In the context of warfare today, the Air Power of a nation, has been used and will continue to be used, as the primary means of striking the enemy. Even though there has been a progressive improvement in the class of aircraft and ancillary equipment on the inventory of the Armed Forces, man still remains the supreme weapon and his morale, the battle winning factor. It was due to the foresight of the pioneers of Dte Gen Armed Forces Medical Services 50 years back and the sustained subsequent support that, from a Humble beginning of three Medical Officers, a large pool of specialised manpower and infrastructure has been created today, to support the air operations of the Armed Forces, both in war and peace. IAF’s Medical Branch has grown along with the Air Force and has integrated exceptionally well, with both offensive and defensive role of the Indian Air Force, and has been providing the aeromedical support to Army, Navy and Civil Aviation. Today through the Institute of Aerospace Medicine, it is also playing its international role in training and research. This article is an attempt to recollect the glorious past and place in perspective the contribution of the Air Force Medical Services in support of the Air Power over the past 50 years. The Indian Society of Aerospace Medicine, beyond doubt plays a pivotal role in this support.

The Humble Beginnings

With the introduction of the Indian Air Force bill in the legislative assembly by the Government of India in 1931, the Indian Air Force Act came into force on 08 Oct 1932, laying down the foundations for the Royal Indian Air Force (IAF). In the initial years, from 1933 to 1941, the medical facilities for the IAF personnel were not instituted since their numbers were very small and they worked with the Royal Air Force (RAF) at the same airfield. The Station Medical Officer of the RAF provided medical cover to the IAF personnel also. Whenever the IAF flight operated out of an airfield without RAF medical staff, the nearest army medical unit provided the requisite medical cover. The hospital facility for the IAF and RAF personnel was either at the British Military Hospitals (BMH) or Combine Indian Military Hospitals (CIMH). This was as per a contract between the Air Ministry, London and the Government of India War Department before World War II.

This situation changed completely with the outbreak of World War II. Expansion of the IAF commenced in earnest since 1939. At the same time many RAF and Allied operational units moved into India. The Air Ministry, London was finding it difficult to meet the medical manning requirements of the RAF and IAF units in India. There was also an acute shortage of RAF medical personnel in Britain. Thus a major policy decision by the Principal Medical Officer (PMO) RAF in India, with the concurrence of the Air Ministry, London, was taken to start the IAF Medical Service in 1940.

The Government of India issued an order, in the middle of 1940, which stated that “medical requirements of the Indian Air Force will be met by grant of temporary commissions in the IAF medical branch to Indian commissioned officers of the Indian Medical Service (IMA)”. Medical officers who volunteered to serve in the IAF medical branch were given an allowance of Rs. 50/- per month and had to fly in service aircraft in war and peace. In the summary of reasons for the formation of Indian Air Force medical branch, it was stated that “Aviation presents new physiological and pathological problems which require specialized study and which can only be dealt with satisfactorily by a specially trained body of men”.

Administration of Air Force Medical Service

Medical services of the Air Force in India were administered by the PMO, RAF, Air HQ (India). Till 1940, the office of the PMO was located at Lahore, nearly 400 miles from Air HQ, Delhi. Hence there
was ignorance amongst the executives at Delhi about the medical problems of aviation. Thus the interest taken by them, particularly in preventive medicine, was also minimal. There was little cooperation between the PMO at Lahore and other senior staff officers of the RAF at Air HQ, Delhi. The RAF medical branch was, if at all, rarely consulted in planning and preparations for the war. For smoother administration, the office of the PMO was moved to Delhi in 1940.

**The Pioneers**

Group Captain Brisco, the RAF PMO in 1940, was instrumental in starting the IAF medical service by selecting the three volunteers from the IMS. This included Lt MM Shrinagesh, Lt Ajit Nath and Lt PL Khurana. They were selected amongst the volunteers to serve in the IAF medical service. These three medical officers formed the nucleus from which the Air Force medical service has grown over the years.

A beginning was also made in 1941 for training of Indian Air Force nursing orderlies, later known as medical assistants. In the 1st batch, seven airmen were recruited in Group ‘M’. This group was created specially for the recruitment of nursing orderlies for the IAF. The number of IAF medical officers and medical assistants increased during the war years with the expansion of the IAF to the strength of ten squadrons. Several Air Force training units were established all over the country. This also helped partly to meet the medical manning requirements of the RAF in India. From a nucleus of 3 medical officers and 7 medical assistants in 1941, the strength increased to 51 medical officers and over 200 medical assistants by the end of the war in 1945.

The posts of Senior Medical Officer (SMO) were established in 1943. Another major development was creation of the post of Deputy Principal Medical Officer (DPMO) (IAF) on the RAF PMO’s staff at Air HQ. The first IAF medical officer to be posted as DPMO (IAF) was Flt Lt MM Shrinagesh. He was promoted to the rank of Squadron Leader to fill this appointment in 1943. Subsequently, in 1945, the post of DPMO (IAF) was upgraded to the rank of Wing Commander and then Sqn Ldr MM Shrinagesh was promoted to fill this appointment. This was the nucleus from which the IAF Medical Directorate grew up in 1947.

Another interesting development in July 1944 was the decision by the Government of India that IAF Medical Officers will be eligible, if found fit, to undergo flying training and become pilots. It was decided that the number of such medical officers should not exceed 30% of their total strength. Under this scheme, two IAF medical officers earned their flying badge after successful completion of General Duty (Pilots) training.

**The Consolidation**

The IAF consisted of 10 squadrons before the independence. After partition of the Indian nation in 1947, six and a half squadrons remained in India and the remaining three and a half were transferred to the newly carved Pakistan. As on 15 August 1947, the IAF had 56 medical officers. This does not include the six Muslim officers of the Air Force who migrated to Pakistan. At this time, the Royal Indian Air Force was rechristened as Indian Air Force, with India becoming a sovereign republic.

On 15 August 1947, Wg Cdr MM Shrinagesh was appointed PMO, Air HQ in the rank of Group Captain. In 1950, the designation of PMO was changed to Director Medical Services (DMS (Air)), but the rank remained the same. The first Director General Armed Forces Medical Services (DGAFMS), Lt Gen KS Master, soon after assuming his appointment in 1949, took up the issue of supercession of acting Gp Capt MM Shrinagesh, DMS (Air) IAF with the Ministry of Defence on the basis of seniority. However, Col DN Chakraborty was appointed DMS (Air) in the rank of Gp Capt. For the next 19 years, six senior Army medical officers were seconded to the air force to fill the appointment of DMS (Air) as the Air Force medical officers were relatively junior. In 1969, the second Air Force medical officer Air Marshal Ajit Nath became DMS (Air) and later retired as the first Air Force DGAFMS.
Foundations of Aviation Medicine in India

The trio of pioneers of IAF medical service were pioneers in the field of aviation medicine in India as well. All three, Lt MM Shrinagesh, Lt Ajit Nath and Lt PL Khurana, were mostly self taught and learnt the meaning of the new specialty - Aviation Medicine, and its professional applications from RAF Air Ministry Medical Publications. With the induction of RAF and other Allied aircrafts into the Indian skies in 1942, the IAF medical officers got opportunities to gain first hand practical knowledge in aviation medicine by working with the RAF medical officers. By 1944, a comprehensive training programme in Aviation Medicine was being implemented for medical officers and medical assistants.

Courses in Aviation Medicine were offered for IAF medical officers in 1944 at No.1 and 2 RAF Decompression Chamber Units at Calcutta and Poona, respectively. Among the early medical officers of IAF only 17 could receive this training because the RAF Decompression Chamber Units were busy with the training of pilots and navigators engaged in the war. In 1947, the RAF left behind the RAF Mobile Decompression Chambers for use by the IAF. Thus the IAF medical service was trained and equipped in the field of Aviation Medicine.

The two mobile decompression chambers left behind by the RAF at the end of World War II were relocated at Bangalore and Palam. Two Aeromedical Units (AMU) were formed for the purpose of training in August 1948 after the approval of the Government of India. The medical staff authorised to man these two special units was one Squadron Leader, one Sergeant and two Corporals. No.1 AMU was formed at Palam, New Delhi on 02 August 1948 and No.2 AMU at Ambala on 06 Dec 1949. Later another, No.3 AMU was established at Jodhpur on 15 Aug 1956.

Another significant milestone in the history of aviation medicine in India was the formation of Aeromedical Society. This happened towards the end of 1952 when Air Force medical officers of the Delhi area decided to form the Aeromedical Society. The guiding light and architect of the Aeromedical Society was Wg Cdr Ajit Nath, DDMS Air Headquarters. He was also the founder editor of the Journal of the Aeromedical Society of India. The first volume of the journal was published in 1954. In 1960, the Aeromedical Society was registered under the Societies of Registration Act.

Delivering Healthcare

Concept of Squadron MO, Station Medicare Centres & Peripheral Hospitals

Comprehensive medical care is now being provided in the IAF to the groups of personnel and their families in isolated and airfields remote from the cities through its unique organizational structure of Squadron Medical Officer, Station Medicare Centers, peripheral hospitals and bigger referral hospitals. Special aircrew requirements are met through the Institute of Aerospace Medicine and the two Aeromedical Training Centers at Hindon and Dundigal. The aim is to support the aircrew from cockpit to his home.

Squadron Medical Officer has always been the pivot of the medical care in the IAF. His role is to make flying safe, by maintaining and fortifying the human elements of the aircrew in the squadron. The trained medical officer of IAF establishes a rapport with his aircrew through sound professional knowledge and by involving in the flying activity of the squadron, thus gaining insight to the needs of aircrew and his family.

Station Medicare Centre is a Medical Unit designed and perfected by the IAF, which was introduced in India for the first time during World War I. Its utility was to provide some medical care to the Air Force, which always has to operate from airfields located miles away from towns and cities. These units have constantly been upgraded and today provide modern Out Patient as well as In patient care, emergency medical care, basic lab facility, Maternity and Child Welfare and minor surgical procedures. Station Health Organisation, aircraft emergency setup and Passive Air Defence have now become an integral part of this medical unit at an Air Base.
Modern Hospital Chain of IAF

Excellent peripheral hospitals have been developed at Gorakhpur, Halwara, Hindon, Hashimara, Hyderabad, Coimbatore and Amla, providing all the specialist care in their zones. These are backed up by Command Hospital Air Force, Bangalore and AF Hospitals at Jorhat and Kanpur which are providing modern specialised investigative and therapeutic care, at par with the best in the country. New specialised centers are being added to the bigger hospitals, like renal transplant facility, reconstructive surgery and Ophthalmic Laser surgery.

Aviation Medicine & Aeromedical Support: Institutions Par Excellence

Institute of Aerospace Medicine

The Institute of Aerospace Medicine (IAM) started as the School of Aviation Medicine (SAM) on 29 May 1957. The Aeromedical Unit (AMU) and the Aeromedical Research Centre were amalgamated with the newly established SAM. HAL provided one building, which till date continues to be the administration block at IAM. The SAM initially started with a staff of three officers, four airmen, two civilian typists and two class IV employees. The three officers at the SAM during 1957 were Wg Cdr Arunachalam, Officer Commanding (OC), Sqn Ldr JHF Manekshaw and Flt Lt KK Majumdar.

In 1963, a Decompression Chamber with altitudes simulation capability of 1,00,000 feet and deep cooling up to -70°C was acquired for studies in high altitude physiology. In 1966 the first and only human centrifuge in the country was commissioned, the same was procured from erstwhile West Germany, and the Department of Acceleration Physiology was established. In 1967 a five-man Hyperbaric Chamber was setup and was the first Hyperbaric Oxygen Therapy facility in the IAF. The period from early to late sixties also saw most of the other major simulators and facilities being acquired or indigenously designed and developed. These included the Hot Cockpit, an anechoic chamber for noise studies, Anthropometric Platform, Spatial Disorientation devices etc. During this period the Department of Aviation Accident Pathology and Toxicology was shifted to the School from Armed Forces Medical College, Pune. Through the pioneering efforts of dedicated aeromedical experts, the activities of the School increased which was redesignated as the Institute of Aviation Medicine (IAM) in 1968. The Institute provided medical support to the Indo-Soviet Manned Space Programme form 1982. With its increased involvement in Space Medicine, the present Institute of Aerospace Medicine came into existence, in 1989.

The Institute of Aerospace Medicine has established itself as one of the well-recognized training and research establishment in the world. The Institute has not only trained a large number of Indian military and civil aircrew and medical officers but has also trained several military and civil medical officers from foreign countries. Today, the Institute is the nodal agency in India providing the best solutions in the field of Aerospace Medicine. It is an affiliated Post Graduate College of the Rajiv Gandhi University of Medical Sciences, Bangalore, for conduct of MD in Aerospace Medicine. The Institute also conducts aircrew medical evaluation and runs various training courses in Aerospace Medicine for IAF, Army, Navy and Civil Aviation.

Air Force Central Medical Establishment (AFCME)

On 15 August 1947, the RAF Central Medical Board, New Delhi was taken over by the IAF. This board was subsequently named the Royal Indian Air Force (RIAF) Central Medical Board w.e.f. 01 April 1948; and later became the IAF Central Medical Board in 1949. This unit was re-designated as AF Central Medical Establishment (AFCME) on 01 April 1958. Major changes in its role and establishment lead to the formation of AFCME on 21 Oct 1967. It conducts medical evaluation of both military and civil aircrew apart from medical examinations of candidates for grants of various commissions, special medical boards and critical analysis of clinical and other data collected over the years. The establishment has kept pace with the changing technology in evaluation techniques and has positioned itself at par with similar establishments of the world.
Aeromedical Training Centres

The first Aeromedical Training Center (AMTC) was established at Air Force Station, Hindan in June 1968. The unit was established with one Wing Commander (Med), two Sqn Ldrs (Med), one Aeronautical Engineer, 23 non medical airmen and 4 medical assistants. Wg Cdr RC Bhargava was the first commanding officer of No. 1 AMTC.

No. 2 AMTC was sanctioned at Air Force Academy, Hyderabad in the year 1979 and came into existence in June 1981, with an explosive decompression chamber (EDC). Its establishment, task, training and manpower were the same as No. 1 AMTC. Subsequently, recompression chambers were installed at both AMTCs.

Air Evacuation & Disaster Management in War & Peace

As a result of the experiences during the Jammu & Kashmir operations in 1947, the need for dedicated medical units for air evacuation of casualties was felt. Thus Casualty Air Evacuation Units (CAEU) were formed in 1957. The air evacuation of casualties from the battle fronts was carried out mainly by helicopters. In the Indo-Pak conflict of 1971, these units carried out yeoman service in the evacuation of the wounded and the injured from the active theatres of war to hospitals at the rear. Air evacuation of sick and injured service civilian personnel has become a routine responsibility of the IAF today. For this reason special training and plans have been integrated for aircraft accidents and disaster management at all airfields.

Para Medical Teams

The first paratrooper medical team was formed in 1951. Its primary role was to render medical aid to victims of air crashes in inaccessible areas. Its secondary role was to assist civil authorities during natural calamities. The first operational drop by the parachute team was at Segallie in Assam to render medical aid to the victims of a crashed Dakota. Flt Lt KK Majumdar and his team had the distinction of this first drop near the site of the crash.

The need for paratrooper medical teams to rescue victims of air crashes became less and less with the introduction of helicopters in the IAF in the late sixties. Air Force paratrooper medical teams have since been deployed to work with helicopter squadrons.

Rapid Action Medical Teams (RAMT)

The two Rapid Action Medical Teams of the Indian Air Force, No.1 and No.2 RAMT were raised as lodger units of Command Hospital Air Force and No.5 AFH, respectively. These units were established with the aim of providing immediate medical and surgical aid, and establishing a chain of casualty evacuation in the event of any disaster within their zones of responsibility. These units are capable of rendering the emergency and trauma care for a duration of three to four days at a stretch. No.1 RAMT was one of the first medical teams to reach after the Bhuj earthquake on 26 January 2001.

Contribution to civil aviation

DGCA and AAA have designated medical services of the IAF for medical evaluation of all types of licensed categories of personnel in civil aviation activities. This role is being performed since independence through IAM, AFCME and a number of designated peripheral station Medicare centers.

Aeromedical research and role in national projects and space medicine

IAM and other air force medical units have been actively engaged in various research activities in the field of aerospace medicine. Most of the research is of applied nature, oriented towards operational
efficiency and flight safety. It is supported by Armed Forces Medical Research Committee and the Human Engineering panel of Aeronautical Research and Development Board. Aeromedical consultancy in aircraft design and in promotion of flight safety in the areas of thermal stress, physiological tolerance limits of aircrew, mental workload and clinical aerospace medicine is also being provided. IAM has been nominated as the prime agency for all human engineering aspects in the design and development of Light Combat Aircraft (LCA) and the Advanced Light Helicopter (ALH), which are to be the mainstay of our forces in the future. It is also providing aero medical support to national projects in the field of space sciences. It has already been recognized by both the Russian and the US space agencies for astronaut and cosmonaut evaluation, besides conducting life science experiments in space.

The Saga Continues

The IAF, over the years, has become a force to reckon with. The Air Force medical services have also come of age, and its performance during operations has been outstanding. Medical planning, execution and administration are of a very high order and comparable with any military in the developed world. The credit for this goes to the pioneers of the armed forces medical services who in the past had the vision, courage and conviction to lay very strong foundations for what the medical service is today. It also goes to the devoted and dedicated service rendered by all the medical, dental, nursing and civilian personnel of the Indian Air Force. The medical services of Air Force now looks forward to meet the challenges of the next century by keeping pace with new technologies that are likely to be introduced in military and civil aviation.