

# WHAT IS AEROSPACE MEDICINE? AND HOW DOES IT FIT INTO GENERAL PRACTICE?

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Aerospace Medicine (formerly known as Aviation Medicine) is a medical specialty, which is concerned with the interaction between the aviation and space environment and human physiology, psychology and pathology.

All medical practitioners, who deal with patients who fly, either as pilots or as passengers, need to know something about aerospace medicine. They should all have at least a basic knowledge of the impact of the aerospace environment on a patient's medical condition.

Certain designated physicians must also be aware of the implications on flight safety, arising from medical conditions affecting pilots of air traffic controllers. These physicians (general practitioners) have obtained qualifications in aerospace medicine and are called Designated Aviation Medical Examiners (DAME-s) and are appointed by the Civil Aviation Safety Authority (CASA in Australia) or CAA (in NZ). In Townsville at present there are only 3 DAME-s: Drs Richard Keys, Mike Hickey and myself.

CASA also appoints Designated Aviation Ophthalmologists. These ophthalmologists are specifically authorised by CASA to perform eye examinations on professional pilots (Commercial Senior Commercial and Airline Transport Pilots). There are 2 DAO-s in Townsville Drs Maria Moon and Bill Talbot

Aerospace Medicine may also be of special interest to doctors, who are pilots, and to medical students keen to pursue a career in the aerospace field.

My first contact with Aviation Medicine was when I was posted to RAAF Base Pearce in WA after completing my stint at Royal Perth Hospital. By the way doing your residency at RPH was not without its surprises. The new resident's quarters were just across the road from the hospital and until the time bought by the hospital were the city brothels. So many a night when one really was dead tired and wanted to get a good night's sleep, there was a banging on the door with a male voice shouting (at 2 or 3 am): "Hey Rosie, you there tonight?"

On my first day at the RAAF Base I fronted up to the Senior Medical Officer, SQN LDR type, who after the introduction put the hard word on me "Flight Lieutenant Pietzsch, do you know anything about Aviation Medicine?" No Sir I don't" was my instant reply." (This was before I was sent to the Institute of Aviation Medicine at RAAF Base Point Cook, to find out what AVMED was all about) " Well in that case here is the textbook" he said" next week you start your first lecture in Aviation Medicine to the student pilots at No1 Advanced Flying Training School" What could I say but "Thank you Sir, Sh.t Sir." For some strange reason he and I never really hit it off very well after that.

The requirement by CASA is that a physician to be appointed a DAME should have had training in Aerospace Medicine and must be a member of the Australasian Society of Aerospace Medicine (ASAM). Dame-s (and DAO-s) are also required to attend regular postgraduate aerospace meetings organised either by CASA Medical Branch or ASAM. Most DAME-s had their aerospace training whilst in the Defence Forces at the Institute of Aviation Medicine (IAM ) at RAAF Edinburgh SA (formerly Point Cook Vic). For those physicians wanting to become DAME-s and who did not have the opportunity to study at IAM there is a course available at Monash University's Department Physiology, Epidemiology and Preventive Medicine designated "Australian Certificate of Civil Aviation Medicine" and each course lasts about 2 weeks. Webb address of the Monash course is [www.med.monash.edu.au/epidemiolog/accam](http://www.med.monash.edu.au/epidemiolog/accam). There is also a Postgraduate Diploma in Aviation Medicine available at Wellington School of Medicine in NZ.

The main aviation related work of DAME-s is periodic pilot medical examination. These vary from six monthly for Airline Transport Pilots to 4 yearly for Private Pilots under 40 years of age. Traditionally in the past, the examination was paper based and the completed medical examination form was sent by mail to Canberra. In the last few years CASA has been gradually changing over to an electronic examination format. Upon entering the pilots number and date of birth and flying status, the computer at CASA designs the appropriate form and transmits it to the DAME. After completing the medical examination the DAME sends the form electronically back to CASA. If there are no medical problems, which might stop the pilot from continuing to exercise the privileges of their licence, the DAME then gives the pilot a temporary extension of two months on their medical certification. There is no set fee and the DAME charges a fee that he/she thinks is appropriate for the service provided. Recently, CASA has

introduced a fee, which has to be paid by the pilot to CASA for handling and processing the application.

Of course, like the general population, as pilots age they are more likely to acquire medical conditions, which might make it undesirable for them to continue flying. A common condition, which is unfortunately becoming more common in the general as well as in the pilot population, is type 2 diabetes.

A recent report released by the Air Transport Safety Bureau (ATSB) on a single pilot fatal light aircraft accident at St George, involved the pilot colliding with the terrain. The pilot had Type 2 diet controlled diabetes and the investigation suggested, that the pilot's diabetes was the most likely reason for his incapacitation.

A year or so ago I had a 76-year-old private pilot attend for a renewal of his medical certification. His RFT showed fairly severe COPD and his FEV1 was less than 30%. He was not impressed when I refused the renewal of his medical certificate. The mind boggles, what could have happened if this pilot sans Oxygen would have ascended to lets say 9000 feet piloting his plane with a group of friends on a flight (which would have been quite legal for him to do as no O2 is required below 10,000 feet). It would have been just another pilot error tragedy!

Finally I would like to mention, a couple of conditions, which we look at very closely and require certain documentation either from the treating doctor or even specialist before granting a medical certificate. A pilot with asthma must have full treatment history as well as before and after bronchodilator spirometry before a DAME and CASA will consider either an initial and renewal certification. Unlike diving, asthma is not a contraindication to flying provided it is well controlled with dual therapy.

Pilots post CABG,AMI or stenting will be grounded for 6 months and will require a new aviation medical with a report from the treating cardiologist regarding history, procedure, risk factors and prognosis as well as a stress nucleotide scan (or stress echocardiogram) and ejection fraction estimation

With any severe head injury requiring hospital admission, amnesia, skull fracture and blood evidence on CT or MRI must have a full neurological workup by a neurologist with risk factors and prognosis before they are recertified for flying. Of course in all these cases the standards are stricter with professional than private pilots.

It is of course impossible for me to mention all the conditions, which are assessed by DAME-s & CASA before recertifying pilots as fit to fly. I just attempted to give you a brief overview in what is involved by being a DAME and perhaps awake some doctor's interest in aerospace medicine and in becoming a DAME. We used to have 6 DAME-s in Townsville and now we only have three. If you are interested, do contact CASA ([www.casa.gov.au](http://www.casa.gov.au)) and do the short course in Melbourne.