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A Review of Surgical Education and Training in Thailand - Findings and Recommendations

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Summary

The education and training of surgeons has become a demanding and sophisticated exercise with different factors impacting on this depending on the locality. The Royal College of Surgeons of Thailand (RCST) established a review of its program in general surgery to establish these factors. The findings and recommendations are outlined in this article.

Introduction

The Royal College of Surgeons of Thailand (RCST) is the body accredited by the Medical Council of Thailand for the education, training (including assessment) of all surgeons in Thailand with the exception of orthopedics. A number of factors can influence surgical training[1] and this has led surgical educational bodies to undertake reviews of their

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programs in order to identify which local factors might be bringing pressure to bear and what recommendations may be necessary[2].

The RCST established a review of its general surgery education and training program with the aim of identifying these factors in order to improve the quality of training and healthcare and in doing so to better serve the people of Thailand.

Methods

In 2010 the Council of the RCST, through the President Professor Lt. General Nopadol Wora-Urai, invited Professor Ian Gough, immediate past President of the Royal Australasian College of Surgeons (RACS) and Professor John Collins, former Dean of Education of the RACS, to conduct a review of surgical training. The review focused on general surgery and also included other specialties to assist in the understanding of their programs and how they interacted with general surgery.

Terms of reference for the review

It was agreed to review the:

1) objectives of the program

2) surgical workforce requirements of Thailand and factors affecting recruitment

3) allocation of residents to posts, and the length and relevance of each rotation

4) residents' working hours and the impact on their quality of life

5) selection, the curriculum, in-training assessment and final assessment

6) strengths and weaknesses of each program inspected

7) current arrangements and requirements for continuing professional development

8) governance and the role of the RCST

Modes of working

The review process commenced with discussions and planning over one year followed by a full day seminar on surgical education held at the RCST Annual Scientific Congress in July 2011. The review took place between the 19th and 27th July 2011, and the committee comprised: Ian Gough, John Collins, Nopadol Wora-Urai, Vajarabhongsa Buhudhisawasdi, Supakoran Rojananin, Wichai Vassanasiri, Pornchai O-Charoenrat, Cherdsak Iramanwerat and Darin Lohsirwat.

On site visits were conducted at Ramathibodi Hospital (General Surgery and Plastic Surgery), Phramongkutklao Hospital (General Surgery), Rajavithi Hospital (General Surgery), King Chulalongkorn Memorial Hospital (General Surgery and Neurosurgery), Chiang Mai University Hospital (General Surgery and Urology), Khonkaen University Hospital (General Surgery), Khonkaen Hospital (General Surgery and Regional Trauma Centre), and Siriraj Hospital (General Surgery and Cardiovascular/ Thoracic Surgery).

At each hospital the review team was greeted by representatives of administration, followed by discussions with surgical staff including attending surgeons, residents (surgical trainees) and medical students. A tour of the hospital's surgical departments and related facilities followed. Professors Gough and Collins met privately with the residents and students and later provided feedback to the surgical staff on the perceived strengths and weaknesses of each local program.

At the conclusion of the onsite visits a draft report was prepared and discussed in detail at a half-day meeting held at the RCST and attended by College Councilors and others with responsibilities in education. The final report was prepared based on the discussion at this meeting and subsequent feedback to the authors.

Key Findings of the Review

The findings of the review are keyed to the terms of reference and include a number of comments and recommendations.

1. Objectives of the program

The objectives of the program were considered to be appropriate and comprehensive. However, to achieve these objectives the occupational roles of general surgeons in Thailand must be clearly identified followed by establishment of the key technical and non-technical competencies which underpin each of these roles. A curriculum needs to be developed based on these competencies (a competency-based curriculum) which will guide what is taught, learned and assessed. It is questionable whether a program based on time and numbers of cases can guarantee the objectives will be met1. For example, 400 operations are required currently to complete training in general

surgery but more focus is needed on whether residents can satisfactorily perform all core or index procedures.

2. Surgical workforce requirements of Thailand and factors affecting recruitment

The review team was made aware of surgical workforce deficiencies, particularly in general surgery at consultant and resident levels, especially in regions outside Bangkok. In addition, over recent years the scope of practice or pattern of work has changed for general surgeons due to subspecialisation, the availability of subspecialists and the impact of concerns about litigation.

In 2011, 108 out of the available 120 posts were occupied by Year 1 residents (Table 1). However, this is an unusually high proportion as in recent years about 30% of available posts have remained unfilled, particularly in areas outside Bangkok.

At each of the sites visited the final year medical students were either satisfied or very satisfied with their surgical teaching and experience in their respective medical schools. The surgeons who teach them are regarded as good role models. Importantly, very few students wish to consider surgery as a career option. Three consistent reasons were given by the students for this:

- Excessive workload for residents with long working hours and years of training compared to other specialties.
- Inadequate rewards for the workload and responsibilities associated with being a surgeon.
- Increasing concerns about litigation.

Each of these factors requires attention or there will be increasing workforce deficiencies and difficulty for the Thailand to become self-sufficient with adequate numbers of well trained surgeons.

3. Allocation of trainees to posts, length and relevance of each rotation

The first year of residents' training requires them to rotate frequently including 2 months in general surgery, 2 months in trauma and 8 one-month rotations in other specialties. Residents in all surgical specialties undertake similar one-month rotations in their first year of training. This is based on history and tradition and a perception that general surgeons in rural areas might be called upon to do any procedure within the scope of all surgical practice. When surgeons were

Table 1 General Surgery accredited posts and occupancy (first year residents 2011).

Region	Hospital program	Posts available	Posts occupied
Bangkok/Central	Siriraj	15	15
70 (67)	Chulalakorn	9	9
	Ramathibodi	8	8
	Thammasart	2	2
	Vichira	5	5
	Phramongkuthlao	8	7
	Pinklao	2	2
	Bhumipol	5	4
	Police	4	3
	Rajavithi	8	8
	Lerdsin	4	4
Northern	Chiangmai	12	12
12 (11)			
Northeastern	Khonkaen University	9	8
20 (14)	Khonkaen hospital	2	2
	Maharaj	6	3
	Samprasit-Prasong	3	1
Eastern	Cholburi	4	3
6 (3)	Phrapokklao	2	0
Southern	Songkla	10	10
12 (12)	Hadyai	2	2

Total 120 with 108 occupied.

asked during the review to identify the competencies they expected residents to learn during these short rotations, the reasons given were not always clear or relevant to current surgical practice. The requirement of other specialties to include several years of training in general surgery and other unrelated specialties is also of questionable relevance; it adds to the years of training and the competencies that are expected could be delivered in other ways such as in skills courses and targeted clinical experiences[1].

It is likely that these current short rotations are not delivering the experiences necessary to produce general surgical specialists nor are they meeting the learning objectives they were intended to deliver. In the past some of the rotations through multiple specialties were to fill service needs but this is no longer the case. Much of the experience is as an observer only and is actually reducing the opportunities for training that would be more relevant to the specialty. All of the specialty training boards should consider meeting together to review exactly what is expected for training in these rotations. Resolving this issue will reduce the tension between service and training. Other Colleges including the RACS have had to work through similar discussions in order to ensure residents receive the most relevant experience.

Furthermore, short rotations of one month are unlikely to provide the necessary time for the expected technical and non technical competencies in that specialty to be mastered and may not allow sufficient time for attending surgeons to validly assess the performance and progress of the resident. Consideration could be given to changing the specialty rotations to a minimum of 2 months duration. Many factors influence the length of time it takes to train a surgeon[3]. Currently it is not feasible to increase the length of training in Thailand. For this reason it will be important to define the specialist rotations that are essential for the training of a general surgeon and offer other specialty rotations as electives; some of the current rotations may need to be removed from the training program in order to allow adequate time for training in general surgery.

4. Residents working hours and the impact on their quality of life

Surgical residents work very long hours (more than 100 hours per week) leaving inadequate time for study, rest and their personal activities. Very few residents marry or have children until after completing training. While there are reasonable numbers of female trainees and no evidence that they are discriminated against in selection, the review panel were informed by residents that many female students and residents had been advised against a surgical career because of the workload demands and the difficulties it would cause with family life. It would also be helpful to both female and male trainees if the opportunity for interrupted training was considered.

It is a common rostering practice for all four residents of a team to be on call simultaneously and for each of them to sequentially review each patient. The rostering of residents in the same place at the same time such as in the operating theatre creates tension and competition for hands-on operating experience; it may also lead to inadequate cover in other vital areas of the surgical service such as the emergency department and the wards. This duplication may not be necessary for developing their clinical experience nor for ensuring safe patient care. Residents and medical students were concerned that their fatigue was affecting patient safety[4,5]. They also recognised that fatigue impaired learning. When rosters are adjusted to avoid unnecessary duplication it will reduce the tension between service and training and both should actually improve.

5. Selection, the curriculum, in-training assessment and final assessment

The purpose of selection is to ensure that the best applicants with the greatest potential to become good surgeons are selected. It is important that the processes and criteria used for selection are fair and transparent[6]. There are some differences in how residents are selected and appointed at the different program sites. One site visited has begun to develop standardised processes and criteria for selection. This should be explored more widely and include the development of structured forms for application, the completion and scoring of referees' reports and the curriculum vitae. Adopting a semi-structured format for the interview with standardisation of the process and scoring will increase validity and reliability. During the discussion on the draft report at RCST there was unanimous support for the development and implementation of selection following these principles while ensuring they were

appropriate for Thailand.

The current curriculum is broad but it would benefit by identifying the essential roles of a surgeon (core competencies) that the program is wishing to prepare surgeons for. The curriculum should then be developed around these core competencies. These will include knowledge, attitudes and both technical and non-technical skills. Examples of domains of competency include those developed by the RACS[7] and the American Committee on Graduate Medical education ((ACGME)[8]. These could be adapted for use in Thailand. Categorising these competencies will help guide improvements in the curriculum including selection and assessment at every stage.

There are two types of assessment - formative and summative. Formative assessment takes place on-the-job during everyday training and is to help learning and facilitate progress. Summative assessment is examination of what has been learned at the completion of a defined segment of training or at the completion of the whole of training. Formative assessment should be frequent, face-to-face and accompanied by timely and constructive feedback. It should not focus only on knowledge, nor be given only to trainees who have a problem. Positive feedback is valuable for all learners. Tools for in-training assessment include Direct Observation of Procedural Skills or Procedure Based Assessment; Case-Based Discussion; the mini-CEX and 360 degree or Peer Assessment[9]. In Procedure Based Assessment, an operation can be deconstructed into its component parts and these may assessed as part of training followed by immediate and constructive feedback.

Currently in Thailand there is an emphasis on knowledge-based examinations, mainly through the use of MCQs, as a method of assessing progress during training. However, MCQs do not adequately assess the other core competencies that a trainee must develop during each stage of their training and learning. There are systems and forms available to help with these in-training assessments and their use is greatly enhanced by providing surgeons with appropriate training courses[10,11]. Although this might initially appear more demanding of surgeons' time, the reduction in the time currently being devoted to preparing and organising MCQ examinations will be more than compensated for.

Identification of the poorly performing resident is made easier by using the wide ranging in-training assessment as described above. It enables specific deficiencies to be identified and an agreed plan of action to be instituted to improve the resident's performance. Natural justice requires that a resident being considered for dismissal is first given written notification and an opportunity to improve in the areas of deficiency which have been identified.

Obtaining feedback from residents is an important part of improving training. To be successful this must be anonymous and sent to a central committee of the RCST rather than considered locally. It has been the experience of the RACS that residents are sometimes reluctant to provide feedback; enlisting residents with leadership qualities may help to overcome resistance and build trust.

A comprehensive training program with valid and reliable in-training assessment should ensure every resident is able to pass the final examination. The specialty training board must ensure that each individual resident's performance (based on in-training assessment) is satisfactory and that they are adequately prepared and ready to sit the final examination and, if successful, ready to be a competent surgeon.

The final examinations were not observed nor reviewed in detail on this occasion but in principle the purpose of the final examination should be clearly defined and communicated to all trainees and their teachers. Consideration should be given as to whether there are elements of the curriculum in which the resident has already demonstrated competence during in-training assessment and therefore does not need to be re-examined in these areas in the final examination. For example, skills in the essential operative procedures should have been assessed and recorded as satisfactory by supervisors following in-training assessment. The operative surgery viva in the final examination could then focus on indications for surgery, choice of procedure, mature judgement and decision making when faced with challenges during operation and the peri-operative care of the patient.

6. Strengths and weaknesses of each program inspected

Surgeons at each program site work hard to ensure each resident receives adequate teaching and a broad clinical experience in outpatient departments, wards, operating theatres and intensive care/high dependency units. A large number of educational

sessions are offered and most surgeons are willing to assist the resident during operative procedures and other clinical work.

The overall quality of individual programs is satisfactory and some are exceptional. However, there are significant differences between hospitals. Some have well developed teaching programs and provide a broad clinical experience while others focus primarily on clinical experience alone. The case-mix and high competition for operative experience impacts on the training experience even in the Bangkok University Hospitals.

A number of attending surgeons and residents commented that training would be improved by longer rotations as are already offered by some programs. Residents informed the review team they would like the opportunity to rotate to other centres including between the provinces and large cities and from Bangkok to the provinces. Such exchanges would broaden trainees' experience, expose them to new environments and may help to improve recruitment to the provinces. The formation of such networks should involve the transfer of residents in both directions and be accompanied by their salaries and employment entitlements. These transfers will help to ensure residents become part of the team at the hospital to which they rotate thus ensuring a worthwhile experience and learning opportunity.

On the grounds of ensuring equity and quality of the overall experience for residents, consideration should be given to establishing networks comprised of two or three hospitals in order to balance the strengths and weaknesses of individual programs.

7. Current arrangements and requirements for Continuing Professional Development (CPD)

The purpose of CPD is to ensure the ongoing quality and safety of patient care. In the rapidly changing world of medicine and surgery it is essential that surgeons keep up-to-date with developments in their specialty and remain competent throughout their professional lives. They are expected to demonstrate continuing good behaviour and competence[12]. This means that learning does not end at the time of the final examination but continues as life-long learning. While the RCST and some specialty groups provide scientific meetings and courses, there is currently no requirement to attend. CPD is more comprehensive than Continuing Medical Education (CME) as it includes all of the essential roles of a surgeon including self-audit of performance, professionalism, leadership and others.

In an increasing number of countries, society and medical regulatory authorities require evidence of ongoing participation in CPD in order to continue in practice. In addition, hospitals are requiring surgeons to provide evidence of participation in CPD in their scope of practice as a condition of working in that hospital. Medical Indemnity Organisations increasingly require documentation of CPD. The RACS has decided not to use formal examinations to ensure its Fellows remain up-to-date and competent. Rather than examinations, points are given based on wide ranging and flexible options which enables surgeons to meet the requirements through their daily work and ongoing educational activities.

8. Governance and the role of the RCST

Training may be governed under several possible models with roles for government, universities and hospitals. In Thailand, the RCST is currently responsible for accreditation of programs, the curriculum, basic science examinations and the final qualifying examination. The RCST has developed an electronic log book which the review team examined and found it to be an impressive innovation. The logbook content requires verification by the attending surgeons in each program to ensure its reliability. In addition to monitoring an individual trainee's experience, the data available from these logbooks could be used to identify the case mix available at each rotation resulting in a better understanding of overall training. This data could be also be used in re-accreditation reviews and to guide efficient training rotations within networked hospitals.

Establishing and implementing uniform standards to guide selection, the curriculum, in- training assessment and final assessment is an important role for the RCST. At every site visited, surgeons shared the high esteem in which they hold the RCST and indicated that guidance would be welcomed from the RCST on how to improve selection and in-training assessment. These surgeons are also keen to engage with the RCST in the development and implementation of standardisation in these areas. This development would achieve fairness and transparency and comply

with the requirements of natural justice.

An expanded role for the RCST in the areas of advocacy and leadership relating to the care of surgical patients in Thailand is supported by the review panel. Opportunities should be sought to do so in association with other medical groups including engagement with government, non-government organisations and the media particularly regarding the difficult medico-legal environment that currently exists in Thailand.

Recommendations

1. The RCST should continue to govern surgical training and qualification and establishes uniform curriculum including guidelines for selection and in-training assessment.

2. The curriculum should be reviewed to ensure that the competencies (including the core procedural competencies) required at each level of training and at the completion of training are achieved.

3. The purpose and value of short rotations in multiple specialties should be reviewed to:

- Identify the learning experiences and core competencies that each rotation is intended to achieve.
- Examine whether these learning experiences and competencies are actually being achieved.
- Consider whether some rotations could be omitted.
- Establish whether those rotations which are essential should be for a minimum period of 2 months.
- Include discussions with other specialty training boards.

4. Networks between hospitals should be established to provide a more balanced and comprehensive learning experience and to possibly assist in workforce distribution after the completion of training.

5. Workplace rostering should be reviewed to reduce duplication that is not necessary to provide safe patient care but which does lead to fatigue and interfere with learning. In addition, rostering for the operating room should avoid having all residents present at the same time and ensure appropriate supervision for final year medical student externs working in the hospital.

6. In-training assessment should focus on each of the technical and non-technical competencies considered important by the RCST. It should be performed regularly, face-to-face and include constructive and timely feedback for every resident.

7. A training course should be developed to enable surgeons to carry out selection and in-training assessment according to RCST standards.

8. The RCST should consider developing guidelines for CPD that are appropriate for the maintenance of safety and the quality of care of surgical patients.

9. Workforce recruitment issues should be addressed by considering solutions to:

- Workload and working hours
- Remuneration proportional to responsibilities
- Increasing legal concerns

10. The aims and methodology of the final examination should be reviewed.

Acknowledgements

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