

Postgraduate Surgical Training-An Era of Subspecialisation: Qua Vadis (Where are you going?)[†]

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Dr James D Hardy¹ pointed out that there are many species of living things which are threatening to become extinct. Some of the endangered species are

1. whales of the ocean,
2. elephants in Africa,
3. snow leopards in Asia,
4. Bengal tigers in India, and
5. **the General Surgeon** is the latest addition to the above.

In the last 50 years of modern medicine and subspecialisations, not only have ophthalmology, ENT, plastic, urology, colorectal surgery, etc. become distinct entities, today we have hepatobiliary surgery, paediatric urology, retinal surgery, and such, all mushrooming within their principal specialty. The general surgeon of the good and bad old days, has perhaps, become the "surgeon of residual surgery".

Qua Vadis—"Where are you going?" It is becoming more urgent for us to address this issue of subspecialisation and its impact on surgery in general, and to some extent the general surgeon in particular ("Is the general surgeon becoming extinct?")

Very strangely and ironically, the history of surgery actually began with superspecialisation. In the 14th century when surgery was beginning to be established as an entity, the primitive surgeons were actually subspeciality "surgeons" e.g. "bladder stone" surgeon, pile surgeons, "boil surgeons", but they were all to some extent "quack" surgeons, and suffered from disrepute; (so much so that the physicians of those days refused to admit them as doctors). It was only in the 18th century that formal surgery became a clinical entity within the medical fraternity.

Modern surgery is said to have begun in the 19th century. The first laparotomy was performed in the early 19th century, in 1809.

The specialisation of surgery developed very fast. Ophthalmology was established very early and ENT became an entity in the mid-19th century followed by orthopaedics in the later part of the 19th century.

But it was not until the 20th century that tremendous

progress was made. The early half of 20th century saw the birth of the 3 "**A's**"—**Aseptic technique, modern Anaesthesia and Antibiotic**. These 3 "A's" contributed towards the rapid development of clinical surgical practice. The later half of this century was the era of the 3 "**M's**", namely **Microvascular surgery, Minimally invasive surgery, Medical technological advances**. These 3 "M's" have revolutionised modern surgery. Progress has been so overwhelming that Professor Claude Organ² remarked that general surgery suffers from the indigestion of its own progress. Unless we take stock and plan, the indigestion may progress to intestinal obstruction, perforation and peritonitis—resulting in a state of confusion.

Subspecialisation is necessary,³ it is essential, it is beneficial, it is progressive, and it is inevitable—but we must approach it with great caution bearing in mind our local resources, our limited manpower, our population base, and our own infrastructure. What we need is subspecialisation, not fragmentation.

Subspecialisation is one that occurs under the aegis of the main body and articulates with the whole. It is symphony in harmony.

Fragmentation separates and disarticulates from the body and becomes functionally chaotic.

Surgical subspecialisation is probably the fastest growing industry in surgery. In the United States, the American Board of Medical Specialities has recognised several surgical specialties by the mid-20th century.⁴

Ophthalmology	1917
Otolaryngology	1922
Orthopaedics	1934
Colorectal	1934
Urology	1935
Plastic Reconstructive	1938
Neurosurgery	1940
Thoracic Surgery	1950

In the United Kingdom, no specialty board exist, but currently the intercollegiate committee is working very hard and identifying major specialties and subspecialties for advance training and accreditation.

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[†] This paper was presented at the 30th Annual Combined Surgical Meeting organised by the Academy of Medicine, Singapore from 31 October to 2 November, 1996.

Back home in Singapore, on our local scene, the progress of specialty development is as follows:

1905	Medical School established
1912	First surgeon appointed
1914	Department of Surgery formalised
1934	Department of Ophthalmology
1952	Orthopaedic Surgery
1957	ENT
1966	Cardiothoracic Department
1971	Plastic and Reconstructive
1981	Paediatric Surgery
1985	Hand Surgery
1988	Urology
1989	Colorectal Surgery

Within the principle specialties, subspecialisation also grew rapidly. Today in most general surgical departments, there are divisions or sections in hepatobiliary surgery, vascular surgery, transplantation, head and neck surgery, breast and endocrine. Other surgical specialties have their own subspecialisation.

It is unfortunate that today, many of our young graduates too early in their career jumped onto the bandwagon of superspecialisation the moment they obtained their M Med or FRCS. We don't want a general surgeon who has to shout for help when the stomach tumour is stuck to the colon, nor do we want a urologist who has to have a thoracic surgeon standby just in case he nicks the pleural.

Sir William Osler, 50 years ago, sounded this warning—"specialisation has fragmented the specialties in a way that makes the outlook hazardous"-a "superspecialist" must be a competent generalist first.

In the face of intense superspecialisation, can the generalist surgeon survive? Do we still need a general surgeon, a general urologist, a general ophthalmologist and so on?

My answer is a definite YES, not only must we preserve this species of generalist surgeon for the benefit of surgery in general, we must also ensure the survival and longevity of this creature called surgeon in general-but perhaps in a metamorphosised form.

The general surgeon of the future should be a general surgeon with a specialty interest, but he must be well grounded in basic surgery first before he embarked on tertiary specialty training.

Why is a broad-based surgical training so important? Let us take the example of general surgery. In a general surgery department, all round basic training is provided.

- 1) General surgery departments are broad based.
- 2) It provides training in "total care of patients".
- 3) It is well placed to train doctors in the management

of shock, dehydration, haemorrhage, infection, multiple organ failure, etc.

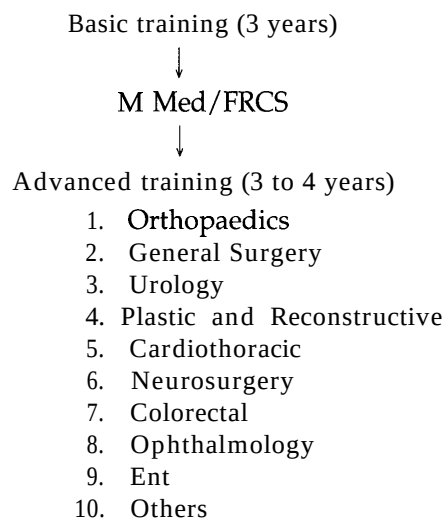
- 4) Problems of acute abdomen, gastrointestinal bleeding, trauma, and severe sepsis should be admitted to a general surgical ward and not to a tertiary specialty.
- 5) General surgery departments provide an ideal setting for this training and teaching of medical students in the basic principles of surgery.

For these reasons, we must ensure the survival of the general surgical department.

In the words of a leading American surgeon, "unless we return to the proper training of a real general surgeon, we face the alternative of a committee approach, in which the patients will be treated as a set of organs by different specialists-with all its chaotic consequences" (which also adds to costs).

The time is ripe to re-look how we train our specialists and subspecialists.

Our Current Training Programme



Subspecialisation within general surgery

1. Upper GIT
2. Head and Neck
3. Oncologic al Surgery
4. Hepatobiliary
5. Vascular
6. Trauma
7. Transplantation
8. Breast and Endocrine

Problems in the Current System

- 1) There is lack of specific requirements for rotations e.g. if an advance trainee is posted to a centre where there is no major urology, cardiothoracic, colorectal etc. component, his training will be inadequate. (We

have noticed this in our exit interview for advanced trainees).

2) Problems of certification

If a candidate wishes to take up either vascular/colorectal surgery, and if he embarks into a specialised department, his broad-based general surgical exposure will be inadequate. The Academy as yet has no entity of vascular, colorectal or pure thoracic surgery. How do we certify these groups of people? Currently e.g. in vascular surgery, they have to be under the umbrella of general surgery, but they may have difficulty getting enough broad-based general surgery exposure.

3) There are artificial barriers (in restructured hospitals) that hinder inter-hospital training.

There are two steps we must take. Firstly, we must follow what Dr James Hardy said, that "all surgical specialists should come together and agree that training of surgery in general is essential to the basic surgical training of all surgeons. "General surgery" represents the mother tree from which basic surgical advances are usually derived. Whether you wish to be a "continent" or "incontinent" urologist, you must be well trained in basic urology and surgery first. (If I have my way, I would want all surgeons to spend at least one rotation in general surgery. I would insist all gynaecologists spend at least 6 months in general surgery). As pointed out, general surgery departments provide the training in critical care, management of trauma, shock, haemorrhage, organ failure, etc. and nutritional problems. These problems are common to all surgical subspecialties.

The general surgeon of the future is a surgeon in general with a specialty interest, but he needs the broad-based training. (But unfortunately in today's context, this is not always achievable). It is time for us to breakdown the artificial barrier of restructuring. In the name of proper training, we must stop calculating exact bodies in dollars and cents. We must allow cross fertilisation and ensure adequate exposure of our advanced trainees. The task ahead is not easy, but I am glad that members of the Ministry of Health Surgical Committee generally share the same view, and we have already agreed that all advanced trainees must spend 6 months away from the parent body. This is the first step towards ensuring adequate training, especially for those from hospitals that are lacking in certain disciplines.

The progress of subspecialisation is inevitable, it is good for overall care and progress; but we must ensure

the survival of the general surgical department for the training of broad-based surgical principles.

Can we succeed? In response to the question we asked—"Qua Vadis-Where are you going?"—I am not sure if I have the absolute answer. "I do know we are all travelling at a tremendous speed in the Tunnel of Progress". Hopefully at the end of the tunnel, there is light and not another train heading towards us.

In conclusion, let us remember the famous classification of Dr Gardner Rhea⁵ who classified two types of surgeons, 1) the technical surgeon and 2) the philosophical surgeon.

You can train anyone to be a technical surgeon. You can train an engineering graduate to set up drips, take blood, or even do a gallbladder operation, but he will not be able to manage the pre and postoperative care and the complications. To provide the total holistic care of the patient, you need a philosophical surgeon. The public wants a philosophical surgeon, but does not know it; the medical profession needs the philosophical surgeon, but is unable to admit it. It is our duty to ensure the philosophical surgeon triumphs over the technical surgeon.

Let us remember "the technology of surgery will progress and change, but the art and philosophy of surgery is eternal".

The art of surgery is beautiful, let us treasure it and preserve it.

If I may conclude,

"I search for happiness
Happiness eluded me
I seek fulfilment
Fulfilment, I cannot see
I long for success
Its permanence is never to be
But when I practice the art of surgery
I found all three"

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