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# The Status Of Anaesthesia Services And Residency Training Programmes In Saudi Arabia: Facts And Personal Prospective

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## Abstract

Anaesthesia is a highly specialized field of Medicine. Generally, the development of the specialty of anaesthesia was very slow until the mid twentieth century. It was characterized by low-key image, long working hours, low salary and always under the influence of administration and/or the surgical specialty. It was an unattractive specialty and the specialist was considered as the unknown or unseen soldier. Recently the image changed with emerging new special services eg. cardiac anaesthesia, intensive care, resuscitation, pre-operative anesthetic clinic, pain management, obstetric analgesia service, etc.

The anaesthesia services in Saudi Arabia were no different. The start was in the sixties when the first two Saudi Specialists obtained their higher degree from Denmark. A Al-anezy worked in Iraq, and in the eighties returned to the country, while I. Al-khawashki immediately returned and worked in the central Hospital, Ministry of Health. At that time, there were few expatriate anesthetists who were working and covering several operating theaters and sometimes more than one hospital within the city. Dr. Ishac AlKhawashki participated in supervising and updating the curriculum for the diploma of anaesthesia for technicians, which had started earlier. The programme comprised of a three year training programme. The main objective was to produce anaesthesia technicians to overcome the shortage of specialist manpower and provide a reasonable service at that time. Later on, in the seventies, I returned to the country as the first holder of a fellowship in anaesthesia from Ireland and membership from United Kingdom. The author was appointed as Assistant Professor, College of Medicine, King Saud University in Riyadh. As the years past, a few more qualified anesthetists returned to the country. They were Drs. Sami Al Marzoogi, Dhafir Al-Khudairy, Hussain Darweesh, Adnan AlMazroa and Waleed AlYafi. In the nineties, several specialists graduated and some obtained their degree abroad while the others obtained their fellowship degree in anaesthesia and intensive care from King Saud and King Faisal universities. This was a real boost to the specialty.

The late eighties and the early nineties are considered to be a golden era and the start of the residency training programmes in anaesthesia and intensive care in Saudi Arabia. King Saud fellowship started in 1989. Till date, 35 candidates have graduated and 14 are enrolled. King Faisal Fellowship started in 1993 and two were graduated, later the programme ceased. The Arab Board for the specialty took two years to develop by the author and officially started in 1993, over 800 residents have enrolled in the training programme and over 120 are holders of the degree. The Saudi scientific council for the specialty of anaesthesia and intensive care was established in 1998, 14 graduates hold this degree, while 102 residents are enrolled in the programme, 90 of them are Saudi. It has been noticed that more and more are enrolling in the three recognized boards. Recently two post anaesthetic fellowships in cardiac anaesthesia and critical care were started and a third fellowship in paediatric anaesthesia will start soon.

The Saudi Anesthetic Association (SAA) was founded in 1989 under the auspices of the university rules and regulations designated for the scientific associations. It played a major role in establishing standards of care and monitoring, providing continuous medical education and out-reach programmes. The SAA also published the newsletter for the past 16 years which is issued every three months and held annual scientific meetings and symposia regularly every other year in collaboration with Prince Sultan Cardiac Center in Riyadh.

## INTRODUCTION

The objective of writing this article is to define the specialty, to compare between the old and the new methodology of training in anaesthesia and to give a clear picture of the past

and the dilemma of the anesthetists working in the country, the development of the Residency Training Programmes RTP, and finally put forward recommendations to update and improve the services.

Definition of anaesthesia and the anesthetist by most dictionaries: (1,2,3,4,5,6,7) , does not reflect the intricacy of the profession, this gave a bad image besides, the specialty was known as the silent profession and the specialist as the unknown soldier. The specialist usually worked long hours with low income, confined to the operating theatre, under the influence of the surgeon and has no direct contact with the conscious patient. Furthermore, the specialty has been marked by a high incident of drug and/or alcohol addiction, high incidence of suicidal attempts and cross infection. All these were deterrent factors that ultimately tarnished the picture of the specialty. Meanwhile, medical graduates were not attracted to the specialty. This kept the specialty in its enclosure. The glamorous medical specialties were more attractive and the first choice for the new medical graduates and anaesthesia was second or third choice. Definitely there are members who were in love with the specialty; to me those were the ones who made the transformation. They started making daring changes by leaving their enclosure into the new wide spectrum of various subspecialties which they developed. These were intensive care, cardiac anaesthesia, administrative management, resuscitation, pain management for cancer patients and others who suffered from intractable pain, when childbirth became painless after introduction of epidural service on a regular basis in obstetric practice, and thoracic and paediatric anaesthesia. This gave new dimensions to the specialty. It was enhanced by the development in pharmaceuticals, the accelerated innovation of devices, the latest anesthesia machines and the state- of-the-art monitoring equipment which was incorporated in the daily work in anaesthesia services. The creation of top class residency training programmes and the birth of anesthetic societies in every country, who were responsible to care and defend the specialty, implementing the standards of care and monitoring, and the early exposure of medical students to the specialty played all a role. All of these sudden changes in the specialty made a huge difference to the patients, definitely projected a better image and made the specialty more attractive, so the cream of the graduates started to join. This was the turning point that changed the dark image to a bright one. Most recently, a new name is given to the specialty and the specialist as perioperative physician.

So in order to give better understanding of the specialty I recommend that the new and modern definition of anaesthesia is the logical technique that will be chosen by qualified, and skilled staff to be applied to a patient anytime

whatever his/ hers condition, in order to produce an uneventful and painless condition. This is usually provided in a suitable environment, well supported by state-of-the-art of equipment and monitors. while the new modern definition of the anesthetist is as follows: he/ she is a physiologist, a pathologist and a master pharmacologist who with his/ her knowledge and skills will be able to provide the right and logical method of anaesthesia, dictated by the patient's condition, for the benefit of the surgeon who will be able to perform his/ her surgical procedures successfully and without ill effects on patient's vital organs during and after the procedure

## **INTERNATIONAL DEVELOPMENT OF RESIDENCY TRAINING PROGRAMME IN ANAESTHESIA**

Anaesthesia was thought in the past from generation to generation by the method of copying. There was no formal teaching and when you wanted to obtain your degree, you had to prepare yourself by reading books, references journals and gather the knowledge that would able you to convince several self-taught examiners that you are qualified and ready to join them as a holder of the degree. This traditional method continued throughout the nineteenth century. The educators in the medical fields from North America innovated and implemented new educational training programmes. It was a blend of several old methods. The teaching of the specialty became an art, similar to the way of painting. Residents have to go through the system step by step, or what is known as a structured training programme. The residents attend regular scheduled educational activities which include lectures, workshops, clinical exposures, rotating and working only in the recognized hospitals under the care and supervision of consultants. The object is to mold the residents into more specific and structured training programme towards subspecialties. The main objectives of such training programmes are to produce knowledgeable and skilled professionals that are able to provide logical and safe techniques in anaesthesia for any patient, at any time, anywhere, to take decisions in cases he/she are unable to provide the ultimate proper and safe anaesthesia due to inappropriate facilities.

The new methodology in training became the official and the practical way all over the world, not only for its simplicity but for its wider application in preparing the new candidates to understand, absorb and digest the amount of cognitive and didactic knowledge given to them in proper doses. This is

carried out through the junior period of two years where the proper teaching of general and local methods of anaesthesia for different fields for surgical interferences. The successful resident will continue his/her development in the senior period of two years set for the resident to rotate through the different fields of the anesthetic subspecialties training programme.

## **ANAESTHESIA SERVICES IN THE KINGDOM OF SAUDI ARABIA**

The health care delivery system in the kingdom of Saudi Arabia is considered to be one of the best in the Arab world. The government is spending vast sums of money every year to establish and maintain hospitals for every one throughout the Kingdom. It provides three different levels of health care, Primary, Secondary and Tertiary. The health care system is provided by three different categories of health care institutions. These are:

### **MINISTRY OF HEALTH (MOH):**

The ministry of health is responsible for providing and supervising the lion share of the total hospital beds in the kingdom. It carries the burden in providing a different level through out the vast geographical continent of the kingdom. The ministry operates 58.7 % of all hospital beds and is responsible for supervision of the private sector hospitals which amount to 21.8 % making a total of 80.5 % of the total hospital beds. The ministry's hospitals perform every year 409,049 surgical procedures by 4145 surgeons and the anaesthesia services is managed by 688 anesthetists (8). Their workload is estimated to be about 595 cases/ year. The majority of the anesthetic staff is at the level of specialist and approximately 15% is at the level of consultant. There is only few hospitals recognized by the Saudi commission for the residency training programme at the same time they have a far less number of residents .

### **THE PRIVATE SECTOR (PS)**

The private sector has 2108 beds which represents approximately 21.8 % of the total hospital beds. They are mainly operated in the major cities. These hospitals perform 253,308 operations by only 350 specialist or junior consultant anesthetists (8). The standard varies from hospital to hospital and from city to city. Each anesthetists workload / year is 724 cases. The hospitals are not recognized and have no residents.

### **OTHER GOVERNMENT HOSPITALS (OGH):**

(Universities, Military, National guard, Security forces, King Faisal specialist hospital and research center, etc.). These hospitals provide the cream of the medical care and represent approximately about 19.5 % of the total hospital beds. They perform approximately 149,006 surgical procedures by 411 anesthetists (8). Each has a workload is 363 cases/year. It is considered far less than their counterparts in the other hospitals. It may be considered to be ideal workload/year/ anesthetist. Several major differences are implemented in the service which makes the difference from their counter parts. The daily routine anesthetic services are provided by senior staff, the department implements and enforces the standard of care and monitoring which specifies to have a consultant covering a single theatre and a technician working beside them. Most of these top class hospitals are recognized for the residents to carry out their training under the supervision by the local training committee of the Saudi scientific council for the specialty of anaesthesia and intensive care.

### **TASKS, ENDEAVOURS AND ACHIEVEMENTS**

Through the early years of my work in this country, I felt that there was a disparity between what we are supposed to provide and what is known to be the excellent top class service. There were several major problems, mainly low level of service, few number of working anesthetists, lack of standard of care and monitoring, non existence of policy and procedures are the bad image of the service, influence of administration and surgical departments, etc. The service fell into a dilemma as there was no one or body defending, updating and protecting the specialty.

The anaesthesia service started on a wrong footing similar to other countries. It was worse as there was no Saudi specialists until the sixties. The technical stage was started in late fifties and updated by the first anesthetist Dr. Isac Alkawashki. He obtained his diploma from Denmark and returned to practice in the central hospital where he faced the major problem of availability of only a few professional expat anesthetists who covered several operating theatres and sometimes more than one hospital. The only solution to solve this problem was started early, so he participated in updating the established diploma for anaesthetic technicians (9) The diploma was made of a three year training programme and the acceptance was from the intermediate school graduates. The aim was to graduate sufficient number of technicians to provide a service under the command of

senior qualified consultant anaesthetists. It was short term and useful plug at that time. The programme continued to produce a lower level of technicians than their counterpart in the Scandinavian countries. In 2000, a change was introduced, where high school graduates only were accepted in the programme. There are over 930 anaesthesia technicians and unaccounted number of nurse anaesthetists working in the health care system in the Kingdom. They are useful workers and could be an asset to the anaesthetist, but they should not be left to practice performing anaesthesia at all.

Anaesthesia was a forgotten entity in KSA. People at large still thought anaesthesia was rather a mask over the face or injection in the arm. From the late sixties to the end of the nineties, only a few qualified anaesthetists trickled into the services. Dr. Isac Alkawashki was the first qualified anaesthetist worked in the kingdom and I was the first Saudi qualified with fellowship in the mid seventies, a few years later more qualified Saudi anaesthetists follow. They are Drs. Sami al-Marzoki, Dhafer Al-khedairy, Hussain Darweesh, Adnan Al-Mazroa and Walid Al-Yafy. Those were the cream of the crop who returned to the country and the new era of the specialty begun.

I was considered to be the fighting force and the defender of the specialty. I was working in the medical college of King Saud university. Several articles were published tackling the dilemma facing the specialty (10,11,12,13). Recommendations were laid down on the future of the specialty. My first task was to represent the new image of the specialty by first having a top class department in the university capable of providing state-of-the-art services based on applying the standard of care and monitoring, producing and enforcing the policies and procedures. The department was able with these services to represent the new image of the specialty. It will be able to defend, protect, change the old image of the specialty in the country and even has an influence on the neighboring countries. This started off by recruiting leading personnel in the field of anaesthesia. The department was successful in having several international figures beside young and vibrant colleagues that helped in the short and long-term plans laid down by the department. The second task was creating the residency training programme different from the local degrees and similar to what the western world provided. This was mainly to produce future Saudi qualified staff. The third task was to establish the SAA to care and improve the practice of anaesthesia within the vast service in

Saudi Arabia. The main objectives of the association were:

1. To provide continuous medical education programmes by organizing and conducting regular annual scientific meetings in different regions and holding monthly club anaesthesia meetings which started in the Riyadh region, later on, in the western and eastern regions. Producing outreach programmes that were able to be held any where in the kingdom. Through these we could educate, update, improve the service and spread the new image of the specialty and able to furnish the kingdom with the standard of care and monitoring.
2. To launch and produce a regular issue of the SAA newsletter every three months, and distributing it nationally and internationally.
3. To initiate a new and genuine idea of malpractice insurance known as Takaful Ejtemaei (14) . It started with the members of the department. The idea is to deposit S.R. 2000 each to collect the blood money needed for any case of litigation against any member of the department. Fortunately for 18 years the department did not have any malpractice case we had to pay out on. The beauty of the idea is that the insured member can take his/her money when leaving the department or can donate their share to the SAA. and at the same time, they all felt legally protected.
4. To participate actively in all world conferences, be actively involved in research projects, publish articles nationally and internationally and finally be a member of the world federation of anaesthesiologist societies.

## **THE DEVELOPMENT OF THE RESIDENCY TRAINING PROGRAMMES IN THE KINGDOM OF SAUDI ARABIA**

The first half of the eighties can be considered to be the beginning of the foundation for the future plans and strategies, while the second half of the eighties and the early nineties was the era of implementation and helping to bring the specialty into the twentieth first century

I had a few dreams in my career life, one of them was to establish the residency training programme. When I returned to the country in 1977 it became a reality. This task was

achieved in the next ten years with a great deal and hard work from the team assigned to produce these programmes. Another dream was to have a chance to work either with professor J.J.Bonica Or professor P. Bromage. Two of the greatest anesthetists in Local and Epidural analgesia. I met professor J.J.Bonica twice, once in Saudi Arabia during his visit to King Faisal Specialist Hospital and research center and the other time during the 1980 world federation meeting in Hamburg, Germany. To me, he is a great man ,but our thoughts were not on the same track. In 1983 I met Prof. Phillip Bromage in Denver, I was sent on an exchange visit for three months. I admired the man and I managed to recruit him later to join the department. Earlier we were able to recruit one of the leading researchers on Muscle relaxant Professor Viby-Mogenson from Denmark and Dr.Trevor Dobinson a cardiac anesthetist from New Zealand. The second half of the eighties was the period of icing the cake when the department managed to plan and produce the following

### **MASTER DEGREE IN ANAESTHESIA**

In mid eighties, the post graduate centre set a plan to develop the higher degrees in different medical specialties. The department of anaesthesia board agreed to develop and start the master degree in anaesthesia. Prof. Ameer Channa , Prof. Viby Mogenson and I prepared and implemented the project in 1986. A few candidates were enrolled, but never graduated as we were asked later to change it to a fellowship in the specialty of anaesthesia and intensive care.

### **KING SAUD FELLOWSHIP IN ANAESTHESIA & INTENSIVE CARE**

The team of Professor P. Bromage, Dr channa, Dr Dobinson and I accepted the challenge. We started by gathering and reviewed all available materials for the international fellowships. We selected the Canadian training programme for its collectiveness and simplicity in application, preparing and finally producing a skillful anesthetist. It is a four year training programme.

The residents have to rotate in all specialties, produce a log-book containing 2000 cases and successfully passing yearly examinations. The programme started in 1989. The coordinator of the programme was dr. Ameer Channa at that time , then prof. Mohamed Naguib took over and continued for several years until he moved to America. The first graduate from the programme was D. A. Sammerkandi in 1993, who recently became the second professor of

anaesthesiology in Saudi Arabia. The total graduates and the holders of the King Saud Fellowship are thirty five, some of them are non Saudi, while there are fourteen residents enrolled in the ongoing programme.

### **ARAB BOARD IN ANAESTHESIA AND INTENSIVE CARE**

Colleagues in the Pan Arab federations of anesthetic societies realized the achievement the department made under my command and asked me in November 1991 to prepare the statutes of the programme. The task took me over two years to complete. It was presented to the Arab Council for medical specialties in Damascus and approved in November 1993. The Board started slowly, but over the years the number of candidates enrolling kept increasing and reached over 800.Since 1996 up to date, the graduates have exceeded 100. Fourteen Arab countries are members of the scientific board of the specialty of anaesthesia and intensive care.

### **FELLOWSHIP OF KING FAISAL UNIVERSITY**

The programme Started in 1993. It was similar to our programme. It started successfully, but unfortunately it only lasted for a few years and graduated only two fellows. The reason for its cessation is unknown.

### **SAUDI BOARD IN THE SPECIALTY OF ANAESTHESIA AND INTENSIVE CARE**

In 1996 I was asked to chair an adhoc committee to prepare the necessary document which is needed to establish the Saudi Board in the specialty of anaesthesia and intensive care. I have nominated four members representing the three universities plus a member from other health care systems to be members of the adhoc committee. We worked hard and completed the task in 1998. The Saudi Commission For Health Specialties accepted and approved the new scientific council in the specialty of anaesthesia and intensive care in the same year. The start was slow but the number of candidates enrolled in the programme has increased to 85 out of those 71 are Saudi residents. Recently ten completed the training programme and are eligible to enter the final examination. There are 14 expatriate residents in the programme. The number of graduates are fourteen and some of these graduates are expatriates.

### **SUB-SPECIALITIES POST ANAESTHESIA FELLOWSHIPS**

The members of the Saudi scientific council for anaesthesia and intensive care decided to create post specialty

fellowships. Four adhoc committees were selected to develop state-of-the-art training programmes of two years in the following sub-specialties:

- Cardiac anaesthesia fellowship
- Critical care fellowship.
- Paediatric anaesthesia.
- Pain management

They completed the task which was discussed and approved by the members of Saudi Council for the specialty and sanctioned by the Saudi Commission For Health Specialties. The graduates will obtain his/her degree and facilitate their appointment immediately as a consultant. We expect the last fellowship will start soon

## **DISSCUSION**

From the above mentioned findings, first we found that there are several problems. They are:

1. The total number of anesthetists working in the Kingdom is 1449 (1:15878 population). The M.O.H. has 688, the private sector has 350 while the other government hospitals have 411(8). The authors were able to calculate the workload for the three different categories of health care systems. We used the workload/ year performed by the consultant anesthetist working in the other government hospitals as an indicator to estimate what the Ministry of health and the private sector hospitals should have. The figures of OGH's was used due to the fact that they have consultant coverage per theatre, far less mortality than their counterpart who are working in both hospitals of MOH and PS. Beside that, all of them are insured against malpractice, application of the standard of care and monitoring in all hospitals, implementing policy and procedure of the department and finally they maintained their knowledge and skills constantly. We found that the Ministry's hospitals are short of 439, while the private sector' hospitals are short of 349 anesthetists making the total shortage is 788 anesthetists. Therefore, the actual number of anesthetists working in the Kingdom should be 2239 (1:10272 population) and not 1449. This is not far from the estimate figures of 1 anesthetist for every 85,00 population as reported by Paker and published in the report of workforce of the Australian and New Zealand college of the anesthetists 2005(15).

Up to the seventies there were only three Saudi anesthetists.

Two are working in Saudi Arabia and one In Iraq. The number of Saudi anesthetists increased through the last two decades. The total number is 197 (13.6%). 105 are residents, about 80 % are enrolled in the different local residency training programmes while 20 % are in scholarship abroad. The rest are 92 consultants and academicians. Seventeen out of those are chairman of anesthetic departments and or intensive care units, two are vice chairman of hospital administration and one is the dean of medical college, King Abdulaziz university, Jeddah. To me this is a proud moment from a few to 197 in two decades. This is considered to be an achievement.

2. The working staff in both ministry of health and the private sector hospitals are of the junior qualified staff. The majority are of the specialists level and only about 15 % are consultants. Furthermore they are not allowed to attend regular continuous medical education programmes to improve their knowledge and skills.

3. We also found that both MOH and the private sector hospitals are using less qualified staff than the OGHs. There are over 900 anaesthesia technicians and nurse anesthetists working in the Kingdom. Sometimes, anesthetists are used to cover more than one operating theatre, while a technician or a nurse anesthetist are performing the anaesthesia with or without supervision. This is forbidden by the law of the land.

4. Other findings which the author discovered is that, there are no official figures on mortality rate due to anaesthesia in the kingdom, but we were able to locate articles, personnel references and communications recently published (16,17), while other articles indicates that MOH and PCHs may have higher mortality rate than the OGHs(18,19). So we interpreted this and used it as an indicator of their utilization of more junior who are less qualified rather than the top qualified senior staff working in the other government hospitals. In the meantime, the standard of care and monitoring which is not implemented in the majority of their hospital supports our finding as it specifies mandatory coverage of each theatre by a consultant and technician coupled with the-state-of-the-art equipment and monitoring devices (20). The western world reduced the mortality rate to minimum. Thirty years ago, mortality rate due to anesthesia was 1-13,000 it fell to 1-200,000 (21,22,23,24). this was mainly due to several factors. They are:

- Implementation of the standard of care and monitoring

- Updated policy and procedure
- Top class residency training programmes
- Wide spectrum of sub-specialties which attract the cream of the crop from the medical graduates
- Implementation of specific credit hours of the continuous medical education
- Malpractice insurance coverage
- Registration with the medical council and obtaining license to practice.
- Active participation of the anesthetic societies in setting the state-of-the-art practice, defending, protecting the specialty and the specialist.

5. Unfortunately, there is neither standard of care nor malpractice cover applied in our health care system in the Kingdom. Standard of care have three elements. They are:

- Personnel should be present throughout the conduction of general and regional anesthetics and monitor anaesthesia care.
- Continuous evaluation of oxygenation, ventilation, circulation and temperature.
- Monitor oxygen saturation in the blood

Malpractice is defined by Columbia Encyclopedia as the “failure to provide professional services with the skill usually exhibited by responsible and careful member of the profession, resulting in injury, loss, or damage to the party contracting those services (25). Malpractice suits are usually issued to physicians who exhibited negligence and who did not abide by the standard of care prescribed by the anesthetic societies. A competent and prudent anesthesiologist while following certain guidelines and providing the proper standard of care, should keep him/her safe the safe of malpractice lawyers, allowing him/her to lead a happy life (26). The above message is crystal clear to every one to comprehend, the Ministry, the societies and the specialist. Each of the three should have the assigned responsibility and abide to it and work hand in hand to provide the required state-of-the-art anaesthesia services.

## **RECOMMENDATIONS**

The following are a set of recommendations to improve ,

upgrade and update in order to put the specialty on the right pathway. These are:

- The standard of care and monitoring in all hospitals in the Kingdom must be implemented as soon as possible. All hospitals must have and develop a top class biomedical engineering unit capable of applying random, mandatory check ups and immediate or periodical maintenance.
- Attractive scale of salaries different from any other medical specialty. This should be based on several factors, mainly the long working hours, the exposure to a strenuous specialty, the possibility of addiction and infectious diseases, plus other reasons mentioned before.
- The ministry of health should approve and authorize all regional health authorities to apply the approved plan of rotating all members of the anesthetic staff every two years between the regional hospitals. They must permit and encourage the staff to attend local, national and international anesthetic scientific meetings or symposia and be encouraged to have club meetings. All the staff must obtain the necessary credit hours (Cr. Hrs.) of the CME requested by the (SCFHS).
- To set policy and procedures p.p. for recruitment of expatriate colleagues in the field of anaesthesia and intensive care. They should be orientated on the health policy and procedures in general, anaesthesia and intensive care in particular.
- Enforcement of the department of anaesthesia and intensive care policy and procedures approved by the highest health authority in the KSA. These P.P's. must be reviewed and updated regularly according to the standard of care and monitoring set by ASA in accordance to and comparable with the standard set by the American Society of Anesthesiology ASA (27,28)
- Medical litigation is combined responsibility shared by first, the establishment who is the highest authority of health care in the land who should provide the state-of-the-art anaesthesia service and be responsible to set the regulating body to enforce and supervise the standard of

practice. The evident havoc existing in the health care system in the country to-day is due to the absence of regulating statutory body which has lead to unprofessional layperson in newspaper and magazines critising the medical fields leaving the physicians with no recourse. Second the Anesthetic societies who have a role in setting, renewal and updating the standard of care and monitoring, must be a member of the legal committee and be able to defend the accused. Third, the specialist who usually takes the blame on any malpractice. H/she should update their knowledge and skills by obtaining the necessary credit hours of the continuous medical education required by the SCFHS in order to be licensed to practice in the Kingdom. Therefore, the Ministry of health must implement and enforce the malpractice insurance coverage on all anesthetists working in the Kingdom.

- Increase the intake of Saudi or non-Saudi residents especially by the MOH as the huge bulk of medical care is provided by its hospitals. The ministry has 19 regional health authorities which can and should have resident per region while the major regional areas should have at laest 5 residents or more. The Ministry should have thirty residents each year in the programme. Within ten years their Saudi staff will increase tremendously. The Ministry must have short and long term plan in order to increase the Saudi anesthetic staff. The expatriate residents must work equal years to the training period after graduation.
- At the moment the Saudi scientific council has three recognized regions and can accommodate up to 100 residents in the programme. It has a plan to accept two more regions soon and can increase the residents up to 125 and within the next ten years all other regions should be included in the programme and the total intake should reach 160 residents
- The Saudi commission For Health Specialties (SCFHS) should implement and scrutinize the policy of the credit hours of the CME on all health personnel working in the Kingdom. The SCFHS should contemplate to increase these Cr.Hrs. for all health specialties to be comparable to the western world. All anesthetic staff must be a holder of valid

certificates in CPR ( adults, paediatric and neonatal), and fundamental critical care support FCCS before given the license to practice medicine in the Kingdom.

- Provide financial supplement for residents in internal scholarships by their sponsors similar to the residents who are in international scholarships (at least payment of the annual fees).
- The structure of the working staff must be altered from the existing state particularly in the ministry and private sector hospitals. The number of consultant anesthetists should be increased tremendously in order to comply with the policy “ consultant coverage for every theater”.
- All anaesthesia technicians and nurse anesthetists working in any department in the kingdom should never be allowed to prepare, inject and/or anaesthetize any patient. Their job description should be specified and limited to prepare, check the equipment and assist during performing anaesthesia. The memo of the ministry of health regarding this matter must be implemented and enforced.
- To overcome the shortage of qualified anesthetists is to create new class of anaesthesia technologists. The bachelor degree is composed of a five year training programme plus one year internship. The programme can accept fresh students with the high school certificate, beside allocating a fixed percentage or numbers to accept from the old graduates who would like to enroll in the new programme. This should be applied for the next five to ten years or until the old graduate is reduced. This idea is to absorb the previous graduates from the technical institutes. The new degree is to replace totally the old one. We are absolutely sure that some Western countries have implemented such new programme to solve the persistent shortage of qualified personnel and to provide suitable coverage for the expanded fields of anaesthesia.

All anesthetic staff should be encouraged to join the SAA and benefit from the educational activities provided regularly and use the library facilities available for all



members. It provides continuous medical education through the monthly club

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