

## **Best Practices – Institute of Aerospace Medicine**

### **1. Title of the First Practice - Fostering Global Competencies**

(a) Goal. To provide the PG residents the opportunities to interact with students and faculty from other reputed national and international medical schools in academic and extracurricular aspects and promoting use of technology so that they are competitive at global level.

(b) Context. The vision and mission statements of IAM reflect the desire of the institution to be amongst the best institutions nationally as well as internationally. Towards this end IAM management has been tirelessly working for improving its infrastructure, the quality of training imparted, and motivating and changing the attitude of its students towards quest for excellence.

(c) Practice. A culture of innovation and best practices is inculcated in students to foster global competencies. In addition, the students are provided opportunities to interact with various stakeholders, alumni and international aerospace medicine specialists so that they are competitive at global level. The college IT infrastructure and medical equipments are state of the art.

(d) Evidence of Success. Students who have passed out from this Institute have been well placed in International agencies.

(e) Problems Encountered and Resources Required. Resources in terms of finance are continuously required to upgrade technology and infrastructure requirements.

## **2. Title of second practice - Training of aircrew for enhancing performance using Human Centrifuge.**

(a) Goal. To provide practical exposure to post graduate students of aerospace medicine course on aircrew training using human centrifuge for performance enhancement.

(b) Context. The offensive and defensive capabilities of any Air Force depend largely on the maneuverability of the aircrafts. The aircrew invariably functions in a multi-stress environment, especially in combat aircraft. Ground based simulators are often made use of for demonstrating the physiological changes that occur while flying under stressful conditions as well as for training them in order to get adapted to these conditions. It is the responsibility of the aerospace medicine specialist to conduct training using High performance Human Centrifuge at the Institute.

(c) Practice. The post Graduate trainees of Aerospace Medicine are given exhaustive training on the operation of the human centrifuge to impart the training to the aircrew independently.

(d) Evidence of success. The residents are able to operate the High Performance Human Centrifuge and administer the training as per the requirements of the department.

(e) Problems Encountered. The Human centrifuge available is a modern sophisticated Aviation Simulator. Being invariably from non-technical background, the residents are initially apprehensive about handling this equipment. With the support of the technical staff, they overcome these difficulties and gain confidence to operate the simulator effectively and safely at an early stage of training.

**3. Title of third practice - All India study tour which includes visits to Naval Aviation Centres, ISRO, DRDO labs and premiere flying stations of IAF.**

(a) Goal. To provide hands on experience to the young trainees of Aerospace Medicine about the environment in which aircrew and space crew are likely to operate and the possible counter measures being employed.

(b) Context. Aerospace Medicine is a unique specialty concerned with maintenance of health and performance of aircrew in the altered environment. Visits to these specialized centers/ Defence labs make the students aware of the various processes involved in the indigenization efforts of flying clothing, life support systems etc. Visits to flying stations would give them an opportunity to understand the cockpit geometry and flight environment in a better way.

(c) Practice. The educational tours to the labs and flying stations are carried out in the presence of a senior faculty from the Institute. Visits to DRDO labs give the trainees an opportunity to interact with the designers and fabricators of different subsystems of flying clothing, life support systems etc. This would also make them understand the complexities involved in the indigenization and certification process of different aircrew equipment.

(d) Evidence of success. Interaction with students after the educational tour shows marked improvement in their understanding of the aviation environment. It is seen that they become more aware of the ground realities and problems faced by the user population.

(e) Problems Encountered. Co-ordination with labs/ units which are located in different parts of the country (in addition new facilities all evolving over time) for obtaining permission for the visits is a tedious process. Owing to security concerns, confirmation of

dates has to be obtained well in advance to plan the visit in an optimal manner to get maximum coverage.

#### **4. Title of the Practice - 360 Degree Training of the PG Residents in Aerospace Medicine**

(a) Goal. Aerospace medicine is a unique field, with a very specific occupational orientation. Our objective is not only imparting training to the post graduate residents with highest standards of education to produce world class specialists, but also to groom the budding specialists in this field to assume the role of a military aerospace medical practitioner. This role by the specialist officer of Indian Armed Forces is in consonance with improvement of human performance and flight safety, the primary aim of the training activities at the Institute. This encompasses not only academic excellence, but also empowers them for personal growth and professional satisfaction.

(b) Context. Post graduate courses focus on the academics to meet the stipulations. As a result, the training invariably focuses on academics involving role learning approach. This precludes individual from an overall development as a specialist officer. Aerospace Medicine is primarily concerned with the health and performance of aircrew in dynamic aerospace environment, inherently riddled with risks. The specialist's role is not limited to clinic or mere research, but to adopt a role of friend and guide in a flying set up. The basic tenets of flight safety mandate the operator, the aviator to maintain a high degree of mental and physical fitness, an aspect continuously monitored by the aerospace physician. The faith in physician is imperative and is only achieved if he identifies the specialist as one of his own. The Institute's qualified competent teaching faculty with vast experience is selected on the basis of core competency and acknowledged contributions.

(c) Practice. The Institute of Aerospace Medicine, adopted a 360

degree approach for an all-round development of the specialist. We applied evidence based interventions and processes to achieve the same. With an objective to ensure that the Specialists are capable members of the organisation as well as the community. Such a training approach is in sync with the ethos of this Institute – Innovate, Assimilate and Motivate. The evidence based 360 degree approach has six major components viz.

(i) **Improvements in Learning Modalities** with the evolving technologies. This involves promoting higher forms of thinking in education, analyzing and evaluating concepts, processes, procedures, and principles, rather than just remembering facts. This involves Feedback Based Training, One-on-One Teaching and Mentoring.

(ii) **Sustaining Quality Culture**, a culture which means *doing it right when no one is looking*. The administration and the faculty consistently strives to achieve highest standards of quality in training it imparts to the students, aircrew and other medical personnel, in performing research, evaluation of aircrew and the aeromedical consultancy. This is achieved by Internalization and Institutionalization of Quality in training.

(iii) **Enhancing Learning** - Inclusive practices wherein students participate in day-to-day training events, from supervising own team to independent conduct of training. This involves learning through '*hands-on*' approach, free thinking, enhancing innate Skills, promoting co-curricular activities and showcasing, a reward mechanism to boost confidence.

(iv) **Promoting Innate Abilities** - Promoting each individual's innate but dormant abilities, creativity and capabilities which are often not surfaced and many a time a reason for lack of confidence. The Institute ensures that the trainees are nurtured in a manner that they are able to take useful and correct

decisions and at the same time be responsible for outcomes without hesitation and discontentment. From an early stage, the trainees are groomed to be careful in the aspects of communication in specially teaching and delivering talks as an orator.

(v) **Enhancing Interactions** with faculty and personnel from other fields and organizations. The Institute encourages a healthy two way interaction and involve residents in consultation process with organisations related to medical and aviation fields.

(vi) **Holistic Approach** - The Institute has adopted and implemented a holistic approach for rounded training of its trainees at all levels. The Institute believes that a mere transfer of knowledge is not sufficient in preparing a specialist in aerospace medicine. Hence, the designing of curriculum which is an ever evolving process includes personality development, integration, and training for meeting life challenges.

(d) Evidence of success. Consistent improvements with the evolving technologies and keeping ahead of times have been the Institute's strengths. The aim of the Institute has been to promote higher forms of thinking in education, such as analyzing and evaluating concepts, processes, procedures, and principles, rather than just remembering facts. Furthering the initiatives in enhancing learning, the Institute is constantly evolving the methods. This has consistently resulted in not only higher passing percentage of PG residents, but also higher averages and satisfaction. The Institute was awarded A+ grading of NAAC during the second cycle in Mar 2017. The case study of the best practices adopted by the Institute was presented for consideration for the prestigious DL Shah Award in May 2017 and after three rounds of rigorous assessment by stalwarts in the field of quality education viz. submission of case study, presentation at Quality Council of India, New Delhi and a site visit by

QCI assessor, the Institute was finally awarded the highest 12<sup>th</sup> DL Shah Platinum Award in education category on 23 Sep 2017 at New Delhi.

(e) Problems Encountered. Institute of Aerospace Medicine is a premiere IAF Institute with onerous responsibility of Training Post Graduate Residents and aircrew of all three services as well as trainee officers from friendly foreign countries. The civil governing policies and accreditation council mandate availability of wi-fi on campus. The Institute has well laid out hi-speed cabled internet connections for accessing internet. The Institute is a Post- Graduate teaching Institution with reckonable commitments in terms of workload owing to more than 70 long & short courses, medical evaluation of military, para military and civil aircrew, research on critical and contemporary aviation issues and consultancy crucial to military aviation industry. However, being the ONLY Aerospace Medicine Institute, unlike teaching hospitals, it is difficult to train optimal / desirable number of faculty. The uniqueness of the Institute, and the role it plays at national level, as has been suggested by NAAC Peer team, deserves a special status as 'Institution of National Importance'. The case for the same, through proper channel, is under process.

(f) Notes (Optional) The Institute of Aerospace Medicine continuously endeavors in providing a high quality of life for all its trainees and faculty, coupled with value system of the Institute, IAF and our great country. It is ensured that all the trainees are empowered with good quality of life with in the campus along with the quality education and productive employment leading to the comprehensive and qualitative development of the nation. The Institute of Aerospace Medicine consistently strives to excel in the field of Aerospace Medicine training. It has adopted, internalized and institutionalized a 360 degree approach to Post Graduate training which is already yielding positive results. This approach is dynamic,

flexible and participative. We are confident that all components of this approach are evidence based and will continue to be evaluated on rigorous outcome measures.