

14th Chapter of Surgeons Lecture: Back to Basics[†]

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I am happy to be among old friends. As surgeons, we share a kindred spirit. I wish to thank the Academy for the honour of giving this lecture.

I took the Hippocratic Oath 24 years ago. When I took the oath, I entered a noble profession with ethical roots that date back 2400 years. The core of our professional's ethics, which is "doing what is of benefit to the patient and avoiding what is deleterious", originates from this era. But this era was not a Utopian period. It was an age of great promise but it was also an age of great peril, very much like our times.

Hippocrates was born in 460 BC at the start of the golden age of Athens. It was a period of commerce, trade and wealth. Free men exchanged their goods and labour, and through this exchange, all were enriched. Hippocrates also lived through the Peloponnesian War, the great struggle between Athens and Sparta that finally led to the collapse of, first, Athens and then Sparta. The period had its severe acute respiratory syndrome (SARS)-like epidemics, like the epidemic that occurred when Hippocrates was around 35 years old, which killed one-third of the citizens of Athens. But despite the turbulence of the era, the principles that Hippocrates taught were found to be relevant and enduring, and it continues to rightly guide our profession today.

In periods of war and in periods of peace, physicians in Ancient Greece practised their art and collected a fee for their service. It was a flourishing profession with schools of medicine, where mentors taught medicine to their disciples. Hippocrates was the greatest of these medical mentors.

Shortly after taking the Hippocratic oath, I started my training in neurosurgery under my mentor, the founder of neurosurgery in Singapore, Mr Tham Cheok Fai. Mr Tham taught by example and I learnt the 3 basic tenets of surgery.

The first tenet is that we need good clinician skills before we can be a good surgeon. Surgeons are not mere technicians. They are clinicians who offer surgery as one of the treatment choices. Neurosurgeons therefore have to be good in neurology. Mr Tham's clinical consultations involved detailed history taking and a neurological examination that took at least 30 minutes and several pages to document. Good clinical knowledge and skills are

fundamental to the good practice of surgery.

The second tenet is that surgeons should develop good surgical habits. In the Neurosurgical Department, everyone had to develop not only good surgical technique, but also good surgical habits that contribute to better outcome. We saw every patient everyday including Sundays and holidays. We were not allowed to depend on reports of radiological studies; we needed to see the radiological studies ourselves. Likewise, the anaesthetist was not allowed to put the patient under anaesthesia until the surgeon had spoken to the patient in the operating room.

The third tenet was that the surgeon had to be humanistic and ethical. Let me cite an example. The human dignity of patients should always be protected. The media is often interested in patients with abnormal heads, or other deformities, or a strange illness because they make good human-interest stories. In the Neurosurgical Department, we did not allow the human dignity of patients to be compromised by letting the media intrude into the privacy of the patient.

These basic tenets are as relevant and valid today as they were 20 years ago, even though the nature of surgery has changed. Looking back 20 years, the early eighties seems a simpler, less complicated age. The last two decades have seen a revolution in the way surgery is practised, and the setting in which we practise surgery.

When I started training, the high-technology equipments in neurosurgery were the microscope and the laser. Since then, there have been many technological breakthroughs in neurosurgery such as image-guided surgical systems and the ultrasound-aspirator. Then, there is Radiosurgery, which allows the neurosurgeon to do a tumour excision on the computer and based on that plan, radiation energy is used to destroy the tissue demarcated by the surgeon for excision.

One effect of all this technology is rising cost. Compare a routine neurosurgical operation done 20 years ago with one done now. Twenty years ago, we used the Gigli saw to cut the skull-bone; the cost: a few dollars. Today we use a high-speed drill; the cost: \$50,000. We used our finger to palpate the brain surface to localise the tumour; the cost: free. Today we use image-guided surgery; the cost: \$400,000. We used silk to hold the bone flap in place when we close the craniotomy; the cost: less than \$4. Today we

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use titanium microplates and screws; the cost: more than \$400.

Surgery today is not only safer and producing better outcomes, it has also given rise to more costly hospital bills. Should we use technology when it is expensive? The answer is “Yes.” If we want to give our patients the best treatment available, we should use the best technology available. Patients want good surgical results. We therefore need to keep up with technological innovations. What is important is being able to discriminate technology that is useful and which improves surgical results from technology that is marketed for its own sake. To do this, surgeons have to fall back on their clinical skills and judgement.

Glioblastoma multiforme is a common malignant brain tumour where the patient’s median survival is about 6 to 9 months. There is available, a wafer, containing a derivative of mustard gas, that can be placed on the surface of the brain. Evidence-based medicine shows median survival to increase by a few weeks with this treatment. However, the mustard gas compound is so irritative that most patients will develop seizures soon after surgery. This must surely cause an immediate drop in the quality of life of the patient. Is it then reasonable for or beneficial to the patient to be given this treatment?

This treatment costs about \$20,000. But even if it costs \$2, I would be reluctant to bring about an immediate drop in the patient’s quality of life for a few additional weeks of survival. These types of judgement need clinical skills and not a blind evidence-based medicine approach. As we have more and more technology and new treatments, surgeons will have to go back to basic clinical judgement and skills to evaluate which treatments and technology will benefit their patients best.

The 1999 Institute of Medicine report, “To Err is Human”, found that as many as 44,000 to 98,000 Americans died in hospital as a result of errors, making medical errors the eighth commonest cause of death. The publication of the report resulted in a great deal of public anxiety and led to error-reporting laws being passed in many states. Most medical errors occur because of human error. Technology today is more reliable than the humans who use them. Most surgical errors occur because of poor surgical discipline. Despite modern technology, good surgical habits, like not delegating the positioning of the patient to others, are still important. To prevent wrong side or wrong limb surgery, making the patient routinely sign over the surgical site is a good surgical habit that I suggest surgeons in Singapore consider. Many US departments insist on this. To improve quality, we must fall back on basic old-fashioned good surgical habits

With new surgical innovations, surgeons now face new ethical challenges like live-donor liver transplants and the separation of twins. Ethics and the Hippocratic oath remain

relevant today in dealing with these challenges. Our medical decisions in these new areas must always be guided by our wish to benefit the patient and do him no harm. We must go back to this basic ethical principle even as we go forward into new ethical areas.

Because healthcare is expensive, many hospitals have policies that ration care. The success of these policies depends on doctors acting ethically and for the benefit of the patient. For example, the overstay policy allows a public hospital to discharge a subsidised patient if the patient is well. But the success of this policy depends on doctors adhering to their duty to the patient. Doctors must decide whether the patient is clinically fit for discharge purely on clinical grounds and should not be influenced by the hospital administration when making such a decision. In the modern complex healthcare environment, doctors, more than ever, must adhere to the Hippocratic Oath and comply with their ethical duty to the patient.

As medical care becomes more sophisticated, the actual cost of providing healthcare has become more expensive. Healthcare systems in Singapore and the developed world have evolved to try and cope with this challenge.

I identify 3 basic features of our healthcare financing system that have served us well:

1. Medisave – which is a system in which individuals have to save for their healthcare needs. It is not an insurance or risk-pooling system. Since individuals are spending their own money, they are prudent in their use of Medisave.
2. Services are priced according to what it costs to provide the service. This ensures that resources are allocated in an efficient manner.
3. Government subsidy is only meant for those who need it. Middle-class Singaporeans who are admitted to B2 class receive 65% subsidy. C-class patients receive 80% subsidy and those who need further financial help can turn to Medifund. In Singapore, Government subsidy is not a universal right and medical care is not universally free.

Occasionally, there are calls for changes to our system, to make healthcare more equitable by making healthcare cheaper or even free. Others suggest that the government should help special groups. The most vocal are the AIDS advocates who believe AIDS treatment should be free. Should we change or should we stick to the basic features of our system? Let us look at other healthcare systems where treatment is free or where selected groups receive benefits not based on financial need.

The British developed a free healthcare system after World War II – the National Health Service (NHS). Many British doctors believe that only a free system is socially equitable and therefore ethical. Hippocrates would not have agreed. He collected fees. He even gave advice on

how fees should be discussed.

How has the free healthcare system in Great Britain fared? As early as 1976, the deterioration of the healthcare system was apparent. In the first 13 years of NHS, no hospitals were built. A British physician, Dr Gammon, studied hospital services from 1965 to 1973. He found that during this period, hospital staff increased by 28%, administrative staff by 51%, while output measured by daily bed occupancy actually fell by 11%. There was no lack of patients because at that time, there was a list of 600,000 people waiting for treatment. Despite many reforms, there are still waiting lists in the UK today, and patients who cannot wait have to be sent to France and Germany for treatment. In spite of the shortcomings, I am told that the British like their system and it has endured because people have become accustomed to free healthcare. So although they pay for their beer and football games, which are not essential, they are reluctant to pay for healthcare that is vital to their life. A recent description of a major London Hospital in the Telegraph described the hospital as follows: "...the wards are long, hot, high-ceiling rooms with little natural light; ...narrow chipped metal beds crammed close to each other; there is little that nurses can do to change the gloomy run-down feel of the place." This is how our hospitals will end up in a free healthcare system.

Intuitively, one may think that we would be able to provide better treatment to the lower socioeconomic group when treatment is free. This is not necessarily true. Let me illustrate this with the computed tomography (CT) scan, since there is considerable interest about this test. A CT scan is mandatory before the treatment of a stroke patient can be planned. A CT scan machine costs about 1 million dollars and may have a useful life span of 7 years. If it is given free to a hospital, and the hospital does not charge for the CT scan, it will make sense to the hospital authorities to use the machine only during office hours. When used at night, staff will have to work overtime. Every patient done at night is additional cost without additional revenue.

However, if the hospital can charge for the test and is expected to recover the cost of the CT scan machine, every CT scan done is additional revenue. The CT scan will be done day or night in order to collect revenue. This is our model. As a result, the waiting time for more than 90% of stroke patients at Singapore General Hospital and Tan Tock Seng Hospital is <1 hour. The commonest reason a patient may have to wait for more than one hour is that there is another patient being scanned and you have to wait for the earlier patient's study to be completed. The CT scan machines work day and night during their operational life. Hence, they are better utilised and more scans will be done in the working life of the machine. Because there is a fee, it does not mean that the middle class and the poor are

neglected. The government helps the subsidised-class patients with a 65% subsidy and so the government is a co-payer to the hospital.

Underpricing health services in any healthcare system can only lead to the decay of that system.

In the United States, the elderly are a privileged group. The US government started Medicare in the 60s to pay for the treatment of those over 65 regardless of how rich they are. Today 20% of Americans are above 65. They consume more than 50% of healthcare services. So while retirees benefit, there are about 40 million Americans with no insurance. The uninsured generally belong to the lower socio-economic group. While rich retirees who own several condominiums and play golf everyday get free treatment, struggling mothers with children may have difficulty paying for healthcare. Is this system more equitable than our system? Privileges, once given, are difficult to withdraw. So all retirees, including the wealthy, continue to enjoy Medicare.

Medicare has helped to fuel healthcare expenditure and the US today spends 15% of its GDP on healthcare. But if you look at indicators of health, they are not better off than those who spend less. The life expectancy of a US citizen is less than that of a Singaporean and their infant mortality is higher. Healthcare expenditure in the US is fast growing and is expected to reach more than \$2 trillion in 2005. As a result, the US is now facing a healthcare crisis. We are a small country and have to be more prudent in our expenditure.

So while our model of healthcare financing is not perfect, the basics of our system is sound. While we may need to fine-tune some aspects of our system, the best way of meeting future challenges is to build on the sound fundamentals of our healthcare system.

Doctors must make patients understand that healthcare is expensive because the cost of providing the care requires many resources. We must make the public understand that unless the resources are priced according to their true cost, the resources will be used wastefully and we will all have less healthcare for every dollar spent and a standard of healthcare poorer than what is possible.

As Hippocrates wrote more than 2 millennia ago:

*"Life is short,
The art of medicine long.
Time is fleeting,
Experience fallible,
Decisions difficult.
The physician must not only be prepared to do what is
right himself, but also make the patient, and everyone
else cooperate."*

This aphorism is still true today.

Thank you.