



Aerotoxic Association Ltd. (AeA)

2016 Business Plan - updated January 2018

EXECUTIVE SUMMARY

1. INTRODUCTION

- 1.1 About this Business Plan
- 1.2 Fume events
- 1.3 Aerotoxic Syndrome
- 1.4 Quotes
- 1.5 Causing change

2. KEY MESSAGES

- 2.1 Values
- 2.2 Vision
- 2.3 Mission
- 2.4 Unique Selling Point (USP)
- 2.5 Aims

3. BUSINESS PLAN OBJECTIVES

- 3.1 Short term objectives (immediate)
- 3.2 Medium term objectives 0-3 years)
- 3.3 Longer term Objectives

4. WHAT WE WILL DO

- Objective 1 - Action points
- Objective 2 - Action Points
- Objective 3 – Action points
- Objective 4 – Action points
- Objective 5 – Action points
- Objective 6 – Action points

5. ANTICIPATED OUTCOMES AND HOW WE WILL TRACK THEM

- 5.1 Impact
- 5.2 Outcomes
- 5.3 Indicators

6. FINANCIAL PROJECTIONS

- 6.1 Financial Plan
- 6.2 Cashflow plan

7. RISK ASSESSMENT

- 7.1 Mitigating risks
- 7.2 Key risks

APPENDICES – ANALYSES AND STRATEGIES

Appendix 1 - Positioning and Partnership strategy

Appendix 2 - Competitor analysis

Appendix 3 - Communications strategy

Interest groups



Forms of communication

Appendix 4 – AeA’s Market and Marketing strategy

Air crew and air passengers

Air crew and air passengers who have become ill due to flying

Litigators

Healthcare professionals

The Airline industry and the regulators

External research

Marketing strategy

Appendix 7 – Income Generation Strategy

Assumptions underpinning the income generation strategy

Sourcing income from commercial activity

Sourcing income from individual donations

Sourcing income from Grant Making Trusts and Foundations

Appendix 8 - Projected Budget. (separate document)

Appendix 9 – Company Details and Directors

Company details

Directors

EXECUTIVE SUMMARY

Aerotoxic Association’s mission is to raise awareness of Aerotoxic Syndrome among aircrew, air passengers, the public, litigators and medical professionals. It also campaigns for the airline industry to: recognise that breathing contaminated air on jet flights (fume events) can cause Aerotoxic Syndrome which potentially leads to illness and death; and take measures to prevent this from happening and compensate those affected.

In order to help AeA reach its mission we have put in place this new Business Plan. Most of these objectives and actions are planned to take place at a time (i.e. the present or short term) while Aerotoxic Syndrome is not officially recognised, and no such illness is attributed to air crew and air passengers breathing contaminated air at fume events.

1. INTRODUCTION: THE KEY ISSUES

1.1 About this Business Plan

In order to help AeA reach the next stage of our development, we have put in place this new Business Plan for the period 1 November 2016 to 30 October 2019. This attempts to give AeA a clear sense of direction and set out clear and attainable future objectives, including generating sufficient income to develop services and to repay the Director’s Business Loan.

Content is based on information known and assumptions made at the time of writing. With the development of new projects, changes may be agreed to this Business Plan over time, though every



effort will be made to retain this format and headings to ensure a consistent approach in which all issues are addressed.

The Aerotoxic Association is a company limited by guarantee was founded on 18th June 2007 at the UK Houses of Parliament by John Hoyte, a former BAe 146 Training Captain whose career had ended prematurely due to ill health arising from Aerotoxic Syndrome.

1.2 Fume events

Imagine standing in front of a fan while someone opens a bottle of motor oil and forces you to inhale the fumes. This is the situation air crew and passengers face every day when they inhale engine oil mixed with recycled air thanks to faulty engine seals.

To make flying at high altitudes comfortable for staff and passengers, from 1962, a system of supplying warm, compressed air was developed. In most modern aircraft, this air supply comes from a plane's jet engine using a process known as 'bleed air', which is then mixed with recirculated cabin air at a 50/50 ratio. In the event of an engine oil leak or a break in the seal that keeps the oil and air apart, fumes and chemicals can make their way, often undetected, into the aircraft cabin through the ventilation system. If a seal suddenly fails, significant levels of oil contaminate the bleed air, and fumes or smoke enter the cabin. This is known in the industry as 'a fume event'. Such contaminants include engine oil, hydraulic fuel and anti-freezing fluid, all of which contain a number of harmful chemicals.

The toxicity of these fume events arises because the synthetic oil used by jets contains organophosphates, used in pesticides and nerve gas, and banned by the Environmental Protection Agency for residential use in 2001 because of known contaminants. The byproducts of these carcinogenic organophosphates can include aldehydes and carbon monoxide.

1.3 Aerotoxic Syndrome

Both long and short-term exposure to contaminated air in this way can lead to what is known as Aerotoxic Syndrome, a condition recognised and named in 1999 by French scientist Dr. Jean-Christophe Balouet, USAF Doctor Harry Hoffman and Australian toxicologist Chris Winder. Aerotoxic Syndrome is known to affect the peripheral central nervous system and the brain. Symptoms include migraines, fatigue, blurred vision, headaches, memory loss, nausea, difficulty thinking, numbness, aches and pains, breathing problems and digestive problems. In more serious cases, Aerotoxic Syndrome is suspected to have caused the death of both pilots and cabin crew.

There are many testimonies of passengers falling ill after a single fume event flight and then enduring long lasting ill health. These appear on the AeA website, and also see this statement: <http://aerotoxic.org/pdfs/RMontmayeur-testimony.pdf>



Recently, following a fume event on a British Airways (BA) Airbus A380 with 433 passengers and 25 crew on 24th October 2016 the issue has been publicised in the US, UK and Canadian media. The airliner already had a fault before it flew, which is a serious precedent.

1.4 Quotes

“The issue of toxic cabin air is so serious that our cabin crew members are likening it to the impact of asbestos in the building industry. Increasing numbers of our members have come forward, seeking help and advice since we set up our toxic air helpline a few months ago. Some have been involved in one-off ‘fume events’ while others fear they have suffered long-term exposure to contaminated cabin air. This is a health issue which the airline industry has been aware of for some time and one which they need to address as a matter of urgency. Continuing to brush it under the carpet will not wash, which is why this parliamentary debate is so important and a fuller public inquiry is needed.”

Howard Beckett, Unite the UNION Executive Director for Legal Affairs.

“In the twenty-first century, people deserve to know the air they breathe at work is clean and safe. Bleed air contamination happens more often than the industry acknowledges, and Aerotoxic Syndrome can kill. For the sake of both passengers and cabin crew, we need to take decisive action to prevent these leaks and understand the dangers to human health.”

Jonathan Reynolds, MP for Stalybridge and Hyde.

1.5 Causing change

Various methods have been employed to expose this scandal which has been likened to the campaigns made in previous years highlighting the danger of passive smoking. John Hoyte, Founder of AeA, has been publicising this issue since 22nd May 2006. He has tried repeated different ways (via celebrity, Aviation Medical Examiners, politicians, media, film, book etc.) of making the Public Authorities recognise the health issue and make changes.

The senior coroner for the county of Dorset wrote to the Civil Aviation Authority last year regarding his concerns about the death of British Airways pilot Richard Westgate. He wrote that organophosphate compounds, which are present in aircraft cabin air, were found in Mr. Westgate’s system and presented a risk to health. The coroner also added that, in his opinion, there is a risk that future deaths will occur unless action is taken. Richard Westgate first contacted AeA for advice in 2012.

Aerotoxic Syndrome compensation claims are often more complex than other types of industrial disease claims and need specialist legal expertise. Legal action has been taken by various air crew and air passengers, and their families. The only legal precedent to date was on 3rd September 2010 when an 18-year-old passenger was affected on a BAe 146 flight - Turner v East West Airlines. Her case was finally won in an Australian High Court, which set a precedent which appears to have been ignored or forgotten.



All other cases around the world have been settled out of Court, an action which costs the airlines but prevents public Courts from ordering the known solutions to be made. A recent (2016) high profile such case example is referenced at https://tribwngntv.files.wordpress.com/2016/04/0537_001.pdf

Britain's largest union Unite the UNION, revealed (Tuesday 15 March 2016), that it is pursuing legal action against several UK airlines on behalf of 61 cabin crew after they were exposed to 'toxic cabin air' while working on board aircraft. The union is calling for an independent inquiry. One such case is that of Matthew Bass who had a fifteen-year career as cabin crew before his sudden death in January 2014. Matthew was found to have died from "chronic exposure to organophosphates".

AeA regard it is important for all parties to have the available evidence reviewed by a specialist UK lawyer to enable the matter to be taken to a public court.

The official recognition that fume events cause Aerotoxic Syndrome is long overdue, and we believe we are on the cusp of a breakthrough. This was reinforced at a September 2017 Cabin Air Quality conference, London where Mr. Michael Rawlinson QC stated that Aerotoxic was at the 'Tipping point...'

2. KEY MESSAGES

2.1 Values

We believe in duty, recognition, transparency, prevention and redress:

- *Duty* - each citizen has a fundamental duty to report wrong doing, to prevent perversion of justice and criminal activity about a cause of public ill health.
- *Recognition* – the existence of Aerotoxic Syndrome should be recognised, promptly diagnosed and treated by medical professionals worldwide.
- *Transparency* - the international airline industry should admit that the aircrew, air passengers and the public have a risk of illness and death by breathing contaminated air on jet flights through fume events.
- *Prevention* - urgent action should be taken to prevent this risk.
- *Redress* – all those whose health is affected by fume events should be appropriately compensated.

2.2 Vision

Our organisation's vision is for all jet aircrew and passengers to be able to breathe clean air while flying, and for Aerotoxic Syndrome to be recognised, and for those affected to be promptly treated and adequately compensated.

2.3 Mission

Aerotoxic Association's mission is to raise awareness of Aerotoxic Syndrome among air crew, air passengers, the public, litigators and medical professionals. It also campaigns for the airline industry to:



recognise that breathing contaminated air on jet flights (fume events) can cause Aerotoxic Syndrome and that this can potentially lead to illness and death; and to take measures to prevent this from happening and compensate those affected.

2.4 Unique Selling Point (USP)

Our USP is that we are the only UK based organisation which has been consistently campaigning on this issue for over 10 years, drawing on an unequalled accumulation of specialist knowledge and data.

2.5 Aims

AeA's aims are to:

- provide support for sufferers of Aerotoxic Syndrome;
- educate air crew, air passengers, the public and medical professionals about the harm associated with poor aircraft cabin air quality and the causative link to Aerotoxic Syndrome;
- publish balanced, factual information related to cabin air quality;
- work with the airline industry and regulators to demand the implementation of known and available solutions.

3. BUSINESS PLAN OBJECTIVES

3.1 Short term objectives (immediate)

1. To equip litigators who are acting for affected passengers and aircrew with the expert knowledge and contacts they need to pursue their cases.
2. To promote the sale of health and safety protection to passengers to reduce the chances of their inhaling bleed air during a fume event.

3.2 Medium term objectives (0-3 years)

3. To educate air crew or air passengers who are concerned that they may have been victim of a fume event to insist on being tested for organophosphate poisoning.
4. To broker access to appropriate healthcare professionals for air crew or air passengers who are concerned that they may have been victim of a fume event.
5. To facilitate the provision of information and mutual support among those who suffer from Aerotoxic Syndrome, their carers and concerned health professionals.

3.3 Longer term Objectives

Longer term Objectives (i.e. once Aerotoxic Syndrome is accepted as having been caused by the airline industry and action is taken to prevent it).



6. To support public health services internationally to maximise the effectiveness of actions they undertake to protect air crew and air passengers from Aerotoxic Syndrome, and to treat victims of this illness.

4. WHAT WE WILL DO

To implement each of the above objectives, the following Action points are planned.

Objective 1 Action points

Objective 1 - To equip litigators who are acting for affected passengers and aircrew with the expert knowledge and contacts they need to pursue their cases.

AeA will:

1. register our founder John Hoyte as a member of the Expert Witness Directory (currently there are no experts on Aerotoxic Syndrome and its causes on the register).
2. produce an article for the Spring 2018 edition of the *Expert Witness Journal* to promote the availability of John Hoyte to litigators as an expert witness.
3. promote Aerotoxic Association (AeA) and the risks associated with fume events, to personal injuries litigators via Association of Personal Injury Lawyers (APIL) in UK and equivalent associations internationally.
4. To litigators as above, market the availability of John Hoyte to provide expert consultancy.
5. Where this is lawful, where AeA identify suitable cases, will offer to refer cases to personal injuries litigators in return for a referral fee.

Objective 2 Action Points

Objective 2 - To promote the sale of health and safety protection to passengers to reduce the chances of their inhaling bleed air during a fume event.

AeA will:

1. market to the procurement teams of relevant Heathrow Airport based retailers (e.g. Boots the Chemist) to have available for sale Activated charcoal face masks at their outlets at the airport on a pilot basis, to help protect air passengers from inhaling bleed air.
2. pitch the sale of AeA's own Activated charcoal face masks to these retailers.



3. set up an e-commerce platform to sell these masks online and promote this to the public and travel companies.

Objective 3 – Action points

Objective 3 - To educate air crew or air passengers who are concerned that they may have been victim of a fume event to insist on being tested for organophosphate poisoning.

AeA will:

1. continue to dispense up to date information and news on our website and social media.
2. maximise our social media presence by increasing numbers of AeA followers on social media at a rate of at least 3000 per year.
3. Manage a new membership (4th) website, with an interactive facility (e.g. message boards) to maximise community participation.
4. Continue to update and then promote the sale of the book *Aerotoxic Syndrome: Aviation's Darkest Secret*, by John Hoyte.
5. Continue to promote the services of the healthcare professionals we of whom we are aware who have specialist knowledge of contaminated aircraft cabin air and Aerotoxic Syndrome.

Objective 4 – Action points

Objective 4 - To broker access to appropriate healthcare professionals for air crew or air passengers who are concerned that they may have been victim of a fume event.

AeA will:

1. continue to promote the services of the healthcare professionals of whom we are aware who have specialist knowledge of contaminated aircraft cabin air and Aerotoxic Syndrome.
2. Provide contact with, and receive feedback from face to face, telephone and on line networking, including users of our website forums and social media platforms, our recommended list of such specialised healthcare professionals.
3. promote and publicise the availability of this list to other health professionals whom those affected by fume events may contact (including, in the UK, GPs).

Objective 5 – Action points



Objective 5 - To facilitate the provision of information and mutual support among those who suffer from Aerotoxic Syndrome, their carers and concerned health professionals.

Via conferences and group meetings, our website and social media platforms, AeA will:

1. provide information resources and news concerning medical tests and treatments.
2. enable victims to share their experience of the illness and various treatments
3. facilitate information sharing and mutual support among victims, carers and family members concerning Aerotoxic Syndrome.

Objective 6 – Action points

Objective 6 - To support public health services internationally to maximise the effectiveness of actions they undertake to protect air crew and air passengers from Aerotoxic Syndrome, and to treat victims of this illness.

AeA will:

1. market the availability of AeA's expertise and experience to public health bodies via conferences and group meetings, our website and social media platforms.
2. provide personal consultancy input (via John Hoyte) to public health bodies requiring this.
3. provide information resources and reports to public health bodies on request.

5. ANTICIPATED OUTCOMES AND HOW WE WILL TRACK THEM

5.1 Impact

The impact of AeA's interventions (Theory of Change) will be the prevention of the release of contaminated air on flights, and prompt and appropriate medical diagnosis, interventions and financial compensation for those who become ill because of organophosphate poisoning through flying.

5.2 Outcomes

Certain outcomes have been agreed to be pre-conditions for this impact. These are:

1. sufferers to be properly diagnosed and treated
2. sufferers to be properly compensated
3. aircrew and air passengers to be protected

5.3 Indicators



A series of indicators (lower level outcomes and measures) are developed into a framework as follows:

Projected Outcome	Indicators of outcome being achieved
Sufferers to be properly diagnosed and treated	<p>Everyone exhibiting illness following air travel</p> <ul style="list-style-type: none"> • to be tested for organophosphate poisoning / Aerotoxic Syndrome e.g. via the Test-mate ChE field test which can be used to determine Red blood cell acetylcholinesterase and plasma butyryl cholinesterase (AChE) status and plasma (pseudo) cholinesterase (PChE) in the blood in about four minutes • to have an appropriate, professional diagnosis • to receive appropriate medical treatment
Sufferers to be properly compensated	<ul style="list-style-type: none"> • All those diagnosed as being victim of organophosphate poisoning / Aerotoxic Syndrome because of air travel to be offered legal representation to secure compensation from the airline industry • Lawyers to seek out sufferers to join a group action against the airline industry • The airline industry or public authorities to agree a compensation plan for all sufferers • The compensation plan to be widely publicised, with an accessible claims route • In UK, for all air crew diagnosed to be advised to claim Industrial Injuries Disablement Benefit if eligible, and offered support with their application if needed (organophosphate poisoning is classed by the Department for work and Pensions as Industrial Disease C3)
Aircrew and air passengers to be properly protected	<ul style="list-style-type: none"> • All aircrew to be equipped with antimicrobial travel masks • Airport retail outlets to offer antimicrobial travel masks for sale • Air passengers to be offered antimicrobial travel masks on flights • The risk of contamination by engine oil to be reduced, with these known solutions: <ul style="list-style-type: none"> ○ Standard Operating Procedures where aircrew are trained to recognise and/or respond to odours or fumes with appropriate action on the ground (including refusal to operate flight) and in air (including option to divert to the nearest airfield). ○ installation of bleed air filtration systems ○ use of a less toxic oil formulation improvement. (The French oil company NYCO is developing such oils). ○ chemical sensors to detect contaminated air in the bleed air supplies, rather than relying on smell, to alert pilots to



	<p>problems.</p> <ul style="list-style-type: none">○ for all new aircraft to be constructed to eliminate the possibility of cabin air contamination, by having cabin air supplied by electrically-driven compressors taking their air directly from the atmosphere instead of bleed air (e.g. as per the new Boeing 787 Dreamliner).
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We understand the importance of measuring whether our intervention has made a positive difference. Achievement of the above indicators will demonstrate achievement of the appropriate outcome. This will be evidenced from reports and observations (e.g. by air crew, the airline industry, airline industry regulators, public authorities, health authorities, the medical and legal professions and their representative bodies, and those suffering from Aerotoxic Syndrome).

6. FINANCIAL PROJECTIONS

6.1 Financial plan

AeA's financial plan is for rapid, but controlled growth from income generation. To begin with growth is expected to be slow as it will take time for the target market to become aware of the availability of the proposed products and services. See Appendix 7: Income Generation, and Appendix 8: Projected Budget. £186,000 has been invested by founder John Hoyte in the company to date as a Director's loan and which would be expected to be repaid. The accounts for 2016 are due in December 2017.

6.2 Cashflow plan

Our cashflow plan is to:

- Maintain enough money on hand each month to pay the cash obligations the following month.
- Identify and eliminate deficiencies or surpluses in cash.
- Alter business financial plans to provide more cash if deficiencies are found.
- Invest any revealed excess cash in an accessible, interest-bearing, low-risk account such as a savings account.
- Clearly understand the market and competition while continually adjusting accordingly.
- Keep enough cash, as needed cushion for security, on hand to cover expenses.

7. RISK ASSESSMENT

AeA's risk assessment is done on a rolling annual basis, so that current risks are always up to date. It involves ensuring that:

- new risks are properly reported and evaluated
- previously identified risks are reviewed in case they have changed
- risk aspects of significant new projects are considered as part of project appraisals



- any significant failures of control systems are properly reported and actioned
- there is an adequate level of understanding of individual responsibilities for both implementation and monitoring of the control systems
- any further actions required are identified

A rolling risk table identifies the most significant risks faced by AeA, considers the potential impact of these risks and describes how they are mitigated.

Over the lifetime of this Business Plan, the key risks are identified as:

- Lack of income generation
- Lack of capacity
- Lack of demand for AeA's services
- Other organisations using AeA's campaign to their own advantage

We have planned to mitigate these risks as follows:

Lack of income generation

- Promoting John Hoyte's availability as an expert witness in return for fees
- Maximising trading in antimicrobial travel masks through marketing
- Receipt of referral fees from lawyers

Lack of capacity

- Recruitment of volunteers
- Fund secretarial support from income generation above

Lack of demand for AeA's services

- Ongoing promotion of AeA's campaign
- Ongoing provision of information and news to website users and social media followers
- Marketing of expert support for litigators
- Partnership working with Unite the UNION

Other organisations using AeA's campaign to their own advantage

- Ongoing promotion of AeA's campaign
- Ongoing provision of information and news to website users and social media followers

APPENDICES – ANALYSES AND STRATEGIES

Appendix 1 - Positioning and Partnership strategy



AeA will continue to position ourselves as an independent advocate for change but will work in partnership to further our cause.

Partnerships are formed with certain groups for certain purposes, as follows:

- to share strategies, tactics and news updates (e.g. airline industry announcements, court cases): Unite the UNION, AVSA Aerotoxic France, Flyer's Rights, PCOC, Stichting Fly Aware, Global Cabin Air Quality Executive, Independent Pilots Association, Association of Flight Attendants, The Professional Pilots Union, Toxic Cabin Air, Aerotoxic Team, Toxic Free Airlines, Fume Events, Holiday Travel Watch, IVU e.V – (Internationale Verein für Umwelterkrankte), Dr. Susan Michaelis, Head of Research at the Global Cabin Air Quality Executive.
- to refer cases of air passengers with suspected or diagnosed Aerotoxic Syndrome symptoms, or to provide expert witness services: litigators, including these UK legal firms: Thompsons Solicitors, Holiday Travel Watch, Stewarts Law.
- to refer cases of air crew with suspected or diagnosed Aerotoxic Syndrome symptoms, or to provide expert witness services: litigators, including these legal firms: Thompsons Solicitors- UK; Brodkowitz Law – USA; Turner Freeman – Australia; Parker Waichman LLP -ASA; JMP Solicitors – UK.
- to market for sale Activated charcoal face masks: airport retail outlets.
- to increase our support to sufferers: patient support groups; disability groups; carers' groups.

We will consider, on their merits, all opportunities to form further partnerships as an organisation, or around particular projects, where:

- These are considered to help to further its mission and aims
- Their provision fits with our ethos
- Their presence meets need identified in order to develop a project
- Their presence would not risk damage to existing provision

Appendix 2 - Competitor analysis

AeA is starting with a critical competitive edge. We know of no UK competitor which supports air crew and air passengers that can claim to have as much in-depth knowledge and understanding of the extent and causes of health damage arising from breathing contaminated air on jet flights (fume events). However, affected members of aircrew who are members of the union Unite The UNION are able to access legal help to pursue their case against the airline industry.

Appendix 3 - Communications strategy



Interest groups

We will need to interact with and influence different interest groups as follows:

Group	Purpose of Interaction
Adults (and their carers) suffering from Aerotoxic Syndrome, or other related health conditions linked to flying	<ul style="list-style-type: none"> • to engage sufferers/carers with AeA – its aims, ethos and planned provision. • to provide access to information resources and news • to enable them to communicate and share experience with one another • to enable consultation on the development of new projects and activities • to collect feedback on progress with their treatment and litigation • to encourage them to spread the word among colleagues, friends and others
Media	<ul style="list-style-type: none"> • To continue to raise and maintain the profile of AeA, its mission, aims and objectives • to communicate lived experiences and raise awareness of the needs of sufferers • to disseminate news on latest developments, investigations, court cases, incidents and progress
Airline Industry	To utilise latest news of developments to continue to lobby for a change in practice
Public Authorities	To utilise latest news of developments to continue to lobby for a change in practice and use of regulatory powers
Litigators	To provide information and expertise in order to back their actions on behalf of air crew and air passengers To refer sufferers to them

Forms of communication

Communication will be via the website (in the course of being upgraded to contain blogs and message boards), traditional media, social media, one-to-one meetings and conferences. Word of mouth from those with lived experience is regarded as the most effective method of promoting AeA and its activities. Bold and direct approaches will continue, as these are known to be influential.

Appendix 4 – AeA’s Market and Marketing strategy

AeA’s target market comprises:

- Air crew and air passengers –whom we will continue to inform and educate, and in the case of passengers, market activated charcoal face masks



- Air crew and air passengers who have become ill due to flying – to promote access to health professionals for diagnosis (e.g. testing for organophosphate poisoning); to facilitate support and routes to litigation
- Litigators – to whom we plan to sell AeA's services – viz as an expert witness or referrer of prospective clients
- Healthcare professionals – to whom we plan to facilitate access to available medical experts in the field
- The airline industry and the regulators – whom we will continue to lobby

Air crew and air passengers

To make flying at high altitudes comfortable for air crew and passengers, a supply of warm, compressed air is needed. In most modern aircraft, this supply comes from an aircraft's jet engine using a process known as 'bleed air', which is then mixed with recirculated cabin air. In the event of an engine oil leak or a break in the seal that keeps the oil and air apart, fumes and chemicals can make their way, often undetected, into the aircraft cabin through the ventilation system.

If a seal suddenly fails, it causes a 'fume event' which sees significant levels of oil contaminating the bleed air and smoke entering the cabin. A 2007 report by the UK Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) said that these fume events occur on one flight in 100. Being victim of a fume event is likened to standing in front of a fan while someone opens a bottle of motor oil and forces you to inhale the fumes. Bluish haze or smoke in the cockpit could occur, emanating foul odour, (referred to variously as like "*sweaty socks, wet dog, vomit, sweet oily smell*"). The toxic effect of the fumes is most likely due to Tri-cresyl phosphate (TCP), an anti-wear agent in complex synthetic oil used for aircraft engines to withstand extreme environments. TCP is an organophosphate compound with neurotoxic properties. Such pyrolysed contaminants, and particles of heavy metals from the engines (nickel, cadmium, beryllium), as part of the bleed air, may be introduced into the aircraft cabin for pressurisation. This may result in regular commuters by air and the aircrew being exposed to contaminated cabin air during flight.

The result is organophosphate poisoning, which attacks the central nervous system (including the brain). Exposure to contaminated air will most likely impact individuals in different ways in both the short and long term, based on a number of variable factors: levels and types of chemicals present during an exposure, previous exposure history to not just contaminated air but other chemical exposures such as pesticides, genetic make-up, age, medical condition, and potentially any medication the person may have been using.

Hence, one person's body may have less success than another's at detoxifying contaminants and so be affected after just one flight, whilst others may be unaffected after years of exposure. Depending on detoxifying efficiency, the adverse health effects may be cumulative. Therefore, anyone frequently flying (which means once or more a week) is repeatedly exposed and is therefore especially at risk. The



resultant illness is referred to as “Aerotoxic Syndrome”.

Air crew and air passengers who have become ill due to flying

The degree to which people are affected by Aerotoxic Syndrome depends on the severity of the fume event and varies from one individual to the next. Some develop few symptoms, some become ill but only after a few days, some develop long term serious – in some cases fatal - illnesses. Commonly reported symptoms of this include: sore throat and cough; nose bleeds; migraine headache; gastrointestinal symptoms including nausea, vomiting and diarrhoea; muscle aches; rashes or itchy skin; fatigue; breathing difficulties; a sudden rise in blood pressure. In addition, many experience neurological symptoms which include: depression; anxiety; panic attacks; tremors; seizures; confusion and cognitive dysfunction; chemical pneumonia and brain cell death. The symptoms for some sufferers have been fatal.

There is much anecdotal experience of Aerotoxic Syndrome on the part of air crew and air passengers on AeA’s website at <http://www.aerotoxic.org/what-is-aerotoxic/testimonies/>

People suffering from severe Aerotoxic Syndrome feel very isolated because of (a) the debilitating effects of the illness, and (b) the symptoms collectively are not recognised as a diagnosed illness, and their cause has yet to be officially ascribed to breathing contaminated cabin air. Many health professionals are unaware of Aerotoxic Syndrome and may diagnose sufferers with illnesses such as psychological or psychosomatic disorders, Chronic Fatigue Syndrome (CFS), “mysterious” viral infections, sleep disorders, depression, stress or anxiety – or simply “jet lag”.

However, this malaise affects a great many aircrew and regular flight passengers long term, many whom are no longer fit for work. They need an enhanced support group and meetings because at present they have only limited opportunities to share their illness and treatment experiences, and how to get the best out of the NHS. There is also a need for more sufferers to join AeA, and for everyone to be kept up to date with the progress of Public Court cases and of campaigns for the aircraft industry to address the risk of contamination. Those affected need to connect with others experiencing similar trauma so they feel they are not alone, and can discuss their feelings without feeling ashamed or subjected to criticism.

According to a report by the Aerospace Medical Association, *"The UK CAA Medical Department in 2013 were aware of 28 individual cases who have reported symptoms which they attributed to exposure to fumes."* A report by The Committee on Toxicity (COT) in 2007 estimated that "fume events" were recorded on 0.05 per cent of flights overall and 0.018 per cent of passenger and cargo flights by UK carriers.

John Quail, from personal injury firm claims.co.uk commissioned a poll of 2,000 adults, said that 23% of respondents claimed that they may have been affected.

The people with whom we have consulted (our 411 Facebook followers, and 500+ Linked in followers) have told us they need to increase their understanding and receive more support for their condition, particularly as any misdiagnosis may lead to inappropriate treatments, which may make their condition worse.



Litigators

Aerotoxic Syndrome compensation claims are often more complex than other types of industrial disease claims and need specialist legal expertise. Unite the UNION's legal team have dedicated industrial disease solicitors and are working proactively to encourage air crew members to register with them if they feel they have been affected by breathing contaminated air while flying. They will also represent affected family members.

Otherwise sufferers are left to identify suitable lawyers who specialise in personal injuries cases. Some are more knowledgeable or experienced with Aerotoxic Syndrome claims than others. AeA is compiling a list of those we recommend, see Positioning and Partnership Strategy above.

The only legal precedent to date was on 3rd September 2010 when an 18-year-old case of a passenger being affected on a BAe 146 flight - Turner v East West Airlines was finally won in an Australian High Court, which set a precedent but which appears to have been forgotten or ignored by litigators.

Other known cases around the world are 'settled out of Court' which costs the airlines but prevents public courts from ruling to create a precedent and ordering the known solutions to be made. In a 2016 case heard in Illinois - Escobedo-v-Boeing - where a flight attendant took legal action against plane manufacturer Boeing on five counts due to her becoming seriously ill long term because of flying during a fume event. The case details can be found are at:

https://tribwgnv.files.wordpress.com/2016/04/0537_001.pdf

Healthcare professionals

Few diseases have been as underreported and controversial as Aerotoxic Syndrome, a term given to the illness in 1999 by Dr. Harry Hoffman and professors Chris Winder and Jean Christophe in their report *Aerotoxic Syndrome: Adverse Health Effects Following Exposure To Jet Oil Mist During Commercial Flights*. Most Healthcare professionals that patients consult in the first instance (in Britain the GPs) have never heard of Aerotoxic Syndrome so would be unlikely to diagnose it or refer patients for tests. The disease is not recognised by health authorities and regulators worldwide.

It follows that healthcare professionals are unaware that of its link to organophosphate poisoning, indeed they will only be vaguely aware of organophosphate poisoning itself, which has been primarily associated with farm workers working with pesticides (e.g. their use in sheep dips) and Gulf War syndrome. Though there is controversy surrounding the causes of organophosphate poisoning, in the UK it is classed as a prescribed industrial disease (C3), so allows those proven to be sufferers to claim Industrial Disablement Benefit.

Many doctors – especially aviation physicians – deny the existence of Aerotoxic Syndrome in the same way as the airlines do. In UK, sufferers who ask their GP to refer them to a specialist, will probably suggest that they first try various tests, or treatment options, to see whether their condition improves. Generally, patients cannot self-refer to a specialist within the NHS, except when accessing sexual health



clinics or accident and emergency (A&E) treatment. A specialist will only see the patient with a letter of referral from their GP.

Consulting a fee charging private healthcare professional is an option, though in UK health insurance may not cover the consultation unless referral was made by a GP.

Measurements of organophosphate poisoning metabolites in both the blood and urine can be used to determine if a person has been exposed to organophosphates. Specifically in the blood, metabolites of cholinesterases, such as butyryl cholinesterase (BuChE) activity in plasma, neuropathy target esterase (NTE) in lymphocytes, and of acetylcholinesterase (AChE) activity in red blood cells. Due to both AChE and BuChE being the main targets of organophosphates, their measurement is widely used as an indication of an exposure to an organophosphate poisoning. However, the degree to which either AChE or BuChE are inhibited differs in relation to the level of organophosphate poisoning, so this may affect the security of the diagnosis using this method.

For fast initial screening, determining AChE and BuChE activity in the blood are the most widely used procedures for confirming a diagnosis of organophosphate poisoning. The most widely used portable testing device is the Test-mate ChE field test, which can be used to determine levels of Red Blood Cells (RBC), AChE and plasma (pseudo) cholinesterase (PChE) in the blood in about four minutes. This test has been shown to be just as effective as a regular laboratory test. Because of this, the portable ChE field test is frequently used by people who deal with pesticides regularly.

The Airline industry and the regulators

The airline industry including the Government aviation agencies and aircraft manufacturers such as Boeing do not acknowledge the existence of Aerotoxic Syndrome, and where crew or passenger fall ill because of flying do not accept that fume events are the cause, and understate the number of fume events. One flight in one hundred says the UK Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT), and Official records from the Civil Aviation Authority show that oxygen masks are being used by pilots and crew at the rate of at least five times a week to combat suspected “fume events”. However, the Federal Aviation Administration’s (FAA) 2013 report to the US Congress stated that only 69 air contamination (by oil) flights were known over a 10 year period from 2002 through 2011.

There are many incidences of air crew and passengers falling ill: widely reported recently, on 25 October 2016, BA flight 286 from San Francisco to London was diverted to Vancouver after crew members became unwell and were referred to various hospitals in Vancouver, as a precaution. Passengers were not offered medical screening. The day after, another BA flight to Los Angeles suffered a fume event, where crew initiated the drill and put on oxygen masks. The airline reportedly dismissed [it] as an ‘*odour event*’. “*Downplaying serious toxic fume events on board aircraft as ‘odour events’ smacks of spin and an attempt to manipulate official statistics to downplay how widespread the problem really is in the industry,*” said Howard Beckett, Unite the UNION’s Director of Legal Services.

The 2015 report of Stanhope Payne, the senior coroner for Dorset, into the death of Richard Westgate, a British Airways pilot, voiced concern that people regularly exposed to fumes circulating in planes faced



“consequential damage to their health”. The official safety watchdog, the Air Accident Investigation Branch, has called for aircraft to be fitted with equipment to detect any contamination of cabin air. A spokesman for BA said it could not comment on the case, but would consider the coroner’s report and respond. The airline cites independent studies commissioned by the Department for Transport, which found *“no evidence that pollutants occur in the cabin air at levels exceeding available health and safety standards”*. The stated Government position is that *“concerns about significant risk to the health of airline passengers and crew are not substantiated”*. A spokesman for the CAA said it would consider the report in detail but claimed it was *“nothing that passengers or crew should be overly concerned about”*.

All jet aircraft which use bleed air are affected – including turbo propellers – however some aircraft models appear to be worse than others. Moreover, Boeing have tacitly acknowledged the problem with a new jet design, the Boeing 787 Dreamliner, which cannot have a fume event as it does not rely on air that has been bled off the engines to supply the cabin with breathing air.

External research

Research, court cases and reports of incidents regarding fume events and Aerotoxic Syndrome are legion and are accessible on the AeA website <http://aerotoxic.org/information/reports-and-evidence>.

Marketing strategy

We will continue to promote AeA, news and developments to our target market in order to influence opinion, policy and prevention regarding Aerotoxic Syndrome. In return we encourage our target market to respond by sharing their experiences and information, and also, in the case of sufferers, to share information about treatments, rehabilitation and any litigation conducted.

Appendix 7 – Income Generation Strategy

It is necessary for AeA to increase funding sources and levels of funds from these sources. Part of the income generated should be used to repay the £200K invested by founder John Hoyt in the company to date as a Director’s loan.

AeA’s funding strategy embodies a plan for collating information on the level of funding it requires each year, including potential sources of those funds and how to best target them.

Sources of funding will be a mix of:

- commercial activity
- grants and individual donations.

Our aim is to generate sufficient income in order to establish financial sustainability and meet our objectives.



We plan for a funding mix that allows commercial work to subsidise work that meets our social objectives, as well as contribute to repaying the Director's loan of £200,000.

Assumptions underpinning the income generation strategy

1. The sources of commercial income will enable us to cross-subsidise those services that have social value but which we cannot fund fully from grants
2. The market for our services is sufficiently developed, i.e. that we can differentiate ourselves from other campaigns and provision, and show our added value
3. Actual costs do not vary significantly from budgeted costs
4. We can maintain positive cash flow during our period of growth
5. Our unique approach will not be copied by competitors to the extent that it damages our income generation prospects
6. Customers will be found to buy products and services
7. Funders and donors will be willing to support us in developing our services

Sourcing income from commercial activity

AeA will:

1. register our founder John Hoyte as a member of the Expert Witness Directory (currently there are no experts on Aerotoxic Syndrome and its causes on the register).
2. produce an article for the Spring 2018 edition of the *Expert Witness Journal* to promote the availability of John Hoyte to litigators as an expert witness.
3. promote the availability of John Hoyte as a specialist consultant to offer training on the risks associated with fume events, to personal injuries litigators via Association of Personal Injury Lawyers (APIL) in UK and equivalent associations internationally.
4. To these same groups, promote the availability of John Hoyte to personal injuries litigators as a specialist consultant via Association of Personal Injury Lawyers (APIL) in UK and equivalent associations internationally.
5. Where this is lawful, identify suitable cases, we will offer to refer personal injuries litigators in return for a referral fee.
6. Pitch the sale of AeA's own antimicrobial travel masks to procurement teams of relevant Heathrow Airport based retailers (e.g. Boots the Chemist) to have available for sale antimicrobial travel masks at their outlets at the airport on a pilot basis, to help protect air passengers from inhaling bleed air.
7. Depending on our experience of the above, to pitch to expand sales to procurement teams to relevant airport retailers internationally.



8. Set up an e-commerce platform to sell these masks online, and promote this to the public and travel companies.

Sourcing income from individual donations

AeA will:

1. Create a register of individual and business supporters from existing contacts including Facebook followers and LinkedIn connections, keep them informed through newsletters, build relationships and ask them to consider one-off or regular donations
2. Add to this register at every opportunity
3. Create a crowdfunding site (persuasive text and a short video) for a fixed target appeal for a project or to support core work, and use the register of contacts to request donations
4. See if any of the register of contacts will be prepared to contribute in kind to AeA's work, e.g. contributing volunteer support, pro bono expertise et al

Sourcing income from Grant Making Trusts and Foundations

Identify any trusts or foundations who may be prepared to fund aspects of AeA's work, make contact with them to explore funding possibilities, and where this might prove fruitful, make a grant application.

Appendix 9 – Company Details and Human Resources

Company details

The Aerotoxic Association is a company limited by guarantee was founded on 18th June 2007 at the UK Houses of Parliament by John Hoyte.

Company reg. no 9227324.

Registered address:

41 Bracondale
Norwich
NR1 2AT

Directors:

- *John Hoyte* - a former BAe 146 Training Captain whose career had ended prematurely due to ill health arising from Aerotoxic Syndrome. By early 2007 Capt. Hoyte was determined to prevent



other aircrew and passengers from enduring what he had experienced, especially as his health slowly began to recover. He set up Aerotoxic Association for the benefit of other aircrew and passengers.

- *Dr. Ian Gibson* - former Member of Parliament, member of the House of Commons Select Committee on Innovation Universities Science and Skills, member of the Science and Technology Select Committee from his election in 1997 and served as its chairman between 2001-5. Former chair of the All Party Parliamentary Group on Cancer. Also, he chaired the Group on Scientific Research into ME. Former Dean of Biology at the University of East Anglia, head of a research team investigating cancer. He is active on a range of community initiatives.

AeA employs no staff; some voluntary and pro bono support is available on an occasional basis.

Steve Wiseman & Louise Richmond
Wiseman & Associates