

POSTGRADUATE MEDICAL TRAINING AND CERTIFICATION AT THE NATIONAL UNIVERSITY OF SINGAPORE

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ABSTRACT

The history of postgraduate medical education in Singapore is described culminating in the award of the local higher qualification – the Master of Medicine, equivalent to the higher qualifications awarded by the Royal Colleges in UK and Australasia. Initially, in 1971, the M.Med. in Internal Medicine, Paediatrics, Obstetrics and Gynaecology and Surgery and the M.Sc. in Public Health and Occupational Medicine were awarded and since then, the M.Med. in Anaesthesia and Psychiatry were also awarded. At present, the courses leading to the Examinations are well attended not only by local postgraduates but also by doctors from overseas. The number of postgraduates certified over the various period in Singapore is documented.

Key words: Postgraduate Medical Training, Examinations and Certification, Postgraduate Medical Courses

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The postgraduate medical education and certification organisation of one country must need be different from that of another. Each country will have to decide for itself the form and nature of this organisation. Much of it will depend on history and what had gone on before, and many of the countries in this region had been colonies of European nations prior to the War of 1939-1945. Singapore was no exception as it was a British Colony, and therefore the system of scientific medicine set up was that of the British System. The Singapore Medical School was established in 1905 and very shortly after, its graduates were recognised by the General Medical Council of Great Britain. Postgraduate medical education in UK was organised by the Royal Colleges and this in itself was historical. It was therefore natural that specialists sent to Singapore were those who had passed the examinations of these Royal Colleges. As with most colonisers, postgraduate medical education occupied a low priority status, and therefore it was no surprise that before the War, local graduates were not encouraged to go to UK for postgraduate training, and for a period of 29 years after the establishment of the Singapore Medical School, only 1 local postgraduate doctor was trained and certified in UK just before the War! This period can be termed Phase I of postgraduate medical activity in Singapore.

Phase II started with the termination of the War and the return of the British. With political enlightenment, the British now took steps to send local doctors to UK to attend courses and sit for the higher qualifications of the Royal Colleges there, viz the MRCP for Internal Medicine and the FRCS for Surgery. This so-called postgraduate training was more in the nature of theoretical instruction and getting used to the pattern of disease in UK and also getting used to the Examination System. At this point, it must be explained that the British postgraduate higher qualifications had been based on a rigorous examination system, as rigorous or more rigorous than that for the basic medical qualification. Thus, often after a few years of such training, the local postgraduates felt that a period in UK (which varied from 1-3 years) just to sit for the Examinations was time-consuming and not fully productive. Yet, this period was important because it revealed the capabilities of local doctors to pass the UK postgraduate examinations. So, during this Phase II, a period of 15 years from 1946-1960, 40 postgraduate doctors received their higher qualifications, and they felt that it was time that such an exercise in certification could be done locally.

Phase III started in 1960 when the Singapore Medical School established a Postgraduate Board under the Faculty of Medicine to train postgraduates and also to continue on working towards the same type of British postgraduate qualifications without spending all the time abroad for this purpose. I was appointed Director of this Postgraduate Board. To achieve this aim, a scheme was initiated with the Royal Colleges in Australia, which had reciprocal connections with the Royal Colleges in UK, utilising Colombo Plan assistance. Instead of the local doctors going abroad, Australian postgraduate teachers came to Singapore and conducted postgraduate courses on similar lines to the ones conducted in UK. Part of the examinations for the MRACP and FRACS was conducted in Singapore, and part in Australia. Such a scheme provided an excellent training ground for our postgraduate

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teachers to conduct the courses themselves in future, and as some local teachers were also included in the team of examiners, they also were exposed to techniques of such postgraduate examinations. Thus, the scheme benefited BOTH doctors undertaking postgraduate training as well as local postgraduate teachers. In this Phase III from 1960-1970, a period of 10 years, 86 postgraduates were trained and certified. This was more than double the previous 15 years when doctors had to leave Singapore and travel to UK. 10 years of such experience convinced the Board of Postgraduate Studies that we could now establish our own Postgraduate School both to train and to certify postgraduate doctors.

ESTABLISHMENT OF POSTGRADUATE SCHOOL

There were many reasons that persuaded us that by 1970, the time was ripe for the establishment of a postgraduate medical school. Among these were:-

1. There was already a core of teachers capable of training and certifying.
2. Singapore had reached a stage in postgraduate medicine where it was ready to expand its expertise further.
3. By this time, a new phenomenon had emerged, viz specialists moving over from the public sector to set up private specialist practice because of an overwhelming demand from private patients both locally and abroad. The public sector was losing trained postgraduates at such a rapid rate that continuation of Phase III would not be adequate to meet the private demand and to build up the public sector, to replace the drain into the private sector.

Once the decision was made, it was also decided that the Postgraduate Organisation should be a University organisation as it was the Postgraduate Board of the University which had been in charge of postgraduate matters up to then. Furthermore, the public already acknowledged the standing of the Medical School in matters of training and certifying undergraduates to become doctors. Acceptance and recognition locally would thus pose no problems. Singapore is a small country and had no traditions equivalent to the Royal College in UK. However, it has to be acknowledged that being small, the School should make use of postgraduate teachers in all the 3 spheres of postgraduate activity, i.e. the University, the Ministry of Health and the professional organisations. Thus, when the Postgraduate School was established, it became independent of the Faculty of Medicine, and its Board, then and now, comprises members from the University, the Government and the Academy of Medicine of Singapore which is a private professional organisation of specialists. The Board oversees various committees which were established to organise the training and examination of postgraduates.

Right from the outset, certain decisions were taken to ensure achievement of the objectives of such a postgraduate school, viz:

1. The Government, i.e. the Ministry of Health and the Public Services Commission agreed to recognise such local graduates on par with those who obtained UK or Australian higher qualifications.
2. Only those disciplines where there was a greater demand would be initiated. Thus, committees in Internal Medicine, Paediatrics, Surgery, Anaesthesia, Obstetrics & Gynaecology, Occupational Medicine and Public Health and later Psychiatry were established.
3. The postgraduate qualifications selected were Master of Medicine (M.Med.) for the clinical disciplines

and Master of Science (M.Sc.) for occupational medicine and public health.

4. The courses organised by the School should have both local as well as overseas teachers specially invited from UK and Australasia to continue links with the Royal Colleges and also for cross-fertilisation of ideas, a process which is crucial in medicine because of its rapid advances.
5. Every certifying examination must incorporate two External Examiners from UK/Australasia besides local Internal Examiners. This is to ensure that the standards will not be inferior to those prevailing in those countries.

PROGRESS OF THE POSTGRADUATE SCHOOL

Although the above is a summary of the main decisions when the Postgraduate School was established, it is pertinent to mention 4 points which featured prominently in the discussions:

1. The School could have started a totally different set-up, severing all ties with the Royal Colleges. It did not do so because of history and tradition; but, what was more important, was the consideration of the status of the qualification, i.e. the problem of international standards.
2. No postgraduate set-up in any country can ensure reciprocal recognition by other countries just by the act of establishing a postgraduate school. Recognition is obtained not by seeking but by proving that the standards are worth recognising. Certainly, many other extraneous factors come into this equation of recognition, e.g. political considerations, etc. but the paramount factor in reciprocal recognition is based on the local standards achieved in training and certification as well as the PERFORMANCE of those postgraduates. It is therefore understandable why links with the Royal Colleges in the courses and in the examinations were maintained.
3. The third important factor was one of pragmatism. Only 7 postgraduate disciplines were selected for the School because of greater need in production of trained personnel in these disciplines. Psychiatry was later included in 1985. With regard to the others, it would be more practical to continue sending doctors abroad for training/certification e.g. radiologists, pathologists, microbiologists, cardiac surgeons, etc.
4. It was decided early on that training requirements would be rigorously set, so that only those with the requisite training would be allowed to appear for the examination, and these requirements are set out in the School Handbook. This stress on training was a departure from the regulations of the UK higher qualifications at that time as UK did not place much stress on training in some of the disciplines. In order to give this greater stress, doctors intending to undertake postgraduate studies in the School were selected by a Board of Selection after application, and if successful were made trainees and given full opportunities to train in accredited units recognised by the School.

I would now like, very briefly, to chronicle the achievements of the School since its establishment in 1970 up to 1986, i.e. in Phase IV.

(1) ATTENDANCES AT COURSES

The number of doctors attending the courses for the 16 years under review is shown in Table I:

Table I.

COURSES	LOCAL DOCTORS	FOREIGN DOCTORS
INTERNAL MEDICINE	219	175
PAEDIATRICS	145	175
SURGERY	356	138
ANAESTHESIA	172	93
OBSTETRICS & GYNAECOLOGY	113	108
PSYCHIATRY	6	0
PUBLIC HEALTH	39	109
OCCUPATIONAL MEDICINE	31	81
TOTAL	1081	879

Thus, the standard of the courses is such that almost as many foreign doctors attended the courses as local postgraduates.

(2) SINGAPORE DOCTORS CERTIFIED:

The number of local doctors trained and certified over this same period of 16 years is shown in Table II:

Table II.

DISCIPLINE	NO. QUALIFIED
INTERNAL MEDICINE (M.MED.)	139
PAEDIATRICS (M.MED.)	105
SURGERY (M.MED.)	61
ANAESTHESIA (M.MED.)	41
OBSTETRICS/GYNAECOLOGY (M.MED.)	100
PSYCHIATRY (M.MED.)	4
PUBLIC HEALTH (M.SC.)	121
OCCUPATIONAL MEDICINE (M.SC.)	83
TOTAL	654

Therefore, during this last phase, Phase IV when the Postgraduate School was established, 654 postgraduates were trained and certified. Fig. 1 illustrates the numbers of qualified postgraduate doctors trained and certified in the various phases.

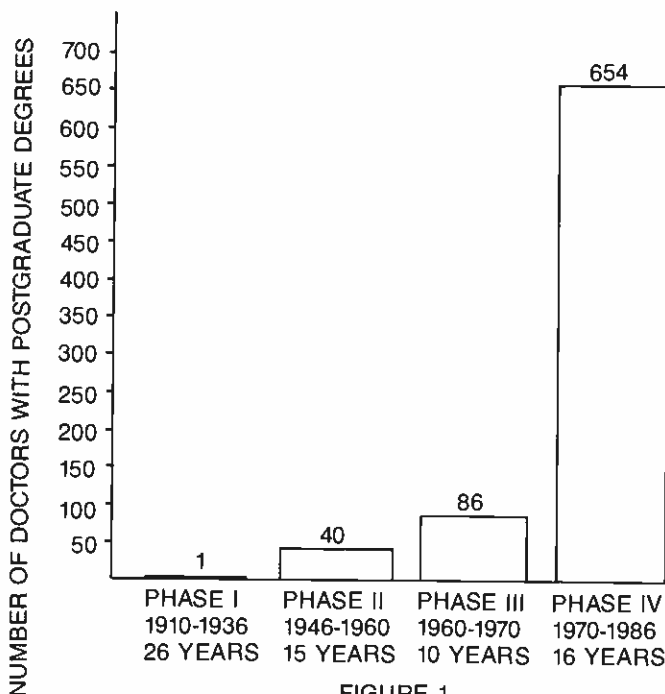


FIGURE 1

Hence, the number of postgraduates has increased more than 8 times in Phase IV compared to Phase III, more than 16 times that in Phase II and of course there is no comparison at all with regard to Phase I.

In Phase IV, the number of foreign doctors who passed the M.Med. and M.Sc. was 218. Thus, nearly half of all those who qualified are doctors from other countries.

From the above, it can be seen that the Postgraduate School has gained some recognition from countries around the region as seen by the figures of course attendances and passes in the Examinations.

Over the years, the Royal Colleges by participation in the courses and in the examinations, have accepted postgraduate qualifications of Singapore as equivalent to their own, and in this regard certain reciprocities in terms of recognition have emerged. Let me give a few examples:-

1. The Royal Australasian College of Physicians have recognised the M.Med. in Internal Medicine and the M.Med. in Paediatrics on par with those qualifications which they had previously recognised, viz MRCP (UK), FRCP (Canada), American Board Diplomas.
2. The Royal Australasian College of Surgeons and the Royal College of Surgeons of UK recognised the M.Med. in Surgery as being equivalent to the FRCS and FRACS for purposes of relevant exemptions to examinations.
3. The University of Liverpool has recognised the M.Med. in Surgery as being equivalent to the FRCS (UK) as a prerequisite for attending the postgraduate course leading to the Mastership in Orthopaedic Surgery.
4. In 1986, the first conjoint examination in surgery was conducted with the RCS (Edinburgh). Successful candidates in this examination are awarded both the degree of the M.Med.(Surgery) and the diploma fellowship of the RCS (Edinburgh).
5. The Royal College of Physicians (UK) has granted exemptions for M.Med. (Paediatrics) and M.Med. (Internal Medicine) holders from the Part I MRCP Examination.

Furthermore, the External Examiners' Reports from the Royal Colleges have affirmed the similarity in standards in the M.Med. Examinations compared with those from the Royal Colleges. Most of these External Examiners are Examiners in their own Royal Colleges.

In CONCLUSION, over a period of 16 years since the establishment of our own postgraduate training and our own higher qualifications, our postgraduates are now accepted as being equal to postgraduates with Royal College higher qualifications.

However, at the outset itself, the School and the Government recognised the fact that having undergone requisite training and having passed the higher qualifying examinations does NOT make the postgraduate a specialist or a consultant. Thus, a fresh postgraduate cannot be considered for a consultantship in the Government Ministry of Health or the National University of Singapore. He must consolidate his knowledge and expertise for a period of about 4-5 years after obtaining the higher qualification. Both the Ministry of Health and the National University of Singapore give their fresh postgraduates overseas Fellowships to any country including UK, USA and Australia to train for specific aspects in their speciality, i.e. they are sent abroad to learn special expertise not available in Singapore so that on return they can pass on this expertise to the local doctors. They are sent with this expressed purpose and NOT to sit for any other higher qualification. Of course, such Fellowship recipients are bonded for various periods in the Government or University on their return. Thus, the philosophy of the School is that specialist status is not attained with passing of the

examination, and that such postgraduates should play an important part in furthering the standards of postgraduate medicine by learning elsewhere new techniques which they must impart to the younger doctors on their return. Without such a self cross-fertilisation scheme, standards would tend to stagnate.

PRESENT MEDICAL SITUATION IN SINGAPORE

It is obvious that the establishment of the local Postgraduate School would have changed the "demography" of doctor situation in Singapore, and indeed it has. In the latest figures compiled by the Ministry of Health in December 1986, the doctor-population ratio in Singapore is now 1 to 930. Doctors in Singapore, by and large, work in 3 areas, i.e. the Ministry of Health (Government) and the National University of Singapore which comprise the PUBLIC SECTOR and the PRIVATE SECTOR which comprise specialists and general practitioners.

The Medical Council of Singapore, which is a Government organisation, recognises certain postgraduate qualifications obtained both locally and abroad as bona fide ones entitling the holder to be considered for a consultantship. Therefore, if such postbasic qualification holders are compared to those without such recognised postbasic qualifications, the distribution of these two groups in the various sectors is depicted in Table III:

Table III.

	Public Sector		Private Sector	Total
	Government	University		
No. with Postgraduate Qualifications	477	138	472	1087
No. without postgraduate Qualifications	814	76	909	1799
Total	1291	214	1381	2886

Thus, the following are noted:

1. There are approximately equal numbers of doctors in the private as well as the public sector. However, it should be noted a certain proportion (164) working in the Government are house-officers, i.e. doctors in their compulsory pre-registration year.
2. It is understandable that nearly all in University employ have postbasic qualifications and it is a prerequisite for their employment in the clinical departments.
3. In Government service, excluding the house-officers, 42.3% are already holders of postbasic qualifications, and if we consider that large numbers of non-holders are young medical officers, who have not fulfilled their postgraduate training requirements yet, prior to sitting for the postgraduate degrees, it is not difficult to imagine that the time will come when there will be more holders of postgraduate qualifications than non-holders.
4. Even in the private sector 34.2% possess post-basic degrees and are practising as "private specialists". This figure gives an idea of the exodus of specialists from the public sector to the private sector, and in spite of this, the percentage of specialists in the public sector still exceeds that in the private sector. This is due mainly to the establishment of the Post-

graduate School in Phase IV.

In CONCLUSION, the above means that the time will come when the majority of doctors in Singapore will consider that a basic degree is not the end-all but only the first step towards a higher degree.

What specialities in Singapore are the most 'popular' at the moment? Although many factors contribute to a doctor's choice in taking up a speciality, demand is probably one of the main factors. Table IV depicts the more 'popular' specialities, and the number of specialists:-

Table IV.

SPECIALITY	NO. IN 1986
INTERNAL MEDICINE	209
OBSTETRICS/GYNAECOLOGY	151
GENERAL & SUBSPECIALITY SURGERY	107
PAEDIATRICS	89
PUBLIC HEALTH	79
ANAESTHESIOLOGY	72
ORTHOPAEDIC SURGERY	49
OPHTHALMOLOGY	45
PSYCHIATRY	39
RADIOLOGY	38
PATHOLOGY	33
OCCUPATIONAL MEDICINE	32

The specialities with fewer doctors in practice are depicted in Table V:-

Table V.

SPECIALITY	NO. IN 1986
DERMATOLOGY	28
CARDIOLOGY	26
OTORHINOLARYNGOLOGY	26
PLASTIC SURGERY	15
CARDIOVASCULAR SURGERY	12
NEUROSURGERY	12
MICROBIOLOGY	10
RADIOTHERAPY	8
REHABILITATION MEDICINE	4
NUCLEAR MEDICINE	3

It can be seen that in spite of the School catering for only 8 disciplines, those disciplines not being so catered also attract postgraduate doctors to go abroad for the postbasic degrees either on their own or sent by the Ministry of Health on scholarships. It would be extremely interesting to compare the situation 10 years from now to see if 'demand' will change.

THE IMMEDIATE FUTURE OF POSTGRADUATE MEDICAL EDUCATION

We have created opportunities for doctors in Singapore and to some extent also, doctors in the surrounding countries to study for a higher postbasic higher qualification. In Singapore itself the average doctor expects to work towards specialisation some time after graduation. In 1986 (1), the number of doctors with a postbasic degree and those without at different age groups is shown in Figure 2.

It shows that from 30-39 years of age, 49% have acquired a postbasic degree and from 40 years onwards, those with postbasic degrees exceed those without. From the date of graduation till he obtains his postgraduate degree, the doctor is involved in a frenetic hectic training/examination period where nothing in his postgraduate medical education is left to chance. He is exposed to an ongoing education daily in the form of ward rounds, criticism from

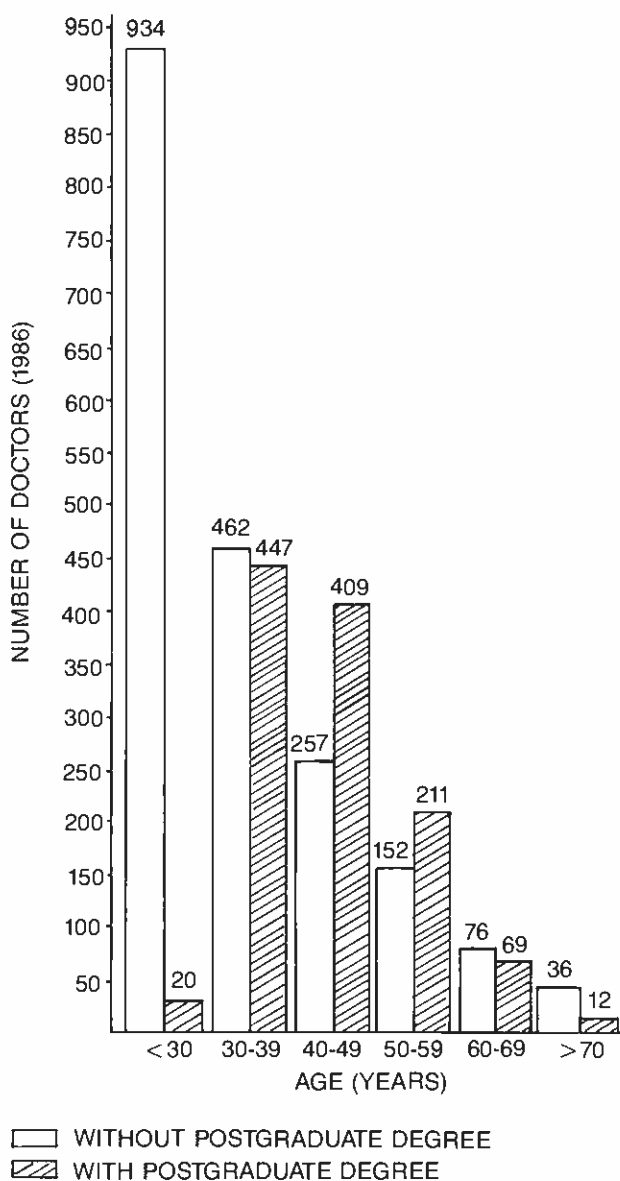


FIGURE 2

peers and superiors, seminars, courses, talks, journal clubs, research projects, research publications and examinations. Once he passes, there is usually a period of 1-5 years when he still participates in this pot-boiling post-graduate educational exercise but after this much depends on 2 factors:

1. The individual inclination to keep abreast.
2. The ultimate career of choice.

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Thus, if he continues in the public sector, continuing medical education (CME) opportunities are provided, including the most important form of CME, viz. peer review, in various forms whether it be ward rounds, seminars, talks etc. However, if he goes into the private sector, the opportunities and time for CME are much less. It is precisely this which has prompted at least 22 speciality boards in US in moving towards recertification procedures. Thus the Singaporean specialist has at least 35 years of active service left after obtaining his postbasic degree, and without CME, and taking into consideration the rapid rate of advance of medical science, the specialist can become obsolete in a few years.

This is the main problem in Singapore as I see it. We have created a situation whereby many are specialising but we have no satisfactory method we can ensure CME of the type which will ensure upgrading of delivery of health care in our patients. This, as I see it, will be our priority for the immediate future, a period of consolidation of what we have achieved in the last 25 years in the realm of postgraduate medical education.

We have already started various schemes of CME in Singapore both for the specialist and the non-specialist. The School runs its courses which are open to all qualified doctors in Singapore. Except for those doctors preparing to sit for the postbasic higher qualifying examinations, very few doctors in the private sector attend these courses. The professional organisations and the School organises talks and seminars aimed at upgrading medical expertise. Again, attendance has not been up to expectations. Peer review sessions in the form of ward rounds in the public sector are open to all doctors in Singapore. Again there are few takers from the private sector.

One form of CME popular in US and Canada is the educational "package" sent to the doctor. It would include one or more clinical situations involving a patient with an appropriate presenting problem. The users could decide what historical, physical and laboratory data to collect and which management options to follow, comparing their actions with those recommended by the team who had developed the package. These cases were accompanied by background readings and by lectures using slides and tapes. Such CME packages and courses have become a major industry in Canada and the US (3). In fact, in the US itself, it is estimated that US\$500 million is spent annually in CME! Recently, an assessment of the efficacy of such CME "packages" was carried out using control physicians who did not undertake such package educational material (4). It was found that those who took the course did not benefit more than those who did not take the course in terms of more effective delivery of health care to the patients!

Thus, the Postgraduate School feels that the next stage in the development of postgraduate medical education in Singapore should be a period of consolidation where more attention should be paid to continuing medical education.