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# Family Medicine: A Rising Discipline

By Professor S.S. Ratnam

I am greatly honoured to deliver the 14th Sreenivasan Oration. This Oration was established in 1978 in memory of Dr Baratham Ramaswamy Sreenivasan, the Founding President of the College of General Practitioners, Singapore. He was also a Founder Member of the Royal College of General Practitioners in the United Kingdom in 1953, and was elected an Honorary Fellow of the Royal Australian College of General Practitioners in 1973. He was a consultant physician and a general practitioner, and was able to look at the practice of medicine from the point of view of a specialist as well as a generalist. His work has been an inspiration, and he has contributed greatly to the development of general practice in Singapore. Besides his contribution to the development of medicine in the country, he contributed actively to the political and academic developments, having reached the position of Principal of the University of Malaya in Singapore in 1961. Subsequently he was appointed as Vice-Chancellor of the University of Singapore in January 1962, and he held the post until November 1963.

In this Oration I would like to look at the development of medicine in general as it will be interesting to see how it evolved to what it is today, and relate it to the role of the Family Physician of the Future.

## THE HISTORY OF MEDICINE AND GENERAL PRACTICE

(2 slides; one showing a hole in the skull and the other a picture of trephining)

Disease is as old as life itself. The practice of medicine has paralleled man's development, and the earliest evidence comes from the New Stone Age around 9,000 B.C. when human skulls were found showing signs of trephining, which is the practice of cutting an opening in the skull. This was done presumably for the release of evil spirits from a diseased body (McManus, 1963). The practice of medicine in the beginning was indistinguishable from magic, religion and the supernatural, stemming from a lack of knowledge and desperation associated with sickness and death.

(2 slides; one on stone pillar with the code of Hammurabi and the other on the English translation)

During the reign of Hammurabi of Babylon around 2,000 B.C. there evolved a code covering all phases of economic and family life. Paragraph 11 of the Code of Hammurabi refers to the practices of physicians and veterinarians that sets out a fee schedule according to the ability of the patient to pay, while also specifying the punishment if injury or harm is inflicted on the patient. Medicine remained intermixed with a blend of myth, magic, religion and philosophy for the next 1,500 years until it took on a scientific basis under Hippocrates (450 B.C.-370 B.C.). Hippocrates was the first to separate the practice of medicine from superstition and to distance it from the priests. He was a shrewd clinical observer and he introduced the concept of the bedside physician with close attention to the patient, and there always was an intellectual and moral basis to his writings. Galen (130 A.D.-200 A.D.) was the second pillar of Greek medicine, and his teachings on anatomy and circulation were accepted as dogma for the next 45 generations.

(3 slides; the first on Velsalius, and the other two on the anatomical drawings by Velsalius)

However Galen carried out dissections only in animals, and Velsalius in the 16th century working on human corpses was able in the spirit of the Renaissance period to upset conventional wisdom and produce much more accurate descriptions and drawings of the human body, culminating in the publication in 1543 of "De Humani Corporis Fabrica", regarded as the single greatest contribution to human anatomy and the beginning of modern medical science. Andreas Velsalius (1537-1563) then is generally accepted to be the "father of

anatomy". No discussion of the Renaissance period is complete without mention of Leonardo da Vinci, a most versatile genius in diverse fields who accumulated over 700 separate anatomical sketches based on his own observations from dissection on human cadavers.

(2 slides; one on Leonardo da Vinci's drawing of a fetus-in-utero and the other on contemporary drawings of fetus-in-utero)

We have only to look as an example at his depictions of a fetus in-utero, and compare these with the contemporary drawings.

In the mid 14th century there was a separation between medicine and surgery, the latter having fallen into disrepute with operations being carried out by manual workers who were barbers by profession. This was a form of specialisation, though it took place for the wrong reasons. In fact, the Barbers' Company instead of the Surgeons Guild in 1462 was given the rights to practice surgery by King Edward IV in England, and this status quo existed until the Royal College of Surgeons was founded in 1800 in London (Leavesley, 1984).

(1 slide on Ambroise Pare)

Ambroise Pare (1510-1590), a Frenchman, has been credited with raising surgery from a trade scorned by physicians and delegated to barbers/craftsmen to a professional stature. Pare started in poor circumstances and learned his basic skills in a barber's shop. Subsequently he had tremendous exposure as an army surgeon in caring for battlefield wounds, and he is remembered as the first to stop treating open gunshot wounds with boiling oil as was the fashion at that time. The orthodox treatment then was to use boiling oil applied locally to stop the "poison" in a gunshot wound from spreading.

(1 slide on John Hunter)

John Hunter (1728-1793) was the foremost scientist and surgeon in 18th century London, and was posthumously honoured as the "founder of scientific surgery'. Through comparative anatomic study he showed that the proper way to the operating theatre was through the laboratory, and he warned surgeons against acting like "armed savages". His greatest triumph was to eliminate drastic surgery for aneurysms, when the standard practice in his time for an aneurysm in the limbs was amputation. He found that the stag's antler was still warm after he had tied off the main feeding artery, and discovered that this was due to the expansion of collateral capillaries which had taken over the function of nourishing the antler. He then performed what was then regarded as a radical operation by treating a patient with a popliteal aneurysm by tying off the main vessel above, and fortunately for him and for science the leg survived from the collateral circulation.

The landscape in medical history is littered with small but significant discoveries and advances through the ages.

(1 slide on Laennec and stethoscope)

These include Laennec (1781-1826) with the invention of the stethoscope, which assisted greatly in the diagnosis and treatment of lung diseases. Paradoxically pulmonary tuberculosis was the disease that ended Laennec's life before his forty-fifth birthday.

(2 slides; one on James Lind and scurvy; and the other on Rudolf Virchow and cellular pathology)

Others include James Lind, the conqueror of scurvy; Edward Jenner who made eradication of smallpox possible through vaccination; and Rudolf Virchow, a German who established the basis of cellular pathology

and who finally discredited the old "humoral" theories of disease which were still prevalent up to the close of the 18th century.

(1 slide on William Harvey)

In the early 17th century an Englishman, William Harvey (1578-1657), established another milestone in the history of medicine by the discovery of the circulation of blood in the human body. His book published in 1628 entitled "An anatomical treatise on the movement of the heart and blood in animals" revolutionised medical thinking and contradicted tradition and the teachings of Galen, which had been accepted as dogma for centuries. Medicine then advanced rapidly in the 19th century, with the observation by Pasteur (1822-1895) that bacteria caused putrefaction and the use by Lister (1827-1912) of carbolic acid and zinc chloride as antiseptic agents. It was an exciting time, with chloroform and sulphuric ether being used for the first time as anaesthetic agents, in the extraction of a tooth and in another instance the passing of a ligature round a vascular tumour in the neck. In 1846 Robert Liston was the first to perform an operation under ether anaesthesia, when he carried out an amputation of a patient's leg at the University College Hospital in London. News of this took a few months to reach the Straits Settlements in our part of the world, as mail then had to transverse overland and sea to Egypt, then to Bombay and Ceylon before reaching its destination here. A surgeon by the name of A Ratton on 28th April 1847 carried out an amputation of the arm below the elbow successfully under ether anaesthesia, and proclaimed the triumph of science over hypnotism, which was the only form of anaesthesia used then. The operation was carried out on a Malay man who had lost his right hand from a gun accident (Lee YK, 1978).

Let me now turn to the general practitioner. The general practitioner is a direct descendant of the "apothecary", which comes from the Latin word "apothecarius" meaning storekeeper, and refers to a keeper and dispenser of drugs. In 17th century England apothecaries started as storekeepers and were no better than grocers, being able only to sell bottled lotions and were forbidden to prescribe. Their role took a drastic turn following the Great Plague in 1663 when physicians took to the countryside in droves leaving the sick and the healthy behind, at a time when they were most needed. The apothecaries stayed, and a gmtefu1 population in 1703 granted them the right to "ascertain the nature of disease and to treat that disease".

Hence in the beginning of the 19th century there were three distinct classes of medical practitioners comprising of the physicians, surgeons (who by then had taken over from the barbers), and the apothecaries. Each had its own governing body with licensing rights, which ensured that minimum standards were kept. In 1815, the Apothecaries Act made it compulsory for apothecaries to undergo a five-year apprenticeship in anatomy, physiology, the practice of medicine and materia medica which was essentially an index of the remedies available then. It also established a qualifying examination, the Licentiate of the Society of Apothecaries (LSA), and in 1858 the General Medical Council made it compulsory for all practitioners to pass exit examinations in the three main subjects of medicine, surgery and midwifery. The label of the general practitioner was first used in the Lancet in 1823, and the Society of General Practitioners was established a few years later in 1830. It is interesting to note that the College of Physicians did not recognise the title of "Doctor" bestowed upon general practitioners by the Medical Council, and did not relent until as recently as 1912.

The next phase of development was the age of specialisation. The first half of the twentieth century saw the emergence of the major specialties of medicine, each with its own defined training programme and its qualifying examinations. Technological progress was rapid, and investment in research produced good dividends. Medical education became increasingly oriented towards laboratory science and the technology of medicine. Science and technology became the catchwords of the day, and the answer to sickness and suffering seemed to lie in the laboratory.

In the 1940s, there began a new movement of medical care towards greater interpersonal interaction and personal care away from the technical and often-impersonal hospital based care. This movement took place in the United Kingdom, the United States, Canada, Holland, Norway, Australia and other industrialised countries. There was an increasing awareness that the physical component was just a part of the whole concept of sickness, and the delivery of health care should include other aspects such as prevention of disease, emotional and psychological support, rehabilitation, public education and the promotion of healthy lifestyles. The general practitioner is eminently placed to perform these roles, and in recent years it is being increasingly recognised that to control the escalating costs of health care the general practitioner should act

as the "gateway" to hospital care. The most efficient way to deliver health care to a given population is by using well-trained physicians at the primary level as the reference and entry point for specialist and hospital care.

Thus it can be seen that general practice and the other specialties evolved from different origins and the evolution was in response to a need and the expanding pool of knowledge. As the frontiers of knowledge are pushed further family medicine itself has evolved into a specialty of its own, requiring specialist skills and expertise in providing comprehensive care for the person as a whole.

## CHOICE OF FAMILY MEDICINE AS A CAREER

A well-established family medicine rotation has long been part of the undergraduate medical curriculum, both here and in other countries (Lang & Ware, 1991; Godkin & Quirk, 1991; Mengel, Davis & Barton, 1992; Herrick, 1992). The main approach is to incorporate a required rotation with exposure to community or general practice based training, together with teaching in epidemiology, social medicine and communications skills. It should be noted however that clinical undergraduate teaching is still very much geared towards hospital based care with only a small proportion of time devoted towards community or primary health care, when the majority of doctors will opt to be general practitioners.

Factors that have been shown to influence medical students' choice of family practice as a career include a required rotation in family medicine with an emphasis on primary care, the perception of faculty members and teachers, and the characteristics of family practice (Lang & Ware, 1991; Godkin & Quirk, 1991; Mengel, Davis & Barton, 1992). These characteristics of family practice include the delivery of patient centred health care, the diversity of illnesses seen, prevention of sickness and long term relationships with patients. Family practice is often viewed as being more personal than hospital care, and a meaningful rapport can be established not only with the patient but with the rest of the family as well. Independence, a desire to provide low-cost health care to lower socioeconomic strata patients and monetary considerations is also important. The medical school experience and curriculum in family medicine may be more important and override lifestyle considerations and the prestige and lure of technology-based specialties (Markert, 1991). Strong departments of family medicine will ensure an ongoing evolution of family medicine into an attractive career choice and specialty, with the recruitment and retention of the best faculty having been identified as one of the main factors (Taylor et al, 1991). Conversely, factors that could lead to a decline in general practice include the arrested growth of family medicine training programmes, the increased subspecialization in internal medicine and paediatrics, and the lack of glamour associated with general practice.

Students often view generalist medicine as too broad with no well-defined margins such that a precise scientific approach is not possible. However a new field termed "chaos science" suggests an intellectual basis for generalist medicine, in defining patterns and order in the behaviour of whole complex systems such as human beings. Chaos can account for nature's randomness, exceptions and nonperiodicity as expressed in the individual patient (Pruessner et al, 1992). On an intellectual and scientific level at least there is now the contention that generalist medicine is unique in its own way, requiring a base of knowledge and a degree of competence equivalent to that of the established specialties. Intuition is an example of a variable that plays an important part in management decisions, but which cannot be scientifically quantified. Intuition comes from knowledge about a patient's past, his culture and background, and is based on a long-term relationship with the patient in a family practice setting.

I some countries such as the United States, Canada and the United Kingdom postgraduate training or residency programmes have been in place for family medicine. These rotations are required before a license for general practice is allowed, and the European Community through the European Parliament has adopted a directive requiring generalists in member states to have two full years of training, of which six months must be in an approved practice. In some places a comprehensive examination including a clinical assessment is necessary towards certification by the relevant college of family medicine (Grand'Maison et al, 1992). In America, the American Academy of General Practice (AAGP) was founded in 1947 and the first residency training programmes in general practice started in 1950. In 1969, the American Board of Family Practice (ABFP) was formed and family practice was recognised as the 20th American medical specialty. Fifteen approved family practice residencies in the United States were initiated in the same year and the first ABFP examinations took place in 1970. In 1971, the American Academy of General Practice changed its name to

the American Academy of Family Physicians (AAFP). In the United Kingdom, the Royal College of General Practitioners was founded in 1953. Today, there is a World Organisation of Family Doctors (WONCA).

In Singapore the College of General Practitioners was founded in 1971. Over the years the College has achieved many of the goals it set for itself. Undergraduate teaching of general practice was initiated in 1971, and in 1987 the field of Family Medicine was formally accepted as an academic discipline in the National University of Singapore. Today, there is a division of Family Medicine in the Department of Community, Occupational and Family Medicine (COFM). The College runs continuing medical education courses, and since November 1972 has conducted a postgraduate family medicine programme leading to a diploma in MCGP(S) (Membership of College of General Practitioners, Singapore). Training took the form of educational courses and clinical sessions and a sufficient standard of competence has to be reached, comparable to that of sister colleges in Australia and the UK. To date there are 66 MCGP(S) holders.

There was then a move towards a more structured vocational training scheme. In 1988, the Ministry of Health, together with the college and the department of COFM in the National University of Singapore jointly initiated a 2-year training programme in Family Medicine. This consisted of 3-monthly rotations through different hospital based disciplines, and 3 months in an outpatient and primary health care setting in a government polyclinic, general practice and school health clinics. There was a modular course conducted on Saturday afternoons over the two years, and participants in the programme were encouraged to sit for the MCGP(S) diploma examinations.

The next development in Family Medicine in Singapore was in 1990 when a review of the existing pilot programme was carried out in conjunction with the visit by Professor J H Barber from the Department of General Practice, University of Glasgow under the auspices of the Ministry of Health. One of the problems was that while the MCGP(S) was accepted as an additional qualification by the Singapore Medical Council, it was not recognised for promotion in the public sector by the Ministry of Finance. In 1991 the training programme was extended to three years, and consisted of rotations through the various disciplines in hospital with a third full year spent in primary health care. The modular course as before was kept to the first two years of the programme, and a trainee having satisfied all the training requirements will be eligible to sit for the Masters of Medicine in Family Medicine (M MED, Family Medicine). Doctors who are already in general practice may apply to sit for the M Med examinations if he has spent at least six years in general practice, of which two years must be in practices approved by the Examination Board of the School of Postgraduate Studies. The first M Med examinations in family medicine will take place in the middle of next year. The M Med (Family Medicine) will be an entry examination, and another three years must be spent in the specialty before the candidate can be recognised as a specialist in Family Medicine with admission into the Academy of Medicine. This is in line with the requirements for the other specialties. Holders of MCGP(S) can apply to be on the accreditation programme and be admitted into the Academy of Medicine as a specialist in Family Medicine, and the content of the review will be similar to that for holders of the M Med (Family Medicine) to include postgraduate teaching, research and evidence of acceptable standards of practice and medical record keeping. Looking to the future an exit examination rather than a review may be necessary for specialist accreditation or certification. Doctors who have already been in general practice for a long time e.g. more than 10 years, can perhaps be considered for accreditation or certification on meeting certain requirements, the nature of which will have to be looked into and decided by the College together with the School of Postgraduate Studies.

**WHAT IS GENERAL PRACTICE?**

General practice requires a broad range of knowledge and skills, which are specific to the discipline. General practitioners are confronted with the whole range of medical and surgical conditions, as they have to accept all patients regardless of the age, sex or the nature of the problems. They are usually the first doctors patients see, and the problems presented can be disorganised and important symptoms not volunteered. The general practitioner has to organise the clinical problems for the patient in the correct priority, and to involve specialists in the management of the patient at the appropriate time. The spectrum of illnesses seen range from the minor to the life-threatening, and the general practitioner has to decide and to remove the element of uncertainty. In general practice there is a one-to-one relationship, and the general practitioner feels a personal responsibility for the patient whereas the doctor in hospital practice is often viewed as an extension of that institution.

## PERCEPTION OF ILLNESS

The patient's perception of his illness may be different from the doctor's, and to narrow this gap the patient should be seen in the context of his culture, religion and family. The family culture comprises the habits, beliefs and lifestyles which may aggravate or alleviate an illness of one of its members (Herman, 1991). The primary health care physician must be able to meet the health care needs of patients from diverse cultural and socioeconomic backgrounds, and to understand illness in the context of cultural beliefs and norms (Like, 1991). There should be an awareness of the epidemiology of health and illness in different racial and cultural groups, and the provision of "culturally sensitive" health care is the ideal. More attention should be paid to traditional methods of healing to integrate this into an overall plan of care, as our concepts of health and illness are very much Western based and should not be rigidly imposed. However generalisation and negative stereotyping must be avoided, and a sensible and open-minded approach to each family with its unique interactions together with an awareness of the cultural and ethnic backgrounds is needed to provide effective care. It is essential that family medicine faculty members and teaching staff act as role models in eliminating cultural and racial bias in the provision of health care.

## PREVENTIVE CARE

There is presently a heavy reliance on drugs and medical therapy in the provision of health care at the primary level, with insufficient emphasis on preventive medicine including health education and promotion, vaccination, screening, surveillance and rehabilitation. Epidemiology is especially important in the training of general practitioners, so that data based on population studies can be translated into simple messages for the patient. Workshops in behavioural sciences and modification programmes can be held on a postgraduate level as it is becoming clear that many of the causes of mortality and morbidity are lifestyle related (Silagy et al). The barriers to preventive medicine in general practice include lack of time, lack of clear guidelines, lack of financial reward and a perceived lack of success. Success in preventive medicine is not so apparent, and the medical practitioner has to realise that his efforts will not produce immediate results.

The general practitioner can inform and advice in a personal way that could not be done through the media or the use of pamphlets. Both doctors and patients regard the general practitioner as the most appropriate person to deliver preventive care (Sanson-Fisher et al, 1992). It has been noted that on the whole general practitioners are able to deliver effective preventive care using the skills they already possess (Davies, 1991). Patients attending for a visit are especially receptive to advice as they feel vulnerable because of illness or anxiety about symptoms (Ward et al, 1991). Considering the time constraints of most general practitioners this role can be performed by nurses, and it has been shown that patients generally find this to be both satisfactory and acceptable (North, 1991). Whether this can be incorporated into a general practice would depend on the individual doctor, and the characteristics of the practice itself. There is little doubt that the promotion of healthy lifestyles with an emphasis on dietary habits and moderate exercise should be encouraged. Cultural reasons, religious and taboos may adversely alter dietary patterns, and advertising has played a prominent role in influencing dietary fads and the consumption of junk food. Opportunistic counselling when patients are seen in the clinic offers a counterbalance to these adverse influences, and will require time and effort to be effective. There has to be a greater emphasis on preventive medicine, and a change of thinking is required on the part of most general practitioners.

In preventive medicine an efficient recall and reminder system has to be in place, whether it is done through the post or telephone. Computerised generated reminders to both the physician and patient have been found to be useful, and to improve the delivery of preventive service in family practice (Ornstein et al, 1991; Rosser et al, 1991). Opportunistic screening is useful but may not reach a significant proportion of the target population, and a more formal invitation to attend for screening has to be considered (Norman & Fitter, 1991). Research in family medicine offers guidelines for the formulation of effective policies and guidelines that can be used on a nationwide basis. A multimethod approach appears to be the most appropriate in family medicine research, involving both quantitative and qualitative analysis (Miller et al, 1991). On an individual basis it would be helpful if there is increased feedback from general practitioners on the most relevant research questions.

## HEALTH COSTS

In an effort to streamline costs the United Kingdom (UK) is reforming its National Health Service (NHS). The United Kingdom spends 5.5% of its gross national product on health care, compared to more than 12% in the United States, 8.5% in Canada and about 3% here in Singapore. One of the factors accounting for the lower cost in the UK relative to other Western countries is that the NHS is general practitioner driven, and in the public sector the patient would not have access to a hospital or specialist directly (Vall-Spinosa, 1991). Hospitals is where most of the expensive technology is based, and general practitioners decide which patients should be seen by a specialist and who should be investigated further. This is an efficient and cost-effective mechanism where general practitioners perform the function of "triage". Some of the reforms in the UK include the redirection of funding and encouragement of entrepreneurship, a quality which is not lacking in our own general practitioners in Singapore. Other reasons contributing towards the high costs in the US include an insurance driven health industry, the high rates of litigation and it has been estimated that yearly 175 billion US dollars are spent on administration alone (Rosser, 1992).

## CONCLUSION

Medical practice comprises a spectrum with the generalists at one end and subspecialists and subdivisions at the other. The family doctor of today and tomorrow has many roles to play. As the frontline doctor of the health system he has the vital role to play to decide who requires and should have access to technology based hospital care. He is the key link if escalating costs are to be kept in check. He has to co-ordinate the medical community in providing total care for the patient, and ensure that his services are accessible, affordable and of a high quality.

Science and technology have taken on a quasi-religious status, and there is a sense that the pendulum has swung too far with the neglect of the social and humanistic aspects of medicine. The general practitioner is not tied to specific disease groups and has the advantage of an overall perspective on the patient's problems. He has a central role to play as a trusted friend, counsellor, philosopher and community leader. Family medicine is a rising discipline in Singapore, and it complements the high technology specialties in providing effective and cost-effective medical care. In Singapore structured training programmes and examinations, the M Med in Family Medicine, are already in place for the certification of family medicine as a specialty. The rationale behind specialisation in family medicine is to have fully trained and competent generalist doctors who have a scope and depth of knowledge to deal with patients who are unselected in terms of age, sex or nature of complaints. He has to discern pattern from complexity, and to decide on the order of priorities looking at the patient as a whole.

As we look towards the future we must not forget what the past has taught us, as we remember the words that Hippocrates once said; "where there is love for mankind, there is love for the art of healing".

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## REFERENCES