THE ROLE OF THE AIR FORCE MEDICAL OFFICER IN THE FLYING SAFETY PROGRAMME*

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Aviation Medicine, today, is a highly specialised branch of medical science and Air Force Medical Officers trained in aviation medicine play an important role in analysing and solving the peculiar problem of human errors in aviation. It is hoped that in the very near future all our Medical Officers employed in squadrons, units and flying establishments will have been trained at the School of Aviation Medicine.

The phrase "Aircrew and the Air Force Medical Officer" emphasizes the relationship which contributes directly and materially to safety of flight. Therefore, it should be at once a professional and personal relationship between aircraft operators, maintenance men, supervisors and the doctors trained in aviation medicine. As a team they all point towards the same goal.

Over the past five years, 63% of cause determined aircraft accidents were the result of human errors. Of the total, 50% were the result of operator error and 13% were the result of maintenance and/or supervisory error. So here is a rich field and a great opportunity for accident prevention. It is up to us to work out the best approach to this problem.

Command understanding and support of the Medical Officer's function is a primary requirement. Without it even the best intentioned aero-medical efforts will be seriously impaired.

Given this *sine-qua-non* the Medical Officer must exert every effort to know the unit mission and to know, individually and collectively, the men on whom mission accomplishment depends. Indeed, one may go further and say that he must know also the women and children on whom mission accomplishment depends. No one operates with complete efficiency when preoccupied with family troubles or illness. The Medical Officer, therefore, must tailor his professional efforts not only to employ the techniques of medical science, but he must also temper and apply these techniques with broad humanity.

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Recognition of accident pattern behaviour in an individual or a group base intimate knowledge of that individual or group can lead to appropriate corrective action forestall errors, which lead to accidents. This is just one of many examples that mig given to show why understanding and cooperation between "the Aircrew and the Me Officer" is necessary if accidents are to be prevented.

In the accident prevention programme the objectives of the Air Force Medical O are two :

First to prevent accidents from human cause factors.

Second to prevent or minimize injury, should an accident occur.

They are simple and direct objectives. The attainment of these objectives depend the interest and understanding of the Medical Officer backed by command support. effort is worth-while in lives and rupees saved and gratitude earned.

The effective activities of the Medical Officer are for the most part obscure and o unseen. Like the perfect flying safety officer, he may be performing most efficiently whe would seem that there is no need for him at all, namely, when there are no accidents apparently no danger of an accident occurring. So long as there are manned aircraft, it seems there always will be manned aircraft, the Air Force Medical Officer will play a ma role in the accident prevention programme.

Each pilot and aircrew member is envisioned as a capable, dedicated airman, wh carefully selected for his qualities of physical co-ordination, strength and endurance. He one, who has been highly trained to a peak of knowledge and efficiency in the handling his aircraft. However, analysis of specific aircraft accidents and a study of the hum elements concerned, have revealed that sometimes these qualities, for which the airman h been selected, may be lost or temporarily impaired. When this occurs, the loss of ability the impairment of response may be one of the causes in the chain of events, which lead an aircraft accident. In some cases the judgement or action of the pilot or the aircre member is the primary cause of the accident. One requirement of the Medical Officer is know the airman, so as to be able to detect changes in his physical or mental status, whic might impair his capability to withstand all the stresses of flying.

During the training period of the pilot and for the rest of the flying career, t relationship between the pilot and the Medical Officer often needs to become more persona It is part of the Medical Officer's duty to help explain to the pilot the nature of his body, i limitations, and the protective measures, which may be applied to extend the natura limitations of man.

Hypoxia and oxygen systems may seem outworn topics, but incidents and accident continue to occur because the basic lessons have been forgotten or neglected. A fault

pressurisation system combined with a poorly fitting mask and a leaky hose, has caused aircraft accidents. Spatial disorientation also has been recognised as a hazard. It is however, evident that many pilots have not yet experienced or come to respect the possibility of total disorientation, especially in high performance aircraft. Fatal accidents have occurred because pilots have forgotten how to recognise true spatial disorientation and how to cope with it by depending on instruments and by ignoring the physical sensations of motion.

In our day-to-day relationship with the Medical Officer, we find that the language of instruction at times is too technical. The implications of spatial disorientation may be understood by the professionally trained physician and not by the pilot. In this case, as in many others, the Medical Officer must know the language of the pilot and must be able to converse in it until he knows indubitably that the aircrew understand. You may find that talks like this may be far more effective in the crew room, at tea break, on the golf course or at the club, than they are in a class room.

Close liaison with the Medical Officer remains an ever-present need. Conversions to new aircraft, new Squadrons, new Flying Stations and new flying tasks are all accompanied with stresses peculiar to the event. It is important for the Medical Officer to be available and to know the particular stresses involved. The Medical Officer can pick up a lot of information about his aircrew by observing them in the crew room, on the tarmac and before and after a sortie. By spending more time in the vicinity of flying activity, the doctor may, by his presence and availability, be sought out for questions or consultations whereas the barriers of natural restraint or a feeling that his problem is unimportant may keep the pilot away from a formal visit to the hospital.

The availability and approachability of the Medical Officer goes beyond the flight line and the office. In his clinic, he should try, when possible, to care for the families of his aircrew members. This is effective beyond the kinship and friendliness, which goes with integrity of the unit. The pilot, who knows that his family is well cared for while he is away on temporary duty or otherwise absent, is able to approach his flying duties with relaxation and freedom from worry.

Moreover, knowledge of the family may enable the Medical Officer to detect signs of emotional stress or conflict, which could culminate, at times, in real crisis and cause an otherwise stable pilot to make errors of judgement or try short cuts in planning or checking his flight. Aircrews, especially the more experienced ones, are usually very well adapted, stable citizens. Exceptions occur, but the selection process has excluded those more likely to have emotional or mental defects. However, in the life of every man, crises do occur. When there are catastrophies or when a lot of them pile up, it may be that personal counsel, discreet discussion with the Squadron Commander or Wing Commander Flying, could be a real service in the interest of flying.

The Medical Officer's help is essential in fields relating to personal equipment and

cockpit design. His help at higher air force levels is necessary to design and test equipment. In this field he must ensure that equipment, *e.g.*, flying clothing, is cared properly, is fitted correctly, and that all personnel are indoctrinated in its use. Medical Officer may point out deficiencies from the human factor stand-point that fliers have missed. Some examples of these may be, inadequate night lighting, hard-to-re switches, uncomfortable seats or parachutes, poor ventilation systems, or controls require unnatural movements for operation.

Although one of the primary objects of the Air Force Medical Officer is the prevent of aircraft accidents from human cause factors, *accident investigation* is another field wh he is most wanted. We may say that investigation of an aircraft accident is really admission of the defeat of our primary objective. However, in establishing accident ca factors, we may be able to lower the accident potential from the same or similar caus Therefore, accident investigation is a must for the Air Force Medical Officer. T knowledge gained, however, is useless unless translated into accident prevention. equally critical but informal discussion of incidents, or of near accidents, may be far mo effective. It is obvious, more than ever, that it is essential for the Air Force Medical Offic to know his men, and to be able to discuss with them, in their language, the mishaps which they are exposed. He should also know the aircraft and its peculiarities and be ab to perceive when human emotions or misunderstanding or forgetfulness may have contribut to a near accident. Such discussions require active and uninhibited participation by aircre as well as the Medical Officer. Although such meetings must be so informal that there is hesitancy on the part of an aircrew, who may fear a blight on his record, still they are mo effective when conducted with regularity at a given time and place.

I have attempted to point out in general terms the principal human factors tha contribute to causes of aircrft accidents. In doing so, the more important requirements fo Air Force Medical Officer's assistance have been emphasized. In the field of physica physiological and psychological support, the Medical Officer can and must exert tremendou influence in the prevention of aircraft accidents.

If it is possible to condense all the foregoing words into a conclusion, then let it b said that the Air Force Medical Officer is a valuable Member of the "Kerosine Club" whose priority customers are the ones who smell of JP4 or Turbine Fuel. The primary responsibility of the Medical Officer is to know his pilots — and to know them intimately.

With this knowlege he can play a vital role in the accident prevention programme He will not only recognise factors that contribute to accidents caused by pilot error, but he will also be able to initiate corrective action before accidents occur.