basic Sciences examination should be held at the end of the first year of residency.</li> <li>- Separate paper on community ophthalmology</li> <li>- Hands-on experience with latest instruments and procedures</li> <li>- Wet lab facilities should be available</li> <li>- Training should be more practically oriented by posting in casualty, camps etc. for appropriate durations</li> <li>- Latest diagnostic and surgical technology should be made accessible to students</li> <li>- There should be only one type of postgraduate study – all diplomas should be converted to MS.</li> <li>- Students should be exposed to most prevalent eye diseases.</li> <li>- Managerial &amp; Communication skills should be augmented</li> <li>- Adequate diagnostic equipment should be available in sufficient quantity</li> </ul>
INO	<ul style="list-style-type: none"> <li>- Augmenting library and information resource facilities</li> </ul>
MMR	<ul style="list-style-type: none"> <li>- Duration should be three years</li> <li>- Log book should be monitored regularly</li> <li>- Continuous assessment to be undertaken</li> </ul>
NEP	<ul style="list-style-type: none"> <li>- Students should be taught to take appropriate decisions in adverse conditions where no facilities are available.</li> <li>- Uniform training pattern should be followed</li> </ul>

Country	Suggestions
	<ul style="list-style-type: none"><li>- Latest diagnostic &amp; therapeutic equipment should be available</li><li>- Training should be community oriented</li><li>- Problem based learning should be stressed</li><li>- OSCE type evaluation should be done</li><li>- Periodic faculty and student exchange programmes should be initiated</li></ul>
SLR	<ul style="list-style-type: none"><li>- Student exchange programmes should be initiated so that students can visit other eye hospitals</li><li>- Internet facilities should be provided</li></ul>
THA	<ul style="list-style-type: none"><li>- Regular monitoring and change of curriculum by analyzing the weak points and replacing them</li><li>- Basic sciences should be emphasized</li><li>- Better community ophthalmology training should be initiated</li><li>- Evaluation methods to be revised</li><li>- Ophthalmic education should be made more community directed and community based</li></ul>

**Table 25.** Teaching Methods During Postgraduate training in SEAR

Countries	BAN	DPRK	IND	INO	MMR	NEP	SRL	THA	All
Responding Colleges	6	4	16	0	1	2	0	3	32
Didactic Lectures	6	4	13	-	1	1	-	3	28 (87.5%)
Practical Demonstrations	4	4	7	-	1	1	-	1	18 (56.2%)
Seminars/ Symposia	5	4	13	-	1	1	-	1	25 (78.1%)
Surveys/Field exercises	1	3	7	-	1	2	-	0	14 (43.7%)
Orientation Visits	1	2	9	-	1	2	-	0	15 (46.9%)
Student Projects	1	0	5	-	1	1	0	3	11 (34.4%)

**Table 26.** Assessment of postgraduate ophthalmic education

Countries	BAN	DPRK	IND	INO	MMR	NEP	SRL	THA	ALL
Responding Colleges	6	4	17	4	1	2	1	6	41
Access to latest journals	5	4	15	4	1	2	1	6	38 (92.7%)
Wet lab facilities	1	0	8	0	0	1	0	4	14 (34.1%)
Internet access	1	0	8	0	0	2	0	6	17 (41.5%)
Surgical skill assessment in examination	0	2	4	4	0	1	0	5	16 (39%)

**Table 27.** Specialties of interest of interviewed ophthalmologists

Specialty	BAN (9)	INO (9)	NEP (9)	SRL (6)	THA (6)	ALL (39)
Anterior Segment	1		1		2	4 (10.3%)
Cataract	9	3	1	6		19(48.7%)
Cornea			3	1		4 (10.3%)
Community Ophthalmology		5	1			6 (15.4%)
General Ophthalmology					1	1 (2.6%)
Glaucoma		2	1	2		5 (12.8%)
Human Resource Development			1			1 (2.6%)
Neuro- Ophthalmology		2				2 (5.1%)
Ocular Trauma			1			1 (2.6)
Reconstructive Surgery & Oculoplasty		1	1	1		3 (7.7%)
Retina		2		1	3	6 (15.4%)
Uvea			1			1 (2.6%)
Pediatric Ophthalmology & Strabismus			1	1	1	3 (7.7%)
Refractive Surgery		2				2 (5.1%)
External Eye	1		1			2 (5.1%)

**Table 28.** Surgeries Commonly Performed by Interviewed Ophthalmologists

Surgeries	BAN (9)	INO (9)	NEP (9)	SRL (6)	THA (6)	ALL (39)
Anterior Segment			1		1	2 (5.1%)
Cataract	7	9	8	6	6	36 (92.3%)
Oculoplasty	1		1	1		3 (7.7%)
DCR	4		1	3		8 (20.5%)
Glaucoma	4	2		4		10 (25.6%)
Ptosis			1			1
Orbital			1	1		2 (5.1%)
Refractive Surgery					1	1
Vitreo –Retinal		1		1		2 (5.1%)
Strabismus	1			3		4 (10.2%)
RD Surgery	1			1		2 (5.1%)
Tarsoraphy/ Lid	2		2			4 (10.2%)
Keratoplasty	2			2		4 (10.2%)
External eye		1	1			2 (5.1%)

**Table 29.** Perceptions of ophthalmologists regarding surgical exposure during training

Country	Satisfactory surgical exposure in post- graduation	Insufficient surgical exposure in post graduation
BAN(9)	9 (100%)	
INO(9)	7 (77.8%)	2 (22.2%)
NEP(9)	7 (77.8%)	2 (22.2%)
SRL(0)	NA	NA
THA(6)	6 (100%)	NA
Total(33)	29 (87.9%)	4 (12.1%)

**Table 30.** Exposure to surgical skills during postgraduate ophthalmic education

Type of surgeries	BAN	INO	NEP	SRL	THA	ALL
Respondent Ophthalmologists	9	9	9	6	6	39
All Surgeries		1				1 (2.6%)
Cataract surgery Including IOL	9	8	7	5	6	35 (89.7%)
IOL	6	1	1	5	2	15 (38.5%)
Extra ocular			1			1 (2.6%)
Squint	1		1			2 (5.2%)
DCR	2		1		1	4 (10.3%)
Glaucoma			1			1 (2.6%)

Type of surgeries	BAN	INO	NEP	SRL	THA	ALL
Lid surgery	1					1 (2.6%)
Minor external eye		1				1 (2.6%)
Pterygium					1	1 (2.6%)
Sac surgery			1			1 (2.6%)
Enucleation			1			1 (2.6%)

**Table 31.** Rating of postgraduate training by interviewed ophthalmologists

	BAN	INO	NEP	SRL	THA	ALL
Respondent Ophthalmologists	9	9	9	6	6	39
Adequate / Comprehensive		2	6			8 (20.5%)
Satisfactory	4		1	4	1	10 (25.6%)
Inadequate/ Poor	5	5	2		2	13 (33.3%)
Partially adequate		2		2	3	7 (17.9%)

**Table 32.** Diagnostic skills inadequately taught during post-graduation

Diagnostic Skills	BAN (9)	INO (9)	NEP (9)	SRL (6)	THA (6)	ALL (39)
All areas weak		2				2 (5.1%)
Applanation Tonometry	4		1			5 (12.8%)
Goldman/ Automated Perimetry	2		1			3 (7.7%)
Contact Lens					1	1 (2.6%)
Microbiology			3			3 (7.7%)
Cornea					1	1 (2.6%)
ERG/EOG			4	4		8 (20.5%)
Fluorescein Angiography	3	1	1	3		8 (20.5%)
Indirect Ophthalmoscopy	7		1			8 (20.5%)
No area was inadequate		7				7 (17.9%)
Pediatric Ophthalmology			1			1 (2.6%)
Retina					1	1 (2.6%)
Ultrasound/ Radiology			3	1		4 (10.2%)
3 Mirror Gonioscopy	4		1			5 (12.8%)
Fundus Photography	2			2		4 (10.2%)
Keratometry	1					1 (2.6%)
Orbit					1	1 (2.6%)
Strabismus			1			1 (2.6%)
Oculoplasty					1	1 (2.6%)

**Table 33.** *Lacunae in postgraduate studies identified by interviewed ophthalmologists*

Lacunae	BAN	INO	NEP	SRL	THA	ALL
Respondent Ophthalmologists	9	9	9	0	6	33
Poor teacher – student communication	2	1	2			5 (15.1%)
Lack of proper/set curriculum	1	3	1		1	6 (18.2%)
Little clinical/surgical material	1		2		1	4 (12.1%)
Paucity of teachers	2	3	3		1	9 (27.3%)
Poorly trained faculty	5	2	2		2	11 (33.3%)
Few/lack of Instruments	2		2		3	7 (21.2%)
Heavy clinical duties/workload			2		1	3 (9.1%)
Poor training infra structure	6		2			8 (24.2%)
Lack of recent technology	2					2 (6.1%)
Lack of log book	2					2 (6.1%)
Lack of wet labs			1			1 (3%)
Lack of exposure to Community Ophthalmology			2			2 (6.1%)

**Table 34.** Reasons assigned by ophthalmologists for inadequacy of postgraduate education

Reasons	BAN	INO	NEP	SRL	THA	ALL
Respondent Ophthalmologists	9	9	9	0	6	33
Poorly Skilled/Disinterested faculty	5	1	6			12 (36.4%)
Lack of proper training facilities including shortage of instruments	4	1	2		1	8 (24.2%)
Inadequate clinical material					1	1 (3%)
Shortage of Faculty					2	2 (6.1%)
No set curriculum					1	1 (3%)

**Table 35.** Suggestions for improving postgraduate ophthalmic education by interviewed ophthalmologists

Reason	BAN	INO	NEP	SRL	THA	ALL
Respondent Ophthalmologists	9	9	9	0	6	33
Better facilities/infrastructure for training	6		2			8 (24.2%)
Computer/Internet Information access	2	2	3			7 (21.2%)
Better infrastructure availability	1	1	2		1	5 (15.1%)
Better surgical skills/more surgery	1	5	1			7 (21.2%)
Better/set curricula	1	3	4			8 (24.2%)
National Board Uniformity		1				1 (3%)
Problem based/OSCE Teaching methods		3	4		3	10 (30.3%)
Better teacher student relation		1	4			5 (15.1%)

**Table 36.** Perception of ophthalmologists regarding their confidence to function as managers

Country	Felt confident as managers after post graduation	Not confident
BAN(9)	7 (77.8%)	2 (22.2%)
INO(9)	7 (77.8%)	2 (22.2%)
NEP(9)	7 (77.8%)	2 (22.2%)
SRL(6)	4 (66.7%)	2 (33.3%)
THA(4)		4 (100%)
ALL (37)	25 (67.6%)	12 (32.4%)

**Table 37.** Perception of interviewed ophthalmologists about exposure to management skills during postgraduate ophthalmic education

Country	Exposed to management Skills during post graduate education	
	Yes	No
BAN(9)	–	9 (100%)
INO(9)	2 (22.2%)	7 (77.8%)
NEP(9)	2 (22.2%)	7 (77.8%)
SRL(0)	NA	NA
THA(4)	–	4 (100%)
Total(31)	4 (12.9%)	27 (87.1%)

**Table 38.** Perception of interviewed ophthalmologists regarding importance of managerial skills compared to clinical skills

Country	Perceive managerial skills to be as important as clinical skills	
	Yes	No
BAN(9)	9 (100%)	
INO(9)	9 (100%)	
NEP(9)	7 (77.8%)	2 (22.2%)
SRL(6)	2 (33.3%)	4 (66.7%)
THA(0)	NA	NA
Total(33)	27 (81.8%)	6 (18.2%)

**Table 39.** Perception of interviewed ophthalmologists regarding methods for imparting managerial skills

Methods	BAN	INO	NEP	SRL	THA	All
Respondent Ophthalmologists	9	8	9	0	3	33
Formal training courses	6	8	6	NA	3	23 (69.7%)
Maintenance of logbook	9	0	0	NA	0	9 (27.3%)
Practical management of clinical stations by giving specific responsibility	0	1	9	NA	1	11 (33.3%)
Simulation exercises	0	2	0	NA	0	2 (6.1%)
Close supervision	0	0	5	NA	0	5 (15.1%)
Examples set by senior faculty	0	0	2	NA	0	2 (6.1%)
Discussions	0	2	0	NA	0	2 (6.1%)
Interaction with managers	0	0	1	NA	0	1(3%)

**Table 40.** Perceptions of interviewed ophthalmologists regarding communication technology during post graduate ophthalmic education

Countries	Need Exists		Taught during training		Adequacy of teaching	
	Yes	No	Yes	No	Yes	No
BAN(9)	9		1	8	0	9
INO(9)	9		3	6	1	8
NEP(9)	9		5	4	2	7
SRL(0)	NA	NA	NA	NA	NA	NA
THA(6)	6		4	1	1	2
All (33)	33 (100%)		13 (39.4%)	20 (60.6%)	4 (21.1%)	26 (78.8%)

**Table 41.** Perceptions of interviewed ophthalmologists regarding communication skills

Countries	Confident of communication Skills		Importance of communication skills in practice		Exposed to doctor patient relationship	
	Yes	No	Yes	No	Yes	No
BAN(9)	0	9	9	0	2	6
INO(9)	7	2	9	0	8	1
NEP(9)	4	5	9	0	6	3
SRL(6)	6	0	NA	NA	NA	NA
THA(6)	3	1	6	0	3	0
All (39)	20 (51.3%)	17 (43.6%)	33* (84.6%)	0	19 (48.7%)	10 (25.6%)

\* No information from 6 colleges in Sri Lanka

**Table 42.** Perception of interviewed ophthalmologists on methods of teaching communication skills during postgraduate ophthalmic education

Methods	BAN	INO	NEP	SRL	THA	ALL
Respondent Ophthalmologists	9	8	9	0	3	33
Formal training courses	4	3	8	NA	1	16 (48.5%)
Exposure to A-V aids and media	8	0	3	NA	0	11 (33.3%)
Practical exercises		8	5	NA	2	15 (45.4%)
Close supervision & guidance		0	3	NA	1	4 (12.1%)
Examples set by senior faculty		1	1	NA	2	4 (12.1%)
Discussions	1	1	0	NA	1	3 (9.1%)
Simulation			1	NA	0	1 (3%)

**Table 43.** Perception of interviewed ophthalmologists regarding community eye care

Country	Need for community eye care exposure	Taught community Eye care during post graduation	Adequacy of graduates for primary eye care
BAN(9)	8	2	2
INO(9)	9	8	3
NEP(9)	9	3	4
SRL(2)	2	2	2
THA(6)	6	NA	1
All countries (35)	34 (97.1%)	15 (42.9%)	12 (34.3%)

**Table 44.** *Suggestions of interviewed ophthalmologists on how training of graduate doctors can be improved to meet country requirements*

Country	Suggestions
BAN	<ul style="list-style-type: none"> <li>- Augmenting training for diagnosis and management of common eye conditions</li> <li>- Emphasis on primary eye care</li> </ul>
INO	<ul style="list-style-type: none"> <li>- Clearly defined objectives and comprehensive curriculum</li> <li>- Emphasis on community ophthalmology</li> <li>- Community based and community oriented teaching</li> <li>- Practical community based exercises/ projects for students</li> <li>- More emphasis on local eye problems</li> <li>- Emphasis on primary eye care</li> </ul>
NEP	<ul style="list-style-type: none"> <li>- Emphasis on community ophthalmology</li> <li>- Emphasis on diagnosis and management of common eye problems</li> <li>- Uniform curriculum and training standards</li> <li>- Community based and community oriented teaching</li> <li>- Policy formulation</li> <li>- Integrated teaching</li> <li>- Emphasis on primary eye care</li> <li>- Innovative curriculum</li> <li>- Initiation of problem based learning</li> <li>- Attitudinal change in health personnel</li> </ul>
SRL	<ul style="list-style-type: none"> <li>- Increasing clinical training</li> <li>- Identifying needs of rural communities</li> </ul>
THA	<ul style="list-style-type: none"> <li>- Emphasis on community ophthalmology</li> <li>- Emphasis on diagnosis and management of common eye problems</li> <li>- Improvement of diagnostic skills imparted to students</li> <li>- Comprehensive curriculum</li> <li>- Increasing clinical teaching material and increased teaching hours</li> <li>- Prevention of blindness activities to be emphasized.</li> <li>- Integrated teaching</li> </ul>

**Table 45.** Perceptions of Interviewed ophthalmologists on mechanisms to make doctors work in under served and rural areas

Country	Suggestions
BAN	<ul style="list-style-type: none"> <li>- Adequate facilities</li> <li>- Improvement of infrastructure</li> <li>- Enhanced salary</li> <li>- Appreciation and reward for good work</li> <li>- Security for personnel</li> <li>- Financial and other incentives</li> </ul>
INO	<ul style="list-style-type: none"> <li>- Adequate facilities</li> <li>- Providing sufficient skills</li> <li>- Better incentives</li> <li>- Government regulation</li> <li>- Enhanced salary</li> <li>- Provision of basic instruments</li> <li>- Provide information updates</li> <li>- Better communication with other professionals</li> <li>- Improved infrastructure</li> <li>- Provision of facilities for children's education</li> <li>- Impart managerial skills</li> <li>- Reform bureaucracy</li> <li>- Better promotional avenues</li> </ul>
NEP	<ul style="list-style-type: none"> <li>- Adequate facilities</li> <li>- Government regulation</li> <li>- Carrot – and-stick policy</li> <li>- Providing environment for job satisfaction</li> <li>- Creation of additional jobs</li> <li>- Desisting from frequent transfers</li> <li>- Compulsory rotation of doctors</li> <li>- Better infrastructure</li> <li>- Financial incentives</li> </ul>

Country	Suggestions
	<ul style="list-style-type: none"><li>- Counseling and motivating young doctors</li><li>- Strict rules to be followed uniformly for all doctors</li><li>- Improved work environment</li><li>- Career incentives</li><li>- Career growth &amp; promotional avenues</li><li>-</li></ul>
SRL	<ul style="list-style-type: none"><li>- Monetary rewards</li><li>- Better educational facilities for children</li><li>- Scholarships for gaining further experience</li><li>- Transport allowances</li><li>- Provision of equipment and facilities for rural hospitals</li><li>- Compulsory rural service for junior doctors</li><li>- Help of senior consultants in organizing clinics</li></ul>
THA	<ul style="list-style-type: none"><li>- No Information available</li></ul>

**Table 46.** Salient conclusions of focus groups regarding information provided by consultant ophthalmologists

Countries	Characteristics of Participants	Perceptions Regarding Information Provided by Consultant Ophthalmologists on disease process
BAN	<ul style="list-style-type: none"> <li>* 12 participants</li> <li>* Both sexes</li> <li>* Age 40–60 yrs</li> <li>* &lt; 6/18 B/E</li> </ul>	<ul style="list-style-type: none"> <li>– Came to know of problem only from the consultant ophthalmologists</li> <li>– Most patients were satisfied with the information provided by consultant ophthalmologists</li> </ul>
INO	<ul style="list-style-type: none"> <li>* 12 participants</li> <li>* Both sexes</li> <li>* Age 24 – 75 yrs</li> <li>* &lt; 6/18 B/E</li> </ul>	<ul style="list-style-type: none"> <li>– Participants felt that sufficient information was provided by the ophthalmologists consulted.</li> </ul>
Nepal	<ul style="list-style-type: none"> <li>* 16 participants</li> <li>* Both sexes</li> <li>* Age 43- 70 yrs</li> <li>* &lt; 6/18 B/E</li> </ul>	<ul style="list-style-type: none"> <li>– A third of the participants were unaware of their underlying cause of low vision</li> <li>– A third knew of their problem to some extent</li> <li>– All participants professing knowledge stated that they came to know only from their consultant ophthalmologists</li> <li>– Most participants were dissatisfied with the information provided.</li> <li>– Most felt that adequate information on prognosis should be provided.</li> <li>– Some participants felt that the ophthalmologists were too busy to explain things properly.</li> </ul>
SRL	<ul style="list-style-type: none"> <li>* 12 participants</li> <li>* Both sexes</li> <li>* Aged 40 – 70 yrs</li> <li>&lt; 6/18 B/E</li> </ul>	<ul style="list-style-type: none"> <li>– All participants stated that they were adequately informed about drug dosage and medication details</li> <li>– Only some participants stated that they had been adequately informed about side effects of the medications.</li> </ul>
THA	<ul style="list-style-type: none"> <li>* 12 participants</li> <li>* Both sexes</li> <li>* Aged 23 – 65 yrs</li> <li>* &lt; = 6/18 B/E</li> </ul>	<ul style="list-style-type: none"> <li>– Participants stated that only some ophthalmologists provided very satisfactory information</li> <li>– Participants stated that some ophthalmologists provided little information</li> <li>– Participants felt that some ophthalmologists do not explain properly.</li> <li>– It was felt that many ophthalmologists do not provide any information at all on methods of rehabilitation and simply state that there is no cure for their problem.</li> </ul>

**Table 47.** Salient conclusions of focus groups regarding experiences with consultant ophthalmologists and other hospital staff

Countries	Perceptions Regarding Experiences with Consultant Ophthalmologists and other hospital staff
BAN	<ul style="list-style-type: none"> <li>- Most stated that ophthalmologists spent only 3-5 minutes</li> <li>- The behavior of the ophthalmologist was perceived to be cordial</li> <li>- Most preferred to go back to same eye specialist.</li> </ul>
INO	<ul style="list-style-type: none"> <li>- Most stated that the ophthalmologist spent only 5-15 minutes.</li> <li>- Behavior of the ophthalmologist perceived as courteous &amp; polite.</li> <li>- Felt that some doctors do not have empathy for the patients and this was stated to be a painful experience.</li> <li>- Participants felt that a few doctors were careless</li> <li>- Most stated that they would prefer to go back to the same doctor.</li> <li>- Sometimes patients had to wait long in hospital to meet doctors.</li> </ul>
NEP	<ul style="list-style-type: none"> <li>- Most felt doctors did not give sufficient time to the patients.</li> <li>- It was perceived that the ophthalmologists were only spending time on clinical evaluation of the patient but paid no attention to talking to the patients.</li> <li>- Generally behavior of ophthalmologist perceived to be courteous, satisfactory and appropriate.</li> <li>- Some ophthalmologists don't listen to their complaints patiently.</li> <li>- Most preferred to go back to the same ophthalmologist.</li> <li>- Participants expressed concern that sometimes they did not get to meet the same ophthalmologist in spite of fixing up an appointment</li> <li>- Participants generally not happy with the other hospital staff.</li> <li>- Most participants felt that other hospital staff behaved rudely.</li> <li>- Participants felt hospital services were generally not prompt.</li> </ul>
SRL	<ul style="list-style-type: none"> <li>- No information provided</li> </ul>
THA	<ul style="list-style-type: none"> <li>- The group felt that some ophthalmologists spent very little time with the patient.</li> <li>- The group felt that some ophthalmologists did not examine the patients properly.</li> <li>- Most participants were dissatisfied with the information provided by the other hospital staff.</li> <li>- It was felt that some hospitals do not provide clear information.</li> <li>- The group also expressed that some hospitals had a good service with adequate personnel and equipment.</li> </ul>

**Table 48.** Salient conclusions of focus groups regarding expected attributes of ophthalmologists

Countries	Perceptions Regarding Expected Attributes of Ophthalmologists
BAN	<ul style="list-style-type: none"><li>- Doctors should be easily approachable</li><li>- Prefer to consult doctors who are more skilled and highly experienced.</li></ul>
INO	<ul style="list-style-type: none"><li>- Prefer to consult the expert and skilled doctors</li><li>- Prefer to seek treatment from a doctor who wants to know his patient's needs in detail.</li></ul>
NEP	<ul style="list-style-type: none"><li>- Most important quality sought by patients is competency</li><li>- Prefer to go to a doctor with good behavior.</li><li>- Doctors should be good listeners.</li><li>- Doctors should be truthful and provide all information to the patient.</li><li>- Doctors should be capable of working as a member of a team.</li><li>- Doctors should not think only of financial benefits.</li></ul>
SRL	<ul style="list-style-type: none"><li>- No information provided</li></ul>
THA	<ul style="list-style-type: none"><li>- Doctors should be kind and caring.</li><li>- Doctors should provide moral support to the patient.</li><li>- Doctors should not make patients feel helpless.</li><li>- Doctors should make efforts to make the patients understand their situation and enable them to adjust to their changed life.</li><li>- Doctors should enthusiastically ask questions on patient's living conditions.</li><li>- The consultants should give enough time to explain to the patient.</li><li>- Doctor should examine all patients thoroughly.</li><li>- Doctors should speak politely and not scold patients as they are already depressed due to their loss of vision.</li></ul>

**Table 49.** *Salient Conclusions of Focus Groups Regarding Suggestions for improving services provided by consultants and hospitals*

Countries	Suggestions for Improving services provided by ophthalmologists and hospitals
BAN	<ul style="list-style-type: none"> <li>- Ophthalmologists need to be trained to look into social and psychological problems of patients.</li> <li>- More training should be imparted to staff to improve the services.</li> </ul>
INO	<ul style="list-style-type: none"> <li>- Doctors need to be trained to respect psychology and social problems of the patients.</li> <li>- Hospitals should devise mechanisms to improve services by giving an appointment system so that long waiting can be avoided.</li> <li>- Hospital staff should be briefed regularly.</li> <li>- Staff should be regularly supervised for providing quick service.</li> <li>- Staff should be forced to be punctual and provide fast service with minimal waiting time in the hospital.</li> <li>- Record retrieval systems should be augmented for quick patient flow.</li> </ul>
NEP	<ul style="list-style-type: none"> <li>- Doctors should be adequately trained to appreciate the patient's social and psychological status.</li> <li>- Doctors should be provided with ample time during their training years to interact and communicate with their patients and this should be regularly evaluated.</li> <li>- Steps should be taken to maintain discipline in the hospitals.</li> <li>- Staff should be trained to provide a professional service.</li> </ul>
SRL	<ul style="list-style-type: none"> <li>- No information provided</li> </ul>
THA	<ul style="list-style-type: none"> <li>- Doctors should be made aware of their duties and responsibilities.</li> <li>- Personnel management training needs to be provided to doctors to increase their knowledge and work effectiveness.</li> <li>- Training to improve communication skills of doctors is essential.</li> <li>- Training should be provided to doctors on how to interact and approach patients.</li> <li>- Only limited number of patients should be given appointment at a time so that all patients can be seen thoroughly.</li> <li>- Questionnaires should be circulated to the patients in the waiting area in the clinic so that their needs and problems can be recorded and given to the consultant doctor before seeing patients.</li> <li>- Technical updating of personnel is required regularly so that they can provide better answers to the patients needs and queries.</li> </ul>

**Table 50.** Perceptions of policy makers and senior personnel regarding strengths of eye care delivery system in the country

Countries	Perceptions on Strengths of Eye Care Delivery Systems
BAN	<ul style="list-style-type: none"> <li>- Introduction of a log book for trainees</li> </ul>
INO	<ul style="list-style-type: none"> <li>- Creation of a network of community eye care institutions.</li> <li>- Geographic catchments area allocation for district hospitals.</li> <li>- Good networking of eye care institutions.</li> <li>- Financial and technical support from WHO/ INGOs</li> <li>- Decentralized system with regional and district autonomy.</li> </ul>
NEP	<ul style="list-style-type: none"> <li>- Good network of eye centers in the Southern belt of the country.</li> <li>- Commendable commitment of eye care professionals in the country.</li> <li>- Donor confidence and steady inflow of funds for blindness control.</li> <li>- Good level of community support to eye care activities.</li> </ul>
SRL	<ul style="list-style-type: none"> <li>- No information provided</li> </ul>
THA	<ul style="list-style-type: none"> <li>- Trained village volunteers providing primary eye care.</li> <li>- Good referral and support mechanism for primary eye care.</li> <li>- Posting of ophthalmologists to provincial hospitals.</li> <li>- Ophthalmologists at provincial hospitals provide training in eye care to other personnel.</li> <li>- Good coverage of eye care services in the rural areas with a good accessibility and utilization of available services.</li> <li>- Good transportation services and roads networks making access to eye care services better.</li> <li>- Insurance / social benefit schemes have reduced financial barrier of 75 percent of the population.</li> </ul>

**Table 51.** Perceptions of senior policy makers on weaknesses of the eye care delivery systems in respective countries

Countries	Perceptions Regarding Weaknesses of Eye care delivery systems
BAN	<ul style="list-style-type: none"> <li>- No central control/ monitoring system for undergraduate medical courses.</li> <li>- Limited availability of faculty leading to poor student: teacher ratios in medical colleges.</li> <li>- Medical teaching is not need based.</li> <li>- General lack of physical facilities, supplies and logistics.</li> <li>- No uniformity in training for postgraduate ophthalmology courses across different institutions in the country.</li> <li>- Defective course design and examination system for postgraduate ophthalmology courses.</li> </ul>
INO	<ul style="list-style-type: none"> <li>- Community eye care is practiced only at provincial level.</li> <li>- Maldistribution of hospitals and eye specialists.</li> <li>- Inadequate skills of many ophthalmologists.</li> <li>- Lack of compulsory rural posting of eye specialists, unlike other specialists.</li> <li>- Paucity of eye surgeons and equipment in the country.</li> <li>- Eye surgeon: population ratio is very low.</li> <li>- Need to train more eye surgeons to met the country's need.</li> </ul>
NEP	<ul style="list-style-type: none"> <li>- Lack of national policy or programme for eye care.</li> <li>- Blindness control is not a priority area for the Government.</li> <li>- Inadequate eye care services in Northern part of the country.</li> <li>- Maldistribution of eye surgeons who mostly stay in the urban areas.</li> <li>- Lack of primary eye care services, Health educational activities and awareness on eye problems among the general community.</li> <li>- Illiteracy, adverse beliefs and customs hamper progress of eye care services.</li> <li>- Allocation of budget dependent on allocation from International NGOs.</li> <li>- No financial support from Government for eye care and blindness prevention.</li> <li>- Lack of a formal link between the Government and the NGOs.</li> <li>- Lack of trained health care managers and health economists</li> <li>- Lack of incentives/learning opportunities for rural doctors.</li> </ul>

Countries	Perceptions Regarding Weaknesses of Eye care delivery systems
	<ul style="list-style-type: none"><li>- Lack of educational facilities for children of staff working in rural areas.</li><li>- Non existent social life for doctors in rural areas.</li><li>- No facilities for managing emergencies for staff &amp; families in rural areas.</li><li>- Difficult geographic terrain with lack of surface transport in many areas.</li></ul>
SRL	<ul style="list-style-type: none"><li>- Eye care not main priority for Government unlike Reproductive and Child Health</li><li>- No incentives are provided for rural service.</li></ul>
THA	<ul style="list-style-type: none"><li>- Primary eye care workers are temporary and there is a large turnover as they are not paid by the system.</li><li>- Shortage of eye surgeons at the provincial level.</li><li>- Maldistribution of eye surgeons as most prefer to stay in the urban areas.</li><li>- Referral chain from primary level is not strictly enforced.</li><li>- Government sector is short of resources – personnel, equipment and finances.</li><li>- Primary eye care development is not yet part of the national policy.</li></ul>

**Table 52.** Perceptions of policy makers for improving eye care services in the respective countries

Countries	Perceptions of policy makers for improving eye care services in the respective countries
BAN	<ul style="list-style-type: none"> <li>- Setting up of a central academic control for medical education.</li> <li>- Improved infrastructure for training and service conditions.</li> <li>- Need based ophthalmic courses for paramedical staff should be started to meet the demands of the nation.</li> </ul>
INO	<ul style="list-style-type: none"> <li>- Improved referral system from primary level.</li> <li>- Improved coordination with optometrists associations.</li> <li>- Strengthening eye care service delivery at all levels.</li> <li>- Eye care services should be part of community insurance schemes.</li> </ul>
NEP	<ul style="list-style-type: none"> <li>- Central Coordinating Body should be formed to formulate, implement and evaluate national policy including medical education.</li> <li>- Need for a firm financial commitment from Government and NGOs for eye care.</li> <li>- Integration of primary eye care with primary health care.</li> <li>- Develop an appropriate referral system.</li> <li>- Increasing job opportunities in the rural areas.</li> <li>- Strengthening of community based learning.</li> </ul>
SRL	<ul style="list-style-type: none"> <li>- Adequate exposure to community ophthalmology during training.</li> <li>- Reorientation of practicing General Duty Medical Officers for eye care.</li> <li>- Providing scholarships for consultants for overseas training at institutions of excellence. This will improve teaching</li> <li>- Increasing number of consultant eye surgeons by increasing training slots.</li> </ul>
THA	<ul style="list-style-type: none"> <li>- Increased emphasis on prevention/promotion during training.</li> <li>- Eye screening mechanism to be initiated at four levels – Pre-school, School, Workplace and the Elderly.</li> <li>- Initiating mechanisms for collection of epidemiological data by trainee ophthalmologists.</li> <li>- Eye surgeons should be oriented to country problems and needs and need to be trained at the provincial level also. This helps students to appreciate common eye problems of community.</li> <li>- Stress should be on research and management of common eye conditions during postgraduate training.</li> <li>- Community ophthalmology teaching should be emphasized.</li> <li>- Eyeglasses, low vision aids and orthoptic services should be available at the provincial level.</li> <li>- More schools for the blind need to be established.</li> </ul>

**Table 53.** Salient features of discussions with senior officials of medical councils for undergraduate medical education.

Country	Salient Features in Discussion
BAN	<ul style="list-style-type: none"> <li>- Undergraduate education should provide practical skills and experience needed for a basic doctor.</li> <li>- Setting up of a central academic control.</li> <li>- Uniformity in training systems for all institutions.</li> <li>- Course design and examination system need to be reorganized.</li> </ul>
INO	<ul style="list-style-type: none"> <li>- Undergraduate doctors should be capable of managing main important eye diseases in the community</li> <li>- Basic doctors should be trained to enable them to transfer knowledge to the community</li> <li>- Uniform ophthalmic curricula to be designed with emphasis on Social Ophthalmology.</li> </ul>
NEP	<ul style="list-style-type: none"> <li>- Undergraduate training should produce doctors capable of tackling basic health needs of the population.</li> <li>- Strengthening of community based learning.</li> </ul>
SRL	<ul style="list-style-type: none"> <li>- Undergraduate medical students should possess the ability to test vision and refer to an optometrist when required.</li> <li>- Graduate doctors should be capable of managing ocular emergencies like foreign body removal.</li> <li>- Graduate doctors should be aware of main causes of blindness in the country.</li> <li>- Graduate doctors should be capable of differential diagnosis of a painful red eye.</li> <li>- Reorganization of examination and assessment system.</li> <li>- Common syllabus and training schedule should be initiated.</li> <li>- Curriculum should have adequate hours devoted to community ophthalmology</li> <li>- There should be a restructuring of marks in the final examination.</li> </ul>
THA	<ul style="list-style-type: none"> <li>- Graduate doctors should be able to provide effective treatment for common eye diseases</li> <li>- Theory and clinical teaching should be coordinated and undertaken at the same time.</li> <li>- Hands on surgical experience should be provided to undergraduate medical students.</li> </ul>

Country	Salient Features in Discussion
	<ul style="list-style-type: none"><li>- Undergraduate medical students should be posted for emergency eye duty.</li><li>- OSCE should be used for evaluation and internal assessment should be introduced.</li><li>- Community ophthalmology teaching should be emphasized.</li><li>- Undergraduate training should not be too detailed but should encompass all important areas.</li><li>- Undergraduate training should be geared to produce doctors with skills for basic treatment.</li><li>- Internal assessment should be introduced and should be a mix of theory, viva and slide examinations.</li><li>- For internal assessment points should be awarded for performance in OPD, ward, discussions, preparation of case reports, OSCE and hands on training notebook.</li><li>- There should be one week posting during 4<sup>th</sup> clinical year for undergraduates and a three weeks posting in the 5<sup>th</sup> year.</li></ul>

**Table 54.** Salient features of discussions with senior officials of medical councils regarding postgraduate medical education.

Country	Salient features of discussions
<b>BAN</b>	<ul style="list-style-type: none"> <li>– Compulsory log book for all trainees.</li> <li>– Setting up of a central academic control.</li> <li>– Improved infrastructure for training at all levels.</li> <li>– Uniformity in training systems for all institutions.</li> <li>– In the course for post graduates, modular system should be followed and there should be emphasis on clinical and practical aspects.</li> <li>– Communication skills should be taught at all levels.</li> </ul>
<b>INO</b>	
<b>NEP</b>	<ul style="list-style-type: none"> <li>– Devising an evaluation system for assessing students' attitudes before admission into eye courses.</li> <li>– Strengthening of community based learning.</li> </ul>
<b>SRL</b>	<ul style="list-style-type: none"> <li>– Adequate exposure to community ophthalmology during training.</li> <li>– More emphasis on scheduled tutorials.</li> <li>– Modular format for training and examinations should be adopted.</li> <li>– Three month modules for all ophthalmic sub specialties including Community Ophthalmology and six months for Cataract.</li> <li>– Provision of modern equipment for training institutions.</li> <li>– Visits should be organized to community health centers for all trainees</li> <li>– Projects and thesis should be undertaken at community level by trainee students.</li> <li>– Curriculum should have adequate hours devoted to community ophthalmology</li> <li>– MCQ paper should be administered at the end of each module.</li> </ul>
<b>THA</b>	<ul style="list-style-type: none"> <li>– Community ophthalmology teaching should be emphasized.</li> <li>– Ethics should be taught in postgraduate studies.</li> <li>– 120 hours of basic sciences should be administered over a period of two months.</li> <li>– Practical training, demonstrations, lectures, tutorials and demonstrations should be used for training.</li> <li>– Post graduate courses should be of three years duration.</li> </ul>

## Appendix 1

### LIST OF MEDICAL COLLEGES RESPONDING TO QUESTIONNAIRE

#### Bangladesh

1. Bangabandhu Sheik Mujib Medical University, Dhaka
2. Chittagong Medical College, Chittagong
3. Dhaka Medical College, Dhaka
4. Institute of Community Ophthalmology, Chittagong
5. Khulna Medical College and Hospital, Khulna
6. National Institute of Ophthalmology, Dhaka
7. Sher- E- Bangla Medical College, Barisal
8. Sir Salimullah Medical College, Dhaka

#### Democratic People's Republic of Korea

1. Chongjin Medical University, Chongjin
2. Haeju Medical University, Haeju
3. Hamhung Medical University, Hamhung
4. Kangye Medical University, Kangye
5. Pyongsong Medical University, Pyongsong
6. Pyongyang Medical University, Pyongyang
7. Sariwon Medical University, Sariwon
8. Sinuiju Medical University, Sinuiju
9. Wonsan Medical University, Wonsan

#### India

1. BJ Medical College, Pune
2. Christian Medical College, Ludhiana
3. Schell Eye hospital, Christian Medical College, Vellore
4. Dr.P.S. Reddy Regional Eye Hospital & Kurnool Medical College, Kurnool
5. Government Medical College, Patiala
6. Indira Gandhi Medical College, Shimla
7. Jawaharlal Institute of Postgraduate Medical Education & Research, Pondicherry

8. Jawahar Lal Nehru Medical College, Ajmer
9. Kasturba Medical College, Manipal
10. Post Graduate Institute for Medical Education & Research, Chandigarh
11. Pandit Jawharlal Nehru Memorial Medical College, Raipur
12. Regional Institute of Ophthalmology & Medical College, Calcutta
13. Regional Institute of Ophthalmology & Government Medical College, Tiruvananthapuram
14. Regional Institute of Ophthalmology & Madras Medical College, Chennai
15. Dr. Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi
16. Ramlal Eye & ENT Hospital, Medical College, Amritsar
17. Swami Ramanand Teerth Rural Medical College, Ambajogai

#### **Indonesia**

1. Department of Ophthalmology, Medical faculty, Udayana University, Sangla, Denpasar
2. Department of Ophthalmology, Medical faculty, Andalas University, Kemerdekaan- Padang
3. Department of Ophthalmology, Medical faculty, Padjadjaran University, Bandung
4. Department of Ophthalmology, Medical faculty, Hasanuddin University, Makassar
5. Department of Ophthalmology, Gadjah Mada University, Yogyakarta

#### **Myanmar**

1. Institute of Medicine (1), Yangon

#### **Nepal**

1. BP Koirala Institute of Health Sciences, Dharan
2. Manipal College of Medical Sciences, Pokhara
3. Nepalgunj Medical College, Nepalgunj
4. Tribhuvan University Institute of Medicine, Kathmandu

#### **Sri Lanka**

1. Faculty of Medicine, University of Kelamya, Ragama
2. Faculty of Medicine, University of Peraduniya, Peraduniya
3. Postgraduate Institute of Medicine, Colombo

### **Thailand**

1. Faculty of Medicine, Chulalongkorn University, Bangkok
2. Faculty of Medicine, Khon Kaen University, Khon Kaen
3. Faculty of Medicine, Maharajnakom, Chiangmai Hospital, Chiangmai University, Chiangmai
4. Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok
5. Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok
6. Pramongkutklao Hospital, Bangkok

## Appendix 2

### WHO-SEARO STUDY ON OPHTHALMOLOGY TRAINING IN MEDICAL INSTITUTIONS IN THE REGION

To be filled in by Head of Institution and Head of  
Department of Ophthalmology

For official use only  
Do not write  
anything in this  
column

#### SECTION A

1. Name of Institution
2. Year established
3. City
4. State
5. Postal Code  
Other Details
6. Country
7. Telephone No  
(Country Code-City Code- Tel No.)
8. Fax No.
9. Email address of Head of Institution
  
10. Type of Institution (Encircle Response below)  
Govt. owned / private / charitable non profit body/  
Others(specify)\_\_\_\_\_
11. Courses offered
  - a)M.B.,B.S.  
Yes / No                      Duration(years)  
No. per year                      Year started
  - b) M.D./ M.S. / Fellowship Ophthalmology  
Yes / No                      Duration(years)  
No. per year                      Year started

c) DOMS/ Diploma in Ophthalmology

Yes / No                      Duration(years)

No. per year                Year started

d) General Nursing and Midwifery

Yes / No                      Duration(years)

No. per year                Year started

e) Ophthalmic Assistant

Yes / No                      Duration(years)

No. per year                Year started

f) Optometrist

Yes / No                      Duration(years)

No. per year                Year started

g) Ophthalmic Technician

Yes / No                      Duration(years)

No. per year                Year started

h) Post Doctoral (Ph.D)

Any specialty of ophthalmology only

Yes / No                      Duration(years)

No. per year                Year started

12. No. of teaching faculty in ophthalmology

13. No. of undergraduate students on rolls(all years)

14. No. of postgraduate (MS/MD) students  
(all years)

15. No. of general nursing students (all years)

16. No. of paramedical ophthalmic course  
students (all years)

**If Ph.D. programme is available:**

17. No. of students enrolled for Ph.D.  
(ophthalmic specialties)

## SECTION B: Undergraduate Ophthalmology Training

18. Undergraduate Ophthalmology Curriculum (MBBS)
- No. of lecture discussions scheduled for each batch
  - No. of days of clinical posting in eye ward
  - No. of days of clinical posting in Out patient Dept.
  - Total hours of clinical exposure in ophthalmology
19. Is there a separate examination paper for Ophthalmology in MBBS? Yes / No
20. In which year is Ophthalmology examination conducted?
21. Is there any internal assessment? Yes/ No
22. How is internal assessment conducted?  
Theory paper/ Project work/ Clinical exam/  
Theory + Clinical
23. What proportion of total marks are allocated to internal assessment?
24. No. of hours devoted to community ophthalmology training
25. Which departments are involved in teaching basics of Community Ophthalmology ?  
Ophthalmology/ PSM or Community Medicine/ Both
26. Are the following topics covered in the curriculum?
- Magnitude of blindness Yes/ No
  - Strategies for prevention of blindness Yes / No
  - Epidemiology of common eye diseases Yes / No
  
  - National Programme for control of blindness Yes/No
  
  - Organization of community based activities Yes / No
  - Roles and responsibilities of paramedical eye care personnel Yes / No
  - Concept of team approach Yes / No
  - Doctor – patient Yes / No
  - Health Management Yes / No

- Health Education / IEC in eye                      Yes / No
  - Community organization and participation      Yes / No
  - Health Information Systems                      Yes/ No
  - Presentation & analysis of data                      Yes/ No
  - Computer applications in medicine              Yes/ No
27. Do Undergraduate MBBS students attend any community based outreach activity      Yes / No
28. If yes to Q. No. 26, Specify
29. What is your opinion regarding adequacy of undergraduate MBBS ophthalmology curriculum?
30. What is your opinion regarding adequacy of undergraduate Community ophthalmology curriculum?
31. What are the deficiencies in current MBBS ophthalmology training?
32. Mention how overall undergraduate ophthalmology training can be improved

33. Mention how undergraduate community ophthalmology training can be improved

34. Is ophthalmology a popular choice for post-graduation among undergraduate students?

Yes / No

35. If no to Q. No. 33, what are the possible reasons?

### **SECTION C: Postgraduate training in Ophthalmology**

36. What are the main differences between postgraduate MD/ MS and Diploma courses?

37. Do all postgraduate students have exposure to :

#### ***Diagnostic Procedures***

- Slit lamp examination Yes / No
- Indirect Ophthalmoscopy Yes / No
- Goldmann / Automated perimetry Yes / No
- Gonioscopy Yes / No
- Refraction Yes No
- A-scan Yes / No
- B-scan Yes / No
- Others (Specify)

**Therapeutic procedures**

- Microsurgery Yes / No
- Lasers Yes / No
- Specify types of lasers
- Others (specify)

**Service Delivery**

- Casualty / Eye Emergency Services Yes / No
- Outreach Eye camps/ Rural Clinics Yes / No
- Outreach screening services Yes / No
- Other Community based services(Specify)  
Specialized hospital clinics (Specify)
  
- No. of days posted in casualty
- No. of outreach services attended
- No. of days for screening camps
- No. of days in other community activities?
- No. of days posted in special clinics

38. How many of the following procedures / surgeries are done independently by a student during training:

Procedures	No. done independently in 3 years
- ICCE	
- ECCE	
- ECCE+PC-IOL	
- Phaco +IOL	
- Laser Capsulotomy	
- PI	
- Trabeculotomy	
- Laser Iridectomy	
- Other Lasers(Specify)	

- Lid correction surgery
- Squint surgery
- Corneal Graft
- FA
- Ultrasound

Goldmann/Automated

Perimetry

- A-scan
- Keratometry
- Refractions
- Lensometry
- Low vision prescriptions

39. Is there any internal assessment? Yes / No

40. If yes to Q. No.38, how is the internal assessment done?

41. Do students have to complete a thesis/ dissertation?

Yes/No

42. How many theory papers are there in final examination?

43. What is the distribution of topics in different papers?

- Paper 1
- Paper 2
- Paper 3
- Paper 4

44. Are surgical skills assessed during the MD/MS exam

Yes/No

45. Does the department of ophthalmology have a wet lab where students can practice on animal eye?

Yes / No

46. Is Community Ophthalmology taught to students?  
Yes/No
47. Is there a set curriculum for this subject? Yes / No
48. How many hours are spent on this subject?
49. Is the student examined in this subject for MD/MS?  
Yes/No
50. What proportion of marks are allocated for  
Community Ophthalmology in the examination?
51. Are students taught the following?
- |  |          |       |
|--|----------|-------|
| Community Ophthalmology Concepts       | Yes / No | Hours |
| Epidemiology                           | Yes / No | Hours |
| Research Methodology                   | Yes / No | Hours |
| Survey Methodology                     | Yes / No | Hours |
| Screening techniques                   | Yes / No | Hours |
| Planning for Eye Care                  | Yes / No | Hours |
| Management Information Systems         | Yes / No | Hours |
| Monitoring of Eye Care services        | Yes /No  | Hours |
| Evaluation of eye care services        | Yes / No | Hours |
| Quality assurance                      | Yes / No | Hours |
| Team approach                          | Yes / No | Hours |
| Strategies for prevention of blindness | Yes / No | Hours |
| Organization of out reach services     | Yes /No  | Hours |
| Ethics and legal responsibilities      | Yes / No | Hours |
| Doctor – patient relationship          | Yes / No | Hours |
| Communication skills                   | Yes / No | Hours |
| IEC / Eye health education             | Yes / No | Hours |
| Primary Eye Care                       | Yes / No | Hours |
| Techniques of medical education        | Yes / No | Hours |
52. Which of the following methods are commonly  
used in Community Ophthalmology training?  
(Encircle relevant responses)
- Lecture discussions

- Demonstrations
- Seminars / Symposia
- Exercises like Surveys
- Visits to community eye care units
- Projects
- Games and Quiz etc.

53. Do students have access to latest journals/ manuals/ books/ manuscripts/ videos etc. in the library? Yes /No
54. Do students have access to internet services? Yes / No
55. Do you feel that postgraduate training in ophthalmology
- Is technically adequate Yes / No
  - Gives confidence to handle responsibilities independently? Yes/No
  - Exposes students to the most prevalent eye diseases? Yes/ No
  - Imparts managerial and communication skills? Yes / No
  - Motivates students to work in under-served areas? Yes/ No
56. Kindly suggest how Ophthalmology training can be improved
- 
- 
57. Kindly suggest how Community Ophthalmology training can be improved

Signature of Head of Institution  
Name of Head of Institution with stamp

### Appendix 3

#### WHO-SEARO STUDY ON OPHTHALMIC MEDICAL EDUCATION IN THE REGION RECORDING FORM FOR OBTAINING BASIC INFORMATION FROM SENIOR OPHTHALMOLOGISTS

1. Name (if participant is willing): \_\_\_\_\_
2. Age (in years)
3. Sex (Male = 1/ Female = 2)
4. Qualifications: MD/MS= 1/ FRCS= 2/Others= 3 (Specify)\_\_\_\_\_
5. Year of completion of undergraduate training (actual year 19..)
6. Year of completion of postgraduate ophthalmic training
7. Institution from where ophthalmic training completed  
\_\_\_\_\_
8. Employment status (Teaching hospital= 1/ Non teaching govt.  
Hospital = 2/Private = 3/ NGO hospital = 4)

## **Appendix 4**

### **INTERVIEW GUIDE TO BE USED BY PRINCIPAL INVESTIGATORS FOR INTERVIEWING EYE SURGEONS**

This **interview guide** is only a broad outline of items, which need to be covered in the interview. This is designed to help the interviewer to cover all the relevant points. The interview guide for the present study is not a completely structured instrument. It therefore allows the interviewer a lot of flexibility. However, it is preferable that the guide be used while conducting the interview. The responses given by the interviewed ophthalmologists should be recorded on a separate sheet, translated into English and sent to the WHO office. Each of the translated scripts should have an identification label at the top showing the name of the person who provided the responses. Every page should be marked with the initials of the interviewed person. The translated sheets should then be stapled to the demographic sheet in Appendix 1, before being sent to the WHO office. Attempts should be made to **capture interesting comments made by the interviewer**. Such comments provide a greater insight.

- (1) Start the interview by eliciting the basic demographic data that is specified in Appendix 1.
- (2) Explain the purpose of the interview (The WHO is conducting a study in some of the member countries of the region to ascertain the current status of ophthalmic medical education and to identify the lacunae in the present curriculum. This will enable WHO to recommend measures that will help in augmenting skills of future ophthalmologists to achieve the goal of Vision 2020).
- (3) Obtain verbal consent from the interviewee that he/she is willing to participate. Inform the participant that all names will be kept confidential and individual responses will not be communicated to those not associated with the study.

- (4) Do not audio/video tape the interview. Record the responses on a sheet of paper. This record need not contain each sentence spoken by the interviewee, but **document all the salient information provided by the informant**. Key words/ sentences/ phrases used by the interviewee that provide a greater insight may be included if considered appropriate.
- (5) Once the interviewee is comfortable, go on to the main concerns.

### **Issues to be covered during Interview**

- Specific professional expertise of the ophthalmologist
- Professional/ technical skills imparted during postgraduate medical education including diagnostic and surgical skills.
- Method of teaching during post graduate medical school.
- Identification of major lacunae in post graduate education, with regard to professional skills.
- Managerial skills learnt during postgraduate education.
- Identification of major lacunae in relation to managerial skills during postgraduate education.
- Communication skills learnt during postgraduate medical education.
- Identification of lacunae in relation to communication skills in postgraduate medical education.
- Need for community ophthalmology training during post graduate medical education
- Ways and means of imparting skills related to community eye care.
- Role of undergraduate basic medical education in relation to ophthalmology
- Methods of improving ophthalmic training in undergraduate medical education.

The following questions are meant to be an illustration on how to proceed in collecting relevant information. These questions are meant to only be a guide and not necessarily be asked in the enclosed formats. Questions may be worded differently depending on the local situation. The bottom line is the collection of relevant information, even if it means asking questions different from those sampled below.

**Questions that can be used for collection of relevant information during interview**

- What is the main sub-specialty area that interests you?
- Do you see other types of cases also?
- What types of surgery do you do most often?
- Where did you pick up most of your surgical skills?
- At the end of your postgraduate ophthalmic training what procedures/surgeries were you most proficient in?
- How would you describe your overall impression about training in postgraduate medical education?
- Which diagnostic skills do you feel were not taught properly during training? Was this because at that time such instruments did not exist or because the faculty was not interested in imparting skills?
- Which surgical procedures were not taught properly? Why do you think these were not taught properly?
- What would you identify as the major lacunae in post graduate training?
- Do you feel ophthalmic training today is different from the training that was imparted to you? What are the major differences? Are these differences for the better or for worse?
- Do you feel confident as a manager?
- What, in your opinion are the attributes of a good manager?
- How did you learn these skills?
- Was any effort made in medical school to teach managerial skills?
- Do you think that managerial skills are as important as clinical skills?
- What is the best way of imparting management skills?

- Is communication an important issue that needs to be emphasized in medical schools?
- Were you exposed to different methods of communication in medical school?
- What communication skills were imparted to you during medical school?
- Were the skills adequate? Elaborate on the responses.
- Did you feel confident of communicating with patients when you finished your training?
- How important are communication skills to a practicing ophthalmologist?
- Do you believe in providing your patients with all the information concerning their illness or do you believe that patients should not be provided too much technical information?
- What is the best way of imparting communication skills to the students in medical school?
- During the training period were you sensitized to doctor-patient relations?
- Do you think that training in community ophthalmology is required in medical schools? Were you exposed to the principles and practice of community ophthalmology?
- How can community ophthalmology help an ophthalmologist?
- Are outreach community based eye care services of any use in the prevention of blindness?
- How can such community-based activities be augmented?
- Do you feel that undergraduate medical education prepares an individual sufficiently for tackling common eye problems seen in primary eye care situations?
- How can undergraduate ophthalmic training be improved to meet the needs of local communities?
- In many countries, basic doctors do not like working in rural areas though most of the population live in such areas. How can doctors be made to work in these areas? How can their service conditions be made more attractive?

## Appendix 5

### TOPIC GUIDE FOR USE DURING FOCUS GROUP DISCUSSIONS

#### Introduction

Hello everybody, thank you very much for coming to this group discussion today. My name is \_\_\_\_\_, and this is \_\_\_\_\_  
*(Introduce assistant facilitator).*

You have all been attending this hospital for treatment of eye problems. We have asked you to come together today to tell us about problems faced by you in getting treatment at this hospital. We are very interested to hear your views on this subject. Whatever you have experienced during your course of treatment at this hospital is of interest to us. Some of you may have similar viewpoints while some may have different views. We would like to hear all the viewpoints. These viewpoints will help us to plan how doctors should be prepared in future.

I would like to emphasize that during the discussion, only one of us should speak at a time. Otherwise we will not be able to hear things properly and will then miss important information. You can be assured that these responses will only be used for research purposes of this study and will not be shared with your doctor or others from the hospital. We will talk for about 2 hours. So, let's begin by introducing each other.

#### Paired Participant Introduction (10 minutes)

Make two people form a group. Let them know each others name and other details like address etc. Let them also find out why their partner has come to this hospital for treatment. After that let them introduce their partners to the rest of the group.

### **Description of their visual problems (15 minutes)**

Ask the patients to describe their eye problem, which made them come to this hospital (Ask this from all members of the group)

- What is your current vision like?
- Why have you chosen to come to this hospital?
- How long have you been suffering from this problem?
- Where did you first go to take treatment?
- How long have you been under treatment?
- Has the treatment helped you?
- If yes, in what way?

### **Perceptions regarding information provided on Disease (20 Minutes)**

- Do you know what is the cause of your eye problem?
- How did you come to know of this?
- Who gave you the information on your problem?
- Are you satisfied with the information provided on the eye problem?

### **Perceptions Regarding Interaction with doctors (20 minutes)**

- How much time did the doctor spend on explaining the problem to you?
- How would you judge the behaviour of the doctor?
- Do the doctors behave courteously with you or did you have different experiences?
- Why do you think your doctors behaved in this manner?
- Would you like to go back to the same doctor?
- If you were to choose your own doctor, what qualities will you look for in him/her?

- How often did you visit doctors of other systems of medicine for your eye problems?
- Why did you go to these doctors for your eye problems?
- Do doctors need to be trained more in appreciating social and psychological problems of patients?
- Do you have any suggestions no how this can be done?

### **Conclusions (15 minutes)**

- What are the main troubles that your eye problem has caused you?
- Are you satisfied with the information provided to you by the hospital staff?
- What are your experiences with other hospital staff?
- What should be done to make the hospital staff more responsive to your needs?

### **Summary (15 minutes)4**

- Summarize the main points made by the group (Ask the group to comment on your summary – Accurate or Inaccurate?)
- Is there any other point that we have missed in our discussions regarding doctor-patient relationships and what your expectations from the hospital staff are?
- Any other comments or questions

Thank everybody for sparing their valuable time and help in the project