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## **Practical Guidance:**

### **A few thoughts for the assistance of exposed pilots**

#### **Important Legal Disclaimer**

The authors are neither legal nor medical professionals. It is illegal for untrained persons to give medical advice. Nothing in this document is medical or legal advice and no part of it should be interpreted as such.

#### **Who is this document for?**

This document is primarily aimed at the aircrew member who has recently realised they may have a problem with contaminated air, and needs some guidance to navigate their way through this difficult terrain. If this is you, I hope the document will be useful to you. At this stage, you may, or may not, still be flying for a living. This document aims to provide some practical guidance about what to do.

Understandably, it can be rather unsettling, and even quite shocking to realise that even as a formerly fit, and perhaps also a relatively young individual, that you have had a serious medical problem imposed on you. It can also be a very lonely time, but be assured, you are not alone – unfortunately there are quite a few of us around.

#### **What is Aerotoxic Syndrome?**

This is the name given to the constellation of symptoms that result from exposure to airliner cabin air which has been contaminated with vapourised engine oil.

#### **First, check if you really are suffering from Aerotoxic Syndrome**

Check your symptoms against a list of known symptoms of contaminated air exposure. Many people initially account for their Aerotoxic Syndrome symptoms as being a combination of the consequence of ageing, roster disruption, early starts or a high workload.

You don't necessarily need to have had many exposures to be symptomatic – even one single exposure can be enough to cause neurological and physiological damage. The mix of symptoms and their severity will tend to change over time. Typically, symptoms include, but are not limited to the following (please note that this is *nowhere near* an exhaustive list):

- i) Cognitive problems (e.g. problems with simple maths, slow mental processes)
- ii) Generally feeling out of sorts/under par/not yourself
- iii) Sleep difficulties
- iv) Dizziness



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- v) Fatigue, need for a lot of sleep
- vi) Headache
- vii) Unusual body smell or taste
- viii) Irritation of eyes or throat
- ix) Feeling 'spaced out' or 'drunk' even when sober
- x) Hot/cold sweats
- xi) Tingling/shaking
- xii) Reduction in muscle power; weakness
- xiii) 'Brain fog' or 'thick head' or 'head pressure'
- xiv) Moodiness/increased emotional volatility

It is highly recommended that you record your symptoms and the chronology of their development, and then to check this record against a comprehensive list of known symptoms.

Many Aerotoxic Syndrome sufferers have discovered that their condition has a lot in common with CFS/ME or MCS, or have being diagnosed with these illnesses. While these diagnoses are not necessary wrong, it should be understood that they are in fact symptoms of Aerotoxic Syndrome and so the root cause needs to be addressed, rather than just trying to treat the symptoms out of context.

### **Get knowledgeable**

There is plenty of information out there, if you know where to look. This is not only a medical issue, but looks set to become a political hot potato as well. The internet is a valuable resource at a time like this. A particularly useful first step in obtaining knowledge is to look at the video by AOPIS on the Aerotoxic Association website.

The problem is commonly known as Aerotoxic Syndrome, but since it is not an officially recognised condition, it sometimes goes by other names as well. A list of possible words to use in search engines is as follows:

- i) Aerotoxic syndrome
- ii) Contaminated air
- iii) Toxic cabin air
- iv) Organophosphate exposure
- v) OP poisoning

### **Important note about diagnosis**



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The usual route to gaining a diagnosis for a medical problem is of course to see a qualified medical professional. In this case, your GP or AME would be expected to fulfil this function. However, Aerotoxic Syndrome is not openly recognised by industry nor is it (yet) officially recognised by the medical profession. Additionally, the contaminated air problem is not well understood or even known about by the vast majority of the medical profession (including AMEs). From the doctor's point of view, the 'best fit' of the symptoms is a diagnosis of depression. For this reason, exposed individuals are commonly misdiagnosed with depression or stress and prescribed anti-depressants. These drugs just add to the toxic load of the affected individual and make matters worse.

This situation means that it will be difficult or impossible to get an accurate diagnosis from a medical professional, so you will probably, at least for the time being, have to self-diagnose by the following means:

- i) Becoming informed about the symptoms of exposure to contaminated air and seeing how yours compare
- ii) Obtaining medical tests and analysing the results (information on available tests is available elsewhere)

Assuming that you have discovered that you are suffering from Aerotoxic Syndrome, there are some difficult issues to be tackled.

### **Taking action**

Avoiding further exposure is an intelligent first step. It's also the only certain way to avoid making a potentially serious medical problem worse. Avoiding further exposure invariably means stopping flying the pressurised type that is making you ill, especially if you are on one of the types which are most strongly implicated in this problem (such types include BAe146, B757).

Once an individual has been exposed and become symptomatic, the evidence suggests that they are then particularly vulnerable to the effects of further exposure. Because exposure may occur on any type of pressurised aircraft, avoiding further exposure may have to mean stopping flying *any* pressurised type, at least for a while.

If you have had an acute exposure that has left you too ill to continue to fly, then the decision to stop flying will, at least temporarily, have been made for you.

### **A special note to those who are still flying**

If you are still flying, and you are suffering from chronic (i.e. a lower dose of exposure on a frequent basis) exposure, or occasional acute exposures, or even a mix of the two, it is probable that your condition is progressively becoming worse. It is also highly probable that you are suffering from a degraded performance at work, even if you are still able to pass the required checks. If so, this may well be something you have only acknowledged privately, but there is no shame in this – if you are



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suffering from Aerotoxic Syndrome then you have simply been poisoned. It may also be that you feel unusually tired on a near permanent basis, and that rest does not refresh you adequately. Or you may be feeling “not yourself” and simply struggling to keep motivated to do everyday tasks. Again, this is an effect of the poisoning.

This is clearly a very uncomfortable situation to be in. It is human nature to deny the existence or severity of problems that we don't want to face. Self-denial is common; maybe you could be feeling that a decision does not need to be made soon, or that it's not really so serious. The unfortunate truth is that this is a serious problem, and like it or not, it's been imposed on you.

So what can be done? Well, the individual who has been exposed and become symptomatic may well have some very difficult decisions to make. Here is a discussion of the options, none of which are attractive if you like your present job:

#### **Option 1: Do nothing and keep flying your present type**

Frankly, this is not a sensible option if you are badly affected by Aerotoxic Syndrome. If you keep flying a type that is poisoning you, you will probably *have* to stop anyway sooner or later, and if it's later on after further toxic exposure then you will be in an even more serious situation both health-wise, and options-wise. Remember, health is wealth.

However, even if you want to struggle on flying, you should be aware that:

- i) You will almost certainly have suffered some mental degradation.
- ii) Alarmingly, any such degradation will probably be most apparent when you need it most, such as in an emergency situation.
- iii) If you put yourself in the position where further exposure is likely then you will probably only make your condition progressively worse. The effects of exposure to contaminated air are believed to be both cumulative and serious.
- iv) A characteristic of the problem is that the exposed individual usually does not fully realise the extent of this themselves – it's a bit like hypoxia. Please take some time to consider this particular point carefully.
- v) If you are unwilling to stop flying, and you are suffering symptoms of exposure, be aware you may find yourself in a morally (and legally) questionable position should an accident occur. At least be ready to put an oxygen mask on at the first sign of trouble, and remember that fume events are not always detected by the human nose. If you are on a high-risk type then changing types would be something to consider:

#### **Option 1b: Do nothing and keep flying your present type on a reduced roster**

This could be worth considering as an interim measure, and is certainly better than maintaining a full roster if you are being regularly exposed to contaminated air



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### **Option 2: Change to another pressurised type**

It may be that the prospect of changing types is a worrisome option, especially if your condition is such that you have deteriorated to the extent that you have concerns about being able to cope with learning a new type and passing the necessary ground and flying tests.

This is a very tricky position to be in – if you stay flying your present type, things could well get worse, and you could be out of a job, while if you change types, you may not be up to the task and be out of work anyway. If you choose to exercise this option, it's probably better to do this sooner rather than later. However, if you are reading this, it may well already have got to the point where you lack the mental capacity to easily deal with a change in type.

The bottom line is, you can't keep flying pressurised aircraft and be guaranteed not to get further exposures.

### **Option 3: Change to a non-pressurised type**

Many of the same concerns apply as with the previous example. Changing to a non-pressurised type, while it would give you an opportunity for the possibility to slowly recover (assuming you are not too badly affected) would probably also involve a substantial cut in income. Also, such types may well be single pilot operation and that is clearly not a sensible environment for someone who is not mentally sharp, especially if it's an IFR operation. Single pilot IFR and degraded mental performance are a potentially lethal combination.

### **Option 4: Early retirement**

This may be an option for some people.

### **A very difficult decision.**

Put bluntly, the options for many will look like this:

- a) Keep flying, and later on lose more of what's left of your health, swiftly followed by your job.
- b) Or give up flying now, and lose only your job and have a much better chance of making a reasonable recovery.

An unhappy truth is that Aerotoxic Syndrome often results in a premature end to an otherwise promising flying career. This can be a very hard thing to accept, especially if you are of an age where you are not near the expected end of your career. Each case is different, and only the individual can make the decision about the way forward. It may be helpful to take some sick leave or a vacation to think things over. If you travel by air for such a holiday, try to avoid travelling on a type that may give you a further exposure to contaminated air.

### **If I give up flying, can I get back to it?**



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There is very strong evidence that once an individual has been exposed and become symptomatic, they will for ever more remain vulnerable to the effects of contaminated air, even if they manage to recover from their present symptoms. So yes, you possibly could get back to flying, but to work again on pressurised aircraft might not be at all wise. One member did return to pressurised flying after staging an excellent recovery, only to be knocked flat by another exposure, with symptoms far worse than the first time.

### **A note on changing companies**

If you move companies, then it may become much harder to hold your previous company accountable for your medical condition. Also, if there are any problems with gaining a new type rating, dismissal is a possible consequence which will then leave you very badly placed.

### **Confronting your airline with Aerotoxic Syndrome**

If you confront your company with this problem, things can get tricky. Initially it may not appear to take your position seriously. No airline wants to accept that an employee might have a serious medical problem caused by their equipment, whether or not they are still flying. It is probably fair to say that in most cases the airline will do its utmost to protect itself, placing the affected individual in second position.

There is a history of exposed individuals being misdiagnosed, either out of ignorance or perhaps for more sinister reasons. You should therefore be very careful when dealing with your employer or any airline-appointed doctor. It is not usually an option to refuse to see a company doctor, at least initially (unless you report that you are too ill to travel), which makes it all the more important to gather medical opinions from private consultations with medical professionals known to have an enlightened view on this matter.

Of course it is impossible to make predictions about any particular company, however, a cynic who sees things from an airline management's point of view might argue that once a company has realised that their employee may have been poisoned, they are unlikely to send that person for a medical assessment without the outcome being a forgone conclusion in their favour. It is easy to find highly qualified medical professionals who still do not acknowledge the existence of this problem, and indeed actually disagree that it exists at all.

Depression is a common misdiagnosis, with the exposed individual being prescribed anti-depressants. Reports suggest that these actually make things worse for the exposed individual.

### **Financial matters**

It may be worth planning how you and your family are going to deal with a possible reduction in income – perhaps consider ways to minimise the financial difficulties that may lie ahead. Obviously, this is an individual matter to deal with.



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### **Legal matters**

Since you could well be looking at a premature end to a flying career – for reasons that are not your fault - you may decide later on to initiate legal action. You therefore need to gather as much evidence as possible about your situation straight away. Try to do this without alerting your company to your reasons – it is likely that most will block your attempts to accumulate information as soon as they realise what you are up to and especially if they figure out why.

Try to get a copy of tech logs, MORs, safety reports etc that relate, or might relate, to cabin air problems. Save any relevant emails and make electronic and printed copies. (Use the *print screen* function so that the document may be seen clearly as having been an email). You might want to consider keeping a diary of phone calls and meetings with the company. Do not get your uniform dry cleaned. It may be that it is holding evidence of airborne chemical contamination which could be useful to you later.

Gathering evidence isn't a commitment to starting legal action - you don't have to do anything with the information, but you do need to act now because the information may well be impossible to obtain at a later date.

### **Medical tests**

Medical tests are an obvious step to take when confronted with this problem. The results may also become part of the evidence-gathering procedure. Unfortunately, most of the medical profession is of little use to individuals with this problem, because the problem is not widely known about or understood. Fortunately, the Aerotoxic Association can advise you in this respect.

### **Regaining health**

Unfortunately, to date there is no (conventionally) medically accepted effective recovery programme, and the few measures that can be taken are, according to conventional medicine (which has many limitations), of unknown and unproven efficacy.

You are encouraged to do your own research on this subject. The Aerotoxic Association has a document outlining the various treatment options which members have tried.

Initial research indicates that such measures might include the following:

- i) Sweating therapy – saunas, especially good quality FIR saunas. This measure obviously only applies if you feel able to do so and if your doctor agrees this will not pose a danger to your health.
- ii) Various other detoxification processes e.g. intestinal cleansing
- iii) Dietary changes such as limited or zero intake of processed or modern foods such as sugar, preservatives etc.
- iv) A high-organic diet (The symptoms of Aerotoxic Syndrome result from exposure to organophosphates; since non-organic food is often sprayed with organophosphates, it



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clearly makes lot of sense to avoid increasing your exposure to the very thing that is making you ill.)

- v) A high-raw content diet
- vi) Modest quantities only of meat/fish/poultry
- vii) Plenty of fresh fruit and vegetables – preferably uncooked
- viii) Plenty of water (perhaps 2 litres or so a day). If you find this hard, adding a splash of apple juice top a jug full of water can make it a lot easier.
- ix) Reduce and preferably eliminate dairy, caffeine and alcohol intake
- x) You might want to consider vitamin and nutritional support as directed by a suitably qualified medical professional
- xi) Sunshine and exercise where possible
- xii) Fasting – with care - appears to be a particularly powerful way to promote healing.
- xiii) Plenty of rest
- xiv) Epsom salts baths
- xv) Limiting your exposure to stress
- xvi) Reduce your exposure to household toxins such as air ‘fresheners’, scented candles, cleaning products, the artificial chemicals in most soaps, shampoos etc. Also make sure your home is well ventilated to prevent such chemicals for building up to a high level of concentration – this point is especially relevant for UPVC double glazed buildings.
- xvii) A positive attitude, a sense of humour and a belief that things can get better
- xviii) Visualisation and religious/spiritual practices have been reported to boost immune system responses.

### **Try to be positive and optimistic**

Aerotoxic Syndrome represents a serious medical problem, but there are many reasons to be positive:

- i) The Aerotoxic Association is an authority on this issue and is well connected to many of the ‘movers and shakers’ in this matter.
- ii) A growing level of support exists as more and more people become aware of the problem. This was not the case until quite recently.
- iii) It is encouraging that there are *at least* two known cases where people have regained an excellent level of functional health following exposure to contaminated air.
- iv) Research suggests that many of those in other walks of life who have completed a thorough and lengthy detoxification programme have noticed a reversal of their medical symptoms, and gained a great improvement in their health. This strongly suggests that their symptoms may have been toxin-related. It may perhaps therefore be that if the right measures are taken, exposed individuals stand a good chance of recovering at least some of their lost health.



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- v) Try not to give in to despair or depression. Unlikely as it sounds, this seemingly bad event can become a catalyst to result in positive changes and positive experiences in your life. Remember that blessings can come in some pretty convincing disguises, and that they are not always evident until later.

### **A note on driving**

Experience indicates that the likelihood of being in a car crash is much greater for individuals who have been exposed to contaminated air. Given that cognitive impairment is one of the effects of exposure, this is hardly surprising. You have been informed.

### **Get support**

This is obviously a personal matter, but for most people, it's best not to suffer in silence. Let your family and loved ones know what this issue all about, and that there may be some difficulties ahead. Consider reading the Aerotoxic Association document *Aerotoxic Syndrome and Other People*.

Contact your pilot union or association. In the UK, the IPA is particularly highly regarded concerning contaminated air. The 'other' association rather less so.

Good luck.

Aerotoxic Association, 23 January 2009