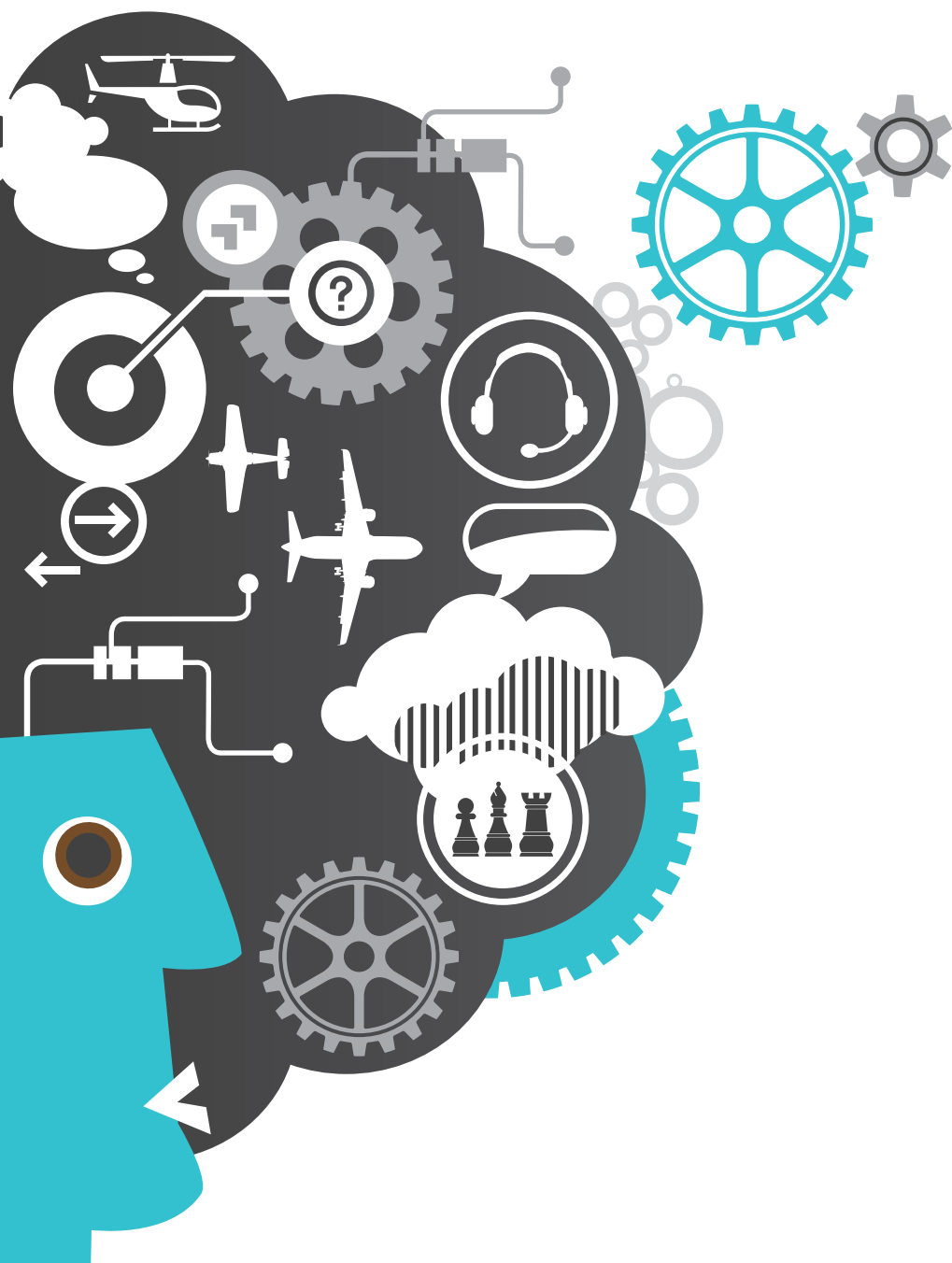




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Civil Aviation Safety Authority

Safety behaviours: human factors for pilots 2nd edition

Resource booklet 3 Human performance





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Fatigue, stress, high workload and struggling to stay healthy are constant issues for charter pilots. Depending on how they are managed, they can be a simple daily challenge or an overwhelming problem which adversely affects performance. This booklet provides practical information that charter pilots can use to stay both physically and mentally fit to fly.

Contents

Introduction	4
Fatigue	4
Stress	9
Mental health	14
Diet, health and wellbeing	15
Alcohol and other drugs (AOD)	19
Peer support	22
Key points for professional pilots	28
Key points for charter operators	28
Resources	29
References	30

'Mistakes are inevitable in aviation, especially when one is still learning new things. The trick is to not make the mistake that will kill you.'

Stephen Coonts, US author

Introduction

The job of a charter pilot can be demanding. Whether it is dealing with long and unpredictable hours, average accommodation on layovers, or simply trying to find a decent place to eat away from home; charter pilots must balance multiple tasks from flight planning and flying the aircraft in challenging locations, to refuelling and baggage handling—not to mention looking after passengers. In this booklet, we look at ways to deal with these common situations and how to manage fatigue, stress, high workload and stay healthy while we do it.

Fatigue

Fatigue is a general term we use to describe physical and/or mental weariness which extends beyond normal tiredness. Sound familiar?

It has no boundaries. Fatigue can affect both your work and personal life if you don't recognise and manage it—as the following story shows:

Steve had his fourth consecutive early start after a late night. His boss, Joe, said it couldn't be helped—they ran a lean operation and the job needed to be done, otherwise there would be no repeat business from the customer. He hadn't been sleeping well lately. He had things on his mind:

issues with the kids, bills to pay, not to mention the nearly two-hour drive from his home to the airport every time he had to fly. He was finding things tough. While Steve prided himself on his attention to detail, he was missing things, basic things he had always remembered before. He was not just feeling physically drained, but mentally as well; he had to make a lot more effort to focus on things that were normally easy to do.

Steve was *physically* fatigued from early starts and long days working in hot temperatures. This, combined with lack of sleep, was making him *mentally* fatigued as well so he was struggling to pay attention and perform even quite simple tasks with his normal efficiency.

Mental fatigue often results from lack of sleep or interruption of our normal sleep pattern. It is therefore of concern to charter pilots like Steve who must often work early in the morning or late at night.

What makes the situation worse is that we are not the best judges of our own alertness. We are often more fatigued than we realise. Have you ever started to nod off as you are driving home after a long flight, but pushed through instead of pulling over for a nap?

If you were Steve, would you have reported to Joe that you were fatigued and shouldn't fly? If you were Joe, would you have a process in place that encouraged such reporting with no recrimination?



image: Charter type aircraft | © Civil Aviation Safety Authority

A young charter pilot's close-call story

Fatigue faux pas

I was a relatively low-time pilot with a fresh CPL working in various flying and non-flying roles on my home airfield. Word had gone around that I was keen and willing to do any flying that would come my way. I was most pleased when the owner of a Piper Cherokee 6 with a charter-only AOC phoned me and asked if I was willing to do a three-night charter for a travel agent, flying some wealthy retirees around Cape York in North Queensland.

I was thrilled at the chance of work, yet a little apprehensive as I'd never flown a Piper, having grown up flying all things Cessna. What I didn't know was that I made my first mistake before even going anywhere near an aeroplane. The night before departure when I was lured out by some friends for dinner and the movies, I didn't hesitate. The result was quite a late night, getting to sleep just after midnight.

The next morning, when my alarm sounded at 5:00 am, I was far from feeling refreshed and ready to do almost six hours of flying in the tropical North Queensland heat. My guests arrived, and we were underway on our first leg. It was a warm morning, and to be honest I wasn't feeling that enthusiastic about the long day ahead.

That said, my 15-minute fuel checks and tank changes kept me busy and I had a heightened level of anxiety (possibly a good thing) as the fuel management between the four tanks of this old Cherokee 6 was a much higher workload than I'd ever endured in any Cessna I'd flown previously.

My guests were thirsty ones and I'd somewhat under catered on the water the previous day at the supermarket, so I'd made a subconscious decision to conserve water at my end, so my guests were more than nourished.

Hand flying in that after-lunch lull, with the warm sun on my face, we were cruising just off the coast of Lockhart River, when I had a moment of terror.

Did I do my last fuel tank swap? Quickly running through my tank change sheet, I had become confused as to exactly how much fuel was left in which tank. My calculations weren't making sense, my concentration levels had dipped, and I'd quite clearly become confused.

The Cherokee 6 was maintaining a wing-down state, which indicated per my training, that the fuel tanks were becoming unbalanced. I was getting annoyed with my mistake, and a little unsure how to correct it, when in an instant, the engine stopped. No coughing, spluttering or power surges—just complete silence.

I trimmed for best glide and instantly did my C-M-F checks. Carby (not fitted), mixture, fuel pump high, change fuel tanks. In an instant the big six Lycoming roared back into life. I was horrified. I turned around to my four guests and they were as white as ghosts, with a look of terror in their eyes. I quickly reassured them everything was fine while giving them a thumbs-up.

I didn't want to try and explain over the noise of the engine. But I knew what had happened. My lack of sleep and lack of water in the soaring temperature of a non-airconditioned light aeroplane more than definitely affected my concentration levels that day, compromising my normally professional behaviour.

This unfortunate experience gave me the perfect lesson: always be sufficiently rested (especially in a single-pilot operation), grab a power nap when you can, and stay hydrated.

'Fatigue faux pas' appeared in *Flight Safety Australia* May 2015

How big a problem is fatigue?

Fatigue is a challenge for pilots from all sectors of the aviation industry.

Even the most professional pilots are susceptible to fatigue. We can be our own worst enemy when it comes to recognising whether we are able to continue to perform to a high standard.

The Australian Federation of Airline Pilots (AFAP) has published the findings of an independent online survey² conducted in June–July 2017, of 1132 Australian commercial pilots' fatigue experiences.

Half the surveyed pilots reported that fatigue was a major personal problem in their work, with nearly 50 per cent experiencing fatigue during half or more of their shifts. The majority had experienced fatigue before and during duty.

For charter pilots, the most common contributors to fatigue were early morning starts, consecutive early then late duties, and late-night finishes.

The survey included questions about how the pilots attempted to manage fatigue. Charter pilots reported using strategies such as standing up and moving around, talking to others, drinking caffeine and using controlled rest where possible.

Of particular concern was the fact that charter pilots were the most likely never to report fatigue, even though many admitted having made an error because of it. Only 10 per cent of charter pilots said their company had a fatigue risk management system (FRMS).

So, if pilots are experience concerning levels of fatigue, does this mean there have been accidents where fatigue was a contributing factor?

There are a number of ATSB investigations which have found this to be the case. These include:

- On 25 February 2013, a Boeing 737-800 about to commence descent from FL390 near Brisbane began to climb. By the time the crew recognised the cause—their unintended selection of an inappropriate mode—and

began to correct the deviation, the cleared level had been exceeded by 900 ft. During the recovery, a deviation from track occurred because the crew believed the autopilot had been re-engaged when it had not.

The ATSB report³ stated that the event occurred towards the end of a four-sector duty period and the captain noted feeling tired at the time. Although it was a relatively long duty period, the workload had not been high. The captain's sleep period may have been less than normal on the night prior to the occurrence; however, of more concern was that the captain was averaging 10 hours work on days when they were not flying.

This level of work has the potential to lead to cumulative fatigue and interfere with their ability to get adequate rest between rostered flight duty periods. It is very difficult for an operator to control such activities and there is a significant onus on the crew member to ensure that they are appropriately rested prior to reporting for duty.

- On 8 November 2012, the crew of a Saab 340 advised destination ATC at Newcastle in daylight hours that they were 'visual' and were so cleared. The aircraft was then observed to turn towards the lights of an industrial complex six nm from the airport and descend before ATC intervened to provide guidance to final approach. The investigation found that the experienced captain was guiding the first officer towards what he had mistaken for the runway. Descent, perceived by the captain as on 'finals', continued to 680 ft AGL before the aircraft began climbing.

The report⁴ said the captain considered that his ongoing discomfort due to a recent illness and associated fatigue played a part in his reduced attentional capacity. It is well known that people can underestimate their level of fatigue when assessing before flying whether they are fit for duty.

Addressing fatigue in charter operations

Charter pilots on duty in the early hours of the morning or crossing time zones, may find it difficult to achieve satisfactory rest before commencing duty, but there are many other reasons why we may not achieve a good quantity or quality of sleep on a regular basis. The fatigue section in module 3 of the workbook in this kit will give you more information on these.

Adequate sleep is the only way for us to minimise fatigue and its negative effects on our performance. An accumulated sleep debt from less-than-usual sleep over several consecutive days needs to be 'paid back' with several days of more-than-usual sleep.

Warning signs of fatigue include:

- errors of judgment
- forgetfulness
- sleepiness or yawning
- loss of appetite
- aggressiveness or irritability
- inaccurate flying
- lower standards.

The physiological and psychological errors typically made by fatigued pilots include:

- slowed reaction time
- forgetting or missing checklist items
- inaccurate flying
- missed radio calls.

What you can do

You and your employer share responsibility for managing fatigue. As a charter pilot you need to adopt strategies to better manage your rest and to decrease the effects of fatigue such as:

- planning your activities, meals, rest and sleep patterns during off-duty periods
- making the most of permitted rest breaks, including naps
- advising colleagues if you feel drowsy
- alerting colleagues if they appear to be becoming drowsy
- giving your employer feedback on the suitability of overnight accommodation
- eating appropriate meals.

Sleep baby, sleep

Aim for at least seven hours each night. If you really think you can manage on less, do an experiment. Sleep for least seven hours a night for two weeks and compare how you feel and perform.



Charter operators should ensure that work schedules, including consecutive shift-working patterns:

- minimise impact on off-duty—and, where applicable, on-duty rest
- provide optimal working conditions, including appropriate overnight/rest accommodation
- provide human factors training to promote awareness and practical ways to address fatigue and sleep issues
- establish a fatigue risk management system (FRMS) where appropriate.

Fatigue risk management

An effective fatigue risk management system enhances safety by routinely collecting and analysing information about crew alertness and flight performance. Computer models can predict average performance capability from a pilot's sleep/wake history and normal circadian rhythms.

Consider the following simple fatigue risk management system of a small Bankstown-based helicopter charter operator which provides bushfire management services. Its crews can work long hours during emergencies.

The chief pilot has committed to maintaining a positive approach to fatigue risk management. This includes a multi-faceted approach to minimising fatigue levels with multiple controls such as prescribed rostering, fatigue self-reporting and the analysis of fatigue-related incidents.

Any pilot or crewperson who believes they may be suffering from fatigue that may impact on their performance can report this to the chief pilot using a hazard report form.

All new employees receive information and education material on fatigue as part of their induction. There is regular training and education programs for all employees which:

- defines the criteria by which employees can ensure that they are fit for work
- defines organisational and management accountability for managing fatigue-related risk.

Part of this education includes fatigue management information for the partners and families of employees, as family commitments can be the source of fatigue.

The operator has specific scheduling and rostering criteria for pilot and crew rosters to ensure minimum sleep requirements:

- a maximum 12-hour shift for routine operations
- a maximum 14-hour shift for emergency operations such as fire, flood and rescues
- a minimum 12-hour break between routine shifts
- a minimum 10-hour break for emergency operations
- a maximum of six shifts in a row for both routine and emergency operations.

Finally, there is fatigue management evaluation, with annual internal reviews of the effectiveness of fatigue management as part of a broader safety management system internal audit program.

This simple system gives the operator more flexibility to effectively manage pilots' fatigue during emergency bushfire response operations compared with the prescriptive CAO 48 requirements it replaced. Both the company and its pilots have confidence that the fatigue risk is constantly being reviewed and controlled, enabling them to get on with the job.

Charter operators can find fatigue management resources on the CASA website.

Stress

Stress can have just as much of an impact as fatigue, and also increase the likelihood of making an error. Consider the case of 'Tom':

Tom has just gone through a messy separation from his wife and has had to find somewhere else to live. What is really making him wound up, tense and distracted is that he is not able to see his two kids as much as he would like. Added to this is the financial stress of having to pay both rent and a mortgage. Tom is forced to take a better paying job in Darwin, doing charter flights for tourists in the Top End. He is away from his home and his family and also has to fit in with his new job.

Overwhelmed, wound-up, tense, distracted—these are all classic symptoms of chronic stress.

Tom's story shows how stress at home can have a negative effect on work performance if not well managed. But for charter pilots, stress can also come from the job itself. Long and unpredictable hours, the demands of customers and having to be self-sufficient and flying with little support, can all take their toll.

While stress can sometimes be a good motivator, the overwhelming stress that Tom was feeling reduces performance. It needs to be both recognised and appropriately managed to reduce its negative effects.

The stress symptoms Tom might experience include:

- anger, irritability
- anxiety
- depression
- difficulty concentrating
- fatigue
- feeling moody, tearful
- feeling overwhelmed and out-of-control
- headaches, other aches and pains
- heart disease
- high blood pressure
- low self-esteem, lack of confidence
- sleep disturbance, insomnia
- upset stomach, indigestion, diarrhoea
- weakened immune system.

We don't have to be going through a separation or a big interstate move to feel these symptoms from time to time. The challenge is how to deal with them appropriately.

When we face a stressful event, our bodies respond by activating the nervous system and releasing hormones such as adrenalin and cortisol. These hormones cause physical changes in the body which help us to react quickly and effectively to get through the stressful situation. The hormones increase our heart rate, breathing, blood pressure, metabolism and muscle tension. Our pupils dilate and our perspiration rate increases.



Psychologists Robert Yerkes and John Dillingham suggested in 1908 that performance increases with physiological or mental arousal—but only up to a certain point.

While these physical changes help us try to meet the challenges of the stressful situation, they can cause other physical or psychological symptoms if the stress is ongoing and the physical changes don't settle down.

Stress can build up over time, or it can be an acute reaction to pressures of the moment. When determining fitness to fly, we need to consider our mental wellbeing as well as our physical state.

So, what happened to Tom?

After six months in the Top End, Tom was struggling—it was nearly killing him being away from his kids. He stopped taking care of himself, ate too much take-away food, had no motivation to exercise and ended up putting on an extra 10 kilos. He was also finding that he got irritable and annoyed more easily. His boss was also not happy with him as a number of customers had complained that he was rude.

How can you cope with stress?

Learning to recognise the factors that lead to stress, and using coping strategies to deal with stressful situations, can greatly improve a pilot's performance.

Practical actions for coping with stress include:

- managing your time effectively
- avoiding over commitment—working within your limitations
- discussing your problems with others so they can offer support
- eating healthily
- ensuring you are well rested and getting plenty of sleep to avoid fatigue
- maintaining your sense of humour—being able to laugh about things helps maintain a positive mental state
- practising mindfulness meditation—there are many helpful apps online
- recognising the physical signs of tightening up in response to stress and learning how to relax mentally and physically when feeling tense
- recognising and responding to factors which are combining to cause stress
- staying hydrated
- exercise and staying physically fit.

Where stress is caused by mental overload, it helps to focus on high-priority tasks:

- follow standard operating procedures
- use checklists
- share tasks in multi-crew operations
- in single-pilot operations, seek assistance by radio from your company, other pilots, air traffic control or, if appropriate, from passengers.



DEALING WITH STRESS DAY-TO-DAY: WHAT TOM DID

Learning to handle stress in healthy ways is very important. We can learn simple techniques such as recognising and changing the behaviours that contribute to stress, as well as those to reduce stress once it has occurred.

Tom opened up to one of his pilot colleagues who had been through a similar situation, years earlier. They both worked on a plan to change Tom's daily routine. He started going for a short run every day; he had always enjoyed running, but had got out of the habit.

When he finished work he would go for a run rather than heading to a take-away shop and a liquor store. He was always in a much happier mood after his run. He was also getting fitter and spending less time drinking and feeling sorry for himself.

Tom downloaded a mindfulness app on his phone and did a short mindful meditation before bed and when he woke up in the morning. He was surprised how much faster he was getting to sleep after a few minutes guided meditation and found it was really improving his mood. All in all, he was feeling much better.

Tom found it helpful to be able to identify early warning signs of stress. These can include feeling anxious, tensing muscles, grinding teeth, headaches, having difficulty sleeping or feeling irritable.

There are many different ways to deal with stress:

- Within a variable charter schedule, arrange predictable routines in your day, or over a week, such as regular times for meals, exercising, relaxing, going to bed and waking. Plan to do specific tasks on set days of the week.
- Spend time with people you care about, and who care about you.
- Share your thoughts and feelings with others when opportunities arise to prevent 'bottling up' your emotions until they get the better of you.
- Get plenty of sleep, eat healthy food and take regular exercise. Take time to do activities you find re-energising such as listening to music, walking or dancing.
- Most importantly, avoid using alcohol, tobacco or other drugs to cope with stress.

When we are stressed we sometimes say negative things in our head, over and over, that just add to the stress. Such unhelpful self-talk might be, 'I can't cope', or 'I'm too busy', or 'I'm so tired', or 'it's not fair'.

While we might think that these are truthful descriptions of what's going on, they are not helpful and can make us feel worse. Take note of when you are using unhelpful self-talk, and instead try saying positive things to yourself like 'I'm coping well given what's on my plate', 'calm down', or 'breathe easy'.

Keeping things in perspective is also important. When we are stressed, it's easy to feel things are worse than they really are. Try self-talk such as, 'This is not the end of the world', or 'In the big scheme of things, this doesn't really matter too much'.

Try practising a formal relaxation technique such as progressive muscle relaxation, mindfulness meditation or yoga. This will help your body and nervous system to settle and readjust and help you sleep. There are some excellent mindfulness meditation apps available for download onto your smart phone that you can try just like Tom did!

DEALING WITH STRESS IN FLIGHT

Stress can be acute or chronic. It is important when flying that we know how to deal with both.

Reactive and preventative measures help deal with both kinds of stress and preventative measures often help improve reactive coping techniques. For example, practising emergency techniques and having good back-up plans make dealing with a real emergency much easier. Preparation and practice create competence and confidence and greatly reduce stress levels.

Some in-flight stressors cannot be avoided. They include:

- air quality
- alarms or warning horns
- altitude changes
- bad weather
- cramped workspace
- engine and system noise
- lighting conditions
- night flying
- persistent radio noise
- temperature and humidity
- vibration.

Other common stress factors include:

- check flights
- dehydration
- diet
- fatigue
- illness
- medicals
- passenger interactions
- time schedules.

Workplace stress can come from a number of sources. Pressure from management to ensure on-time performance can sometimes conflict with safety. Such situations are stressful because of the threat of an unpleasant outcome, no matter what decision the pilot makes.

If pilots press on to complete everything on time to satisfy management, there is a risk of an accident. If they choose to maximise safety and delay a flight, there is the threat of unhappy management.

COMMON SIGNS

Acute stress varies from person to person, but here are some common signs:

- Anger or irritability—the person often appears agitated and restless and shows a low tolerance to other people.
- Low energy—they appear fatigued, sluggish and physically drained, and may be slow to complete tasks.
- Self-loathing—they may harshly criticise themselves for faults and mistakes.
- Concentration problems—they have trouble focusing, making decisions, or remembering things.
- Loss of interest—people under acute stress may show up for flying duties neglecting basics such as their physical appearance.

These symptoms can just be part of life's normal lows, but the more symptoms the person exhibits, the more pronounced they are, and the longer they have shown them, the more likely it is that the person needs professional help, particularly if the symptoms affect their ability to perform their duties.

Let's now revisit the story at the beginning of this booklet on page 4.

By being aware and supportive, Joe can help take pressure off Steve. Finding practical ways of dealing with stress creates a positive culture in which problems can be dealt with and stressors eliminated.

The best way to cope with flying stressors is to prepare pre-flight and take corrective action in-flight.

1. **Prepare.** It is crucial to know how to deal with flight situations which arise infrequently and be able to manage them proficiently.
2. **Anticipate.** Identify any scenarios and threats that could arise during the flight even if they are very unlikely. This will reduce the surprise factor.
3. **Plan.** Anticipating what might happen is not enough. It is important that once all reasonable scenarios and threats are identified, you make a sound plan for dealing with them on the ground before flight. This further increases preparedness.
4. **Communicate.** Briefings on the ground before the flight and in flight are critical. Letting other crew members know what the plans are ensures that everyone knows what to do; no-one will be surprised or will do things contrary to what's planned.
5. **Use resources.** Make the best use of all available resources. This includes carefully distributing tasks in the cockpit and drawing on other resources, such as onboard equipment and air traffic controllers, who can provide information and advice.

6. **Crew resource management.** Where possible, share tasks to avoid work overload, and if you are overloaded, ask for help. Look for symptoms of stress, not only in yourself, but also in other crew members, and provide advice or assistance when necessary. A friendly cockpit atmosphere helps.

7. **Time management.** Try to do things in advance whenever possible. Don't leave tasks such as asking for clearances until the last moment. Give yourself enough time to analyse and solve a situation to avoid rushed actions.

Should you be faced with an unexpected stressful situation despite your planning and anticipation, the key is to recognise the symptoms, remain calm and give yourself as much time to think as you can. By understanding stress mechanisms, you can control the emotions they can cause such as irritation, nervousness and anxiety, and attempt to solve the problem as logically and safely as possible.



DEALING WITH LONG-TERM STRESS

As Tom found, stress can be triggered by immediate challenging or threatening situations, long-term background issues, or both. Your response to a stressor depends on both its intensity and length of exposure. Chronic stress can become so routine that you are no longer aware of it—but it still causes harm.

Stress is a physiological and cognitive response to stressors. At moderate levels it generates alertness and focused performance, but in excess it has many negative physical and mental effects. The best way to reduce stress in flight is to recognise the symptoms; plan and prepare by maintaining currency and proficiency through regular training, take care of the physical aspects, keep workload under control, communicate and ask for help when things get too much to handle.

WHAT CAN WE DO TO REDUCE STRESS?

No matter how much you try to avoid stressful situations in flight, there will always be personal or other stressors in your life that will affect you. There are all sorts of things that you can try to help reduce and manage stress.

- Address the physical causes of stress by ensuring you exercise, eat healthily and get enough sleep. Hunger and fatigue are typical stressors, with well-documented effects. Climbing stairs is a good way to reduce excess toxins in the body, and swimming helps restore equilibrium to the nervous system. These activities can often be carried out during stopovers and relieve the residual effects of physical stress before the next flight.
- Undertake continuous professional training to ensure currency and competence in all standard and emergency operating procedures.
- Interact socially with people you like and trust. It's a good way to discuss personal problems and worries before they build up. Communicating is important as it offers some relief and because others may be able to offer help and advice.
- Manage your workload and don't allow yourself to take on too many tasks and responsibilities (both work and non-work related). It is important to learn to say 'no' when asked to do too much.

- Practise mindfulness, which has been shown to be an effective treatment for recurrent depression and anxiety. It is particularly helpful for those with a very active mind and a tendency to over-think and ruminate about problems. You can learn mindfulness by doing a course or using an online application such as *Headspace* or *Smiling Mind*.
- Get a good night's sleep.

TIPS FOR GETTING A BETTER NIGHT'S SLEEP

- Set your alarm clock to wake you at the same time every morning.
- Walk in the morning to reset your melatonin levels.
- Exercise during the day.
- Prepare for sleep at least 90 minutes before you go to bed.
- Avoid TV or being on your phone and social media in the run-up to bedtime.
- Cut down on late night boozing. Alcohol may help you go to sleep, but it will also ruin your rapid eye movement (REM) sleep.

Mental health

Being a charter pilot can be stressful. As we saw with Tom it can entail long hours, unpredictable schedules, separation from family and irregular sleep schedules. All of these can affect mental health.

We can all feel sad, moody or low from time to time. However, some people experience these feelings intensely, for long periods (weeks, months or even years) for no apparent reason.

Depression is more than just a low mood—it's a serious mental illness affecting our physical health, concentration levels, alertness, reaction time and decision-making ability. It affects how we feel about ourselves and makes life more difficult to manage from day to day. We may lose interest in work, hobbies and doing things we normally enjoy. We may lack energy, have difficulty sleeping or sleep more than usual. We may feel irritable and find it hard to concentrate.

The statistics show that one in six of us will experience depression at some stage of our lives, from minor (but still disabling) through to very severe.

The issue of pilots' mental health has been highlighted in pilot-suicide tragedies such as that in March 2015, when Germanwings flight 4U 9525 crashed into the French Alps killing 150 people. Investigators reported the 27-year-old co-pilot deliberately crashed the plane and found evidence suggesting he suffered from clinical depression.

Such occurrences are very rare, and mental health advocacy group SANE Australia says, 'no mental health myth causes more harm than the nonsense that people living with mental illness are violent.'⁵

Nevertheless, depressive episodes can be incapacitating. *Overt* incapacitation includes suicidal thoughts or attempts, psychosis of major depression and development of other chronic diseases or conditions such as anxiety and substance abuse. *Subtle* incapacitation includes impaired perception, reduced concentration and memory problems.

Some medications used to treat depression and anxiety can impair flying performance by impairing perception and causing sedation, nausea, lack of balance, impaired sleep and fatigue.

An anonymous international survey of commercial and airline pilots conducted by researchers at Harvard T.H. Chan School of Public Health published in December 2016⁶ suggests that 12 per cent of pilots met the criteria for depression, in line with other high-stress jobs. However, many pilots do not report their mental health issues in the mistaken belief that they will automatically lose their licence.

Successful treatment and return to flying

There has been a shift towards dealing with pilots' mental illness in a similar way to that used for alcohol and substance abuse—non-judgmental treatment and an opportunity to return to flying. This is discussed in more detail on page 22 in *Peer support* later in this booklet.

With proper resources and treatment, such as appropriately prescribed anti-depressants, pilots with mental health concerns should be able to maintain their identity as pilots while gaining renewed resilience and support through the mental health system.⁷

CASA's depression and aviation safety fact sheet⁸ provides further information for pilots and operators including the effects of:

- fatigue
- sleep deprivation
- time-zone changes
- stressful events
- social isolation
- irregular access to medical care and surveillance
- working in remote locations.

Charter operators and pilots should know that there are organisations that can provide help and support in the areas of mental health. These include:

- Beyondblue—available to talk and listen, 24 hours a day, seven days a week on 1300 22 4636 or go to www.beyondblue.org.au
- SANE helpline 1800 187 263
- Black Dog Institute—information on when and where to get help, support groups, personal stories and videos. See: www.blackdoginstitute.org.au
- MensLine Australia—support, information and referral service, helping men to deal with relationship problems on 1300 78 99 78 or go to mensline.org.au
- RU OK?—Support, information and encouraging people to ask the important question of friends and colleagues: 'RU OK?' to start a conversation and save a life. See: www.ruok.org.au

Diet, health and wellbeing

Your gut is home to the microbiome, trillions of bacteria, viruses, fungi and other microbes which live mainly in your large intestine or colon. They influence mood, weight and the immune system. The microbiome weighs between one and two kilos and until relatively recently was largely ignored.

You should care about your microbiome because recent research has shown that having the right mix of 'good' bacteria in your gut is vitally important for your long-term health and wellbeing. And this affects your performance when flying.

As you get older, having lots of 'good' bacteria in your gut is increasingly important, as they will help you fight infection and prevent the onset of type 2 diabetes, depression and common gut disorders.

Over the past few decades, there has been a huge rise in common gut disorders such as irritable bowel syndrome, food allergies and gluten or lactose intolerance. The reasons include poor diet and overuse of antibiotics, which have killed off lots of the 'good' gut microbes which keep the immune system in check. Without them your immune system is liable to over-react, leading to all sorts of gut related problems.

Stress, sleep and diet

Too much stress, lack of sleep and an unhealthy biome are all interlinked.

As we have already seen, stress makes you sleep badly and eat badly, encouraging the growth of 'bad' microbes in your gut. Chronic stress also has a direct impact on the health of the gut lining, causing problems such as inflammation, overgrowth of the 'wrong' microbes and 'leaky gut' where the protective lining is no longer functioning as it should. These exacerbate symptoms of diarrhoea and/or constipation and bloating, and can further affect mood and reduce motivation—a vicious cycle.

Studies have shown that changing your biome can improve your sleep. For example, there is now evidence to suggest that consuming more of certain types of plant fibre known as prebiotics, particularly galacto-oligosaccharides, which increase levels of healthy *bifidobacteria* in the gut and can help you sleep better. Examples of foods containing prebiotics are vegetables such as onion, garlic, green peas and sweetcorn; legumes such as red kidney beans and chickpeas; fruits such as nectarines, watermelon and dried fruit—dates and figs; oats and cashews. (Monash University—Dept of Gastroenterology). Prebiotics can also be taken as a food supplement.

Improve your health with a Mediterranean-style diet

A Mediterranean-style diet is very healthy. Studies from all over the world have indicated that with such a diet you can expect to:

- lose weight
- lower your risk of heart disease, cancer and type 2 diabetes
- increase your life expectancy.

It will also help improve your gut bacteria.

The Mediterranean diet includes the five food groups:

- Vegetables and legumes/beans: enjoy a variety of colours and types.
- Grain (cereal) foods: mostly wholegrain and high-fibre, such as wholemeal bread, pasta and brown rice.
- Fruit: enjoy a variety of colours and types, mostly fresh (a bit of canned or frozen is OK, and juice only in small amounts).
- Lean meat and poultry, fish, eggs, tofu, nuts and seeds.
- Milk, yoghurt, and cheese.

Eat more of the following:

Olive oil. This is one of the healthiest fats and contains a range of polyphenols and antioxidants, which are good at damping down inflammation, including in the brain, the breast and the gut.

Oily fish. Fish such as salmon, tuna and mackerel are a big part of the Mediterranean-style diet and contain omega-3, fatty acids that have a wide range of health benefits and are often lacking in many diets.

Fruit and vegetables. As well as being a core part of the Mediterranean way of eating, coloured fruit and vegetables are also important for your biome. The pigments are made up of hundreds of different bioactive compounds or phytonutrients, which have antioxidants and anti-inflammatory properties, and help protect against cancer.

Full fat dairy products. Milk, cheese and yoghurt are all included in the Mediterranean-style diet and there's good evidence that yoghurt, with live active

cultures, can help reduce antibiotic-associated diarrhoea, lessen the symptoms of irritable bowel syndrome and reduce constipation. Studies have also shown that cheese containing live bacteria can also be good for your biome.

Eggs. These have been rehabilitated as a healthy staple. They contain a wide range of vitamins, minerals and high-quality proteins and can improve your cholesterol and lipid profile. And if eating eggs stops you eating sugary breakfast cereal or having a muffin in the middle of the morning, then that is mission accomplished.

Nuts. These are great to cook with and also make perfect fast-food snacks. They are a good source of protein, provide an energy boost from slow burn oils, and contain lots of fibre to keep your gut happy.

Red wine. In moderation, red wine can reduce blood pressure, CRP (a measure of inflammation) and triglyceride levels (the amount of fat circulating in the blood). Red wine has also been shown to improve gut health by increasing the levels of healthy bacteria, including *Bacteriodes* and *bifidobacteria* associated with slimness and lowering cholesterol respectively.

The Mediterranean-style diet involves replacing processed foods, where possible, with fresh whole foods and grains. It means eating fewer starchy foods such as bread, pasta, white rice and potatoes as these tend to increase weight and raise blood sugars. Along with a high sugar diet, they also tend to have a negative effect on our gut bacteria, reducing the diversity of the microbiome. Swapping these foods for lentils and whole-grain alternatives will help improve your blood sugar levels and boost your biome.

For further advice on healthy eating, you may wish to consult a dietician. Dietary guidelines are available on federal and state/territory health department websites such as eatforhealth.gov.au and sites such as nutritionaustralia.org

Nutrition

There are numerous documented cases of pilot incapacitation with digestive or heart problems. The Australian Transport Safety Bureau (ATSB) recorded an average of 23 flight crew incapacitation occurrences a year between 2010 and 2014,⁹ with the majority from gastrointestinal illness. For example: Fifteen minutes after take-off from Adelaide in a Saab 340B, the first officer notified the captain he was starting to feel unwell.



Once the aircraft had reached its cruising altitude, the first officer began using an oxygen mask. When asked by the captain how he was feeling, the first officer reported feeling dizzy and unwell. The captain noted the first officer looked very pale.

Shortly after, the first officer informed the captain that he could not continue and wanted to return to Adelaide. During the return flight, the first officer reported that he was able to perform flying duties. The captain reported during the descent to Adelaide the first officer continued to look very pale and was intermittently using the oxygen mask.

After the passengers had disembarked, the captain noted the first officer's condition had deteriorated further. After completion of the arrival tasks, the captain noted the first officer's condition had improved. The first officer was subsequently diagnosed with food poisoning.

BASICS OF HEALTHY EATING

We saw previously from Tom's story that he finds it tempting to grab some fast food and sugary and salty snacks on the fly. Like many of us, he finds it hard to be disciplined and avoid junk food. However, he knows that a healthy diet is important for his physical and mental health and performance—especially when he is feeling tired and stressed.

Eating healthily and in moderation is important for weight control and proper functioning of bodily processes. We need to eat to be active and maintain our bodies, and a balanced diet with adequate levels of essential nutrients to maintain good health. These include proteins, fats, carbohydrates, vitamins, minerals and trace elements. The typical Western diet is high in fats, sugars and salt, and low in fibre. This can lead to ill health and obesity.

Make an effort to choose healthier foods more often to get the balance right. Drinks count: choose those which can add nutrients (such as calcium from milk) and avoid those which just add kilojoules we don't need (such as sugar-sweetened drinks). Water is best. Make sure you drink more when it is hot and dry; the colour and smell of your urine are good indicators. You can sum up the basics of healthy eating in three words: balance, variety and moderation.

Balance is key when it comes to food and health. Eating well and staying healthy is a balancing act that takes effort and practice. Balance your weight by matching the food you eat with the physical activity you do. Energy from what we eat and drink is measured in kilojoules (kj) and the amount of energy we need is different for everyone.

A balanced diet involves mostly fresh whole foods and plenty of vegetables, and fewer convenience and processed foods, most of which have too much added sugar and salt.

Variety is the spice of life, and it's certainly an important goal when it comes to eating well. Try to eat from all five food groups every day to give your body the nutrients it needs. It's also good to enjoy a variety of different foods from within the food groups to keep meals interesting and to give you a broad range of nutritional benefits. Avoid fried food—which can contain harmful trans fat from the cooking oil.

Moderation means not going overboard with treats, restaurant or take-away meals, alcohol, or the amount of food you eat. Enjoy the treats you love in moderation, because they tend to be high in kilojoules and low in nutrients. This can be a challenge because less-healthy foods are a quick and easy option when you are on the road or on an overnight trip away from home.

Our bodies convert saturated fats into cholesterol which is important for our metabolism, but too much cholesterol can lead to fatty deposits blocking blood vessels and can lead to strokes and heart attacks. Excess salt in our diet is linked to high blood pressure. We need fibre to provide bulk to assist excretion of waste products.

It is important to drink plenty of fluid to maintain healthy body function. Dehydration degrades our cells' metabolic processes and can lead to heat exhaustion. Clean, fresh water is ideal for keeping us well hydrated. We should limit the amount of sugary, caffeinated and carbonated drinks in general and especially when we fly.

Moderation also applies to being sedentary, such as sitting for long periods in the cockpit. Make an effort to get as much exercise as you can—a daily brisk walk is a good option.



GOOD FOOD CHARTER

The challenge for us all, and especially when flying charter, is how to maintain a healthy diet and wherever possible eat raw or steamed green vegetables instead of fried chips.

Finding healthy food when away from home base, particularly in more remote areas where fresh food may be hard to come by, can be challenging.

Technology, in the form of mobile phone apps, can help. Examples are Food Switch and Uncle Jimmy's Good Tucker. The latter is designed particularly for remote communities and gives a 'thumbs up' or 'thumbs down' for packaged and fresh foods based on the Health Star Rating system and the Australian Dietary Guidelines.¹⁰

You can also make healthier choices when there's only a snack vending machine available. For example, choose fruit and nuts over chips, water over soft drink, or milk over Red Bull.

For further information on healthy eating and drinking see the National Health and Medical Research Council's Australian Dietary Guidelines. Go to nhmrc.gov.au

Alcohol and other drugs (AOD)

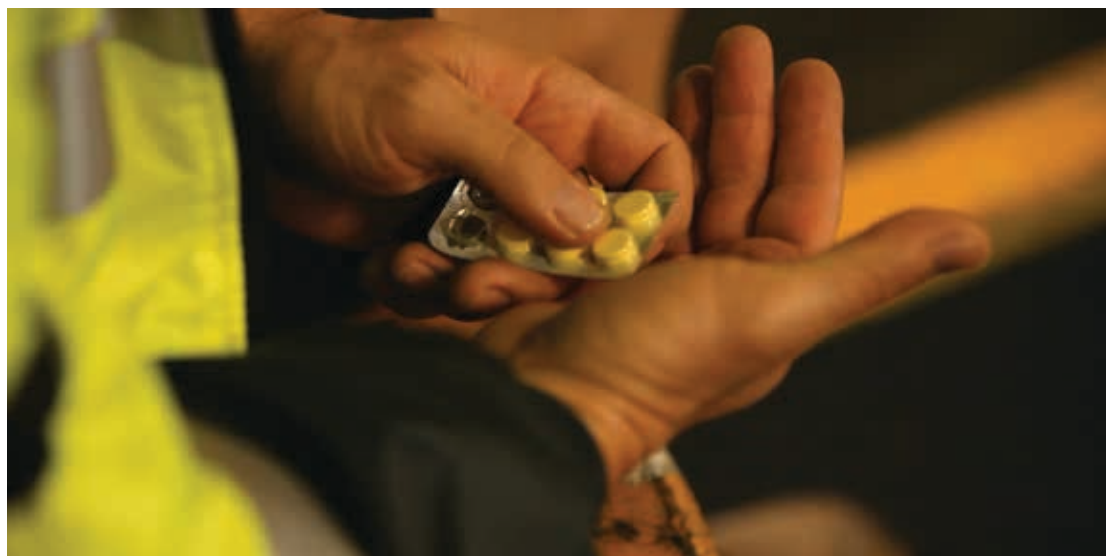
Many drugs make flying more dangerous. Alcohol, coffee, tobacco and medications are the most common drugs in Australia and flying at altitude heightens their effects.

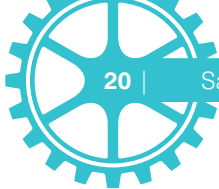
Prescription and over-the-counter drugs can impair judgment and affect coordination. Some cold tablets and cough mixtures previously sold over-the-counter are now only available with a script.

But just because a drug is available without a doctor's prescription doesn't mean it's safe to take in an aviation environment. And all illegal drugs are unsafe for flying.

The side effects of common drugs such as cold tablets, cough mixtures, antihistamines, appetite suppressors and laxatives include drowsiness, confusion, blurred vision and dizziness. Always seek advice from a doctor or pharmacist before taking more than one drug at a time, as drugs can interfere with each other, or worsen any side effects.

Antibiotics and antidepressants can have a pronounced effect on judgment, thinking and coordination. You should ask a qualified aviation doctor if it is safe to fly while taking any prescription drug.



**Table 1 Some common drug side effects**

Drug	Common Side effects
Alcohol	A depressant that affects concentration and coordination.
Antihistamines (allergies)	Drowsiness, slower reaction time, disturbed balance.
Amphetamines (with appetite suppressant side-effects)	Stimulants such as amphetamines can make you anxious and uncoordinated. They can affect judgment and increase risk taking.
Barbiturates	Noticeably reduce alertness.
Motion sickness drugs	Drowsiness, depressed brain function, impacts judgment and decision making.
Sulfa drugs (antimicrobial)	Allergic reactions are common and include visual disturbances, dizziness, slowed reaction time, depression.
Tranquillisers	Slow reaction time, drowsiness, reduced concentration and attention.

Alcohol

Drinking and flying don't mix. Alcohol affects the central nervous system, slowing down the messages between the brain and the body. It affects concentration and coordination and slows your ability to respond to unexpected situations.

The effect is directly proportional to the concentration of alcohol in the blood. Blood alcohol concentration (BAC) depends on the amount of alcohol consumed and the rate at which your body metabolises it.

Regulation 256 of the Civil Aviation Regulations 1988 (CAR)¹¹ prohibits the consumption of alcohol by aircraft crew and air traffic controllers while on duty and for eight hours before duty and forbids carrying out duties while affected by alcohol. However, it may take longer than eight hours for your BAC to return to the Australian permitted level of less than 0.02 grams of alcohol in 100 ml of blood.

A BAC of 0.02 can be reached after the consumption of only one standard drink (a middy of beer, a nip of spirits or a small glass of wine). Alcohol is rapidly absorbed into the body, but the process of detoxification is slow; it takes about three hours for the effects of one standard drink to wear off.



Nothing, including sleep, coffee, exercise or breathing 100 per cent oxygen, can speed up the rate at which the liver breaks down most of the alcohol, or minimise its effects. After a heavy night of drinking, it can take more than 18 hours for your blood alcohol concentration to get back to zero. If your liver is damaged it takes even longer.

Table 2 The adverse effects produced by alcohol on the brain, eyes, and inner ear—three crucial organs for pilots

Brain	Alcohol can impair reaction time, reasoning, judgment and memory loss. It can also decrease the ability of the brain to use oxygen, which can be magnified by altitude (decreased partial pressure of oxygen).
Eyes	Alcohol causes eye muscle imbalance, leading to double vision and focus difficulties.
Inner ear	Alcohol is absorbed into the fluid of the inner ear and stays there after it has been eliminated from the blood, brain and body tissues. It can lead to dizziness, disorientation, vertigo and decreased hearing perception.

Even when you've sobered up, performance can be impaired, and a hangover can last for two to three days after serious drinking.

Alcohol in the blood interferes with the absorption of oxygen by tissues. As the reduced cabin pressure at altitude has already reduced the ability of the haemoglobin to absorb oxygen, the effect of alcohol in the blood is greater in flight. The negative effects of one drink can be magnified as much as two or three times.

Studies have shown reduced performance by pilots with blood alcohol concentrations as low as 0.025 per cent. The number of serious errors committed by pilots dramatically increases at or above concentrations of 0.04 per cent.

The effects are magnified when other variables, such as fatigue, medications, altitude hypoxia, flying at night, or bad weather, are added.

REGULATIONS AND GUIDELINES

You should follow the regulatory guidelines and provisions (CAR 256):¹²

- eight hours from bottle to sign-on
- do not fly while under the influence of alcohol
- do not fly while using any drug that may adversely affect safety; if in doubt, ask your DAME
- consider waiting 24 hours from the last use of alcohol before flying.

Charter operators should ensure that their pilots understand the hazards of combining alcohol consumption and flying. The use of alcohol and other drugs is a significant self-imposed safety hazard that can be eliminated from the cockpit. It's sensible to avoid alcohol completely before or during a trip.

An ATSB study in 2006¹³ identified 36 Australian drug and alcohol-related events (31 accidents and five incidents). The majority related to alcohol use (22 occurrences). The drugs identified included prescription drugs, over-the-counter medications, and illegal drugs (including heroin and cannabis).

Eight per cent of occurrences involved charter operations, compared with 61 per cent for private flying and none for airline operations. While the rate of drug and alcohol-related accidents and incidents in Australian civil aviation is very low, the related accident and fatality rates are high. Fatal accidents accounted for more than two-thirds of all drug and alcohol occurrences.

Drug and alcohol management plan (DAMP)

Charter organisations need a drug and alcohol management plan, including a plain English policy on drug and alcohol use in the workplace. Further information and guidance is available on the CASA website.^{14,15}

Organisations must have mandatory drug and alcohol education, testing and response programs.

EDUCATION PROGRAMS

Drug and alcohol education programs must ensure that safety sensitive aviation activity (SSAA) employees are aware of their individual organisation's policy on drug and alcohol use.

Education programs raise awareness about:

- the effects of drug and alcohol use on an individual's performance
- risks to aviation safety associated with drug and alcohol use
- responsibilities of both the organisation and individual employees
- drug and alcohol testing conducted by the organisation and by CASA
- the organisation's individual drug and alcohol management policy.

CASA has developed an e-learning package to help organisations deliver safety sensitive aviation activity alcohol and other drugs training modules.¹⁶

TESTING BY CASA

Drug and alcohol testing seeks to identify people who may be affected by alcohol and other drugs. Anyone who works in an airport testing area or anyone who performs a safety sensitive aviation activity can be randomly selected for drug and alcohol testing by CASA. Alcohol testing is on a breath sample and drug testing is on oral fluid samples.

- If an initial alcohol breath test and a confirmatory test is positive, a notice will be issued, CASA will be notified, and the person must stop performing applicable safety sensitive aviation activities.
- If a drug test is positive, another sample will be taken for confirmation. If that test is positive, a third sample will be tested by an approved laboratory. The person must not perform safety sensitive aviation activities until the laboratory result has been returned.

A CASA medical review officer (MRO) will review a positive drug and alcohol test result before CASA makes a decision to take administrative or legal action. The person must not perform any safety sensitive aviation activities until they have

undergone a comprehensive assessment, begun participating in a drug and alcohol intervention program if recommended, and been considered fit to resume duties by their medical review officer, CASA's MRO and their treating clinician.

FURTHER INFORMATION

For more information about CASA's alcohol and other drug program see: www.casa.gov.au/aod

The following organisations can give you more information about alcohol and other drugs:

- **The Australian Drug Foundation (ADF)**—is a major Australian non-government organisation, established in 1959. ADF prevention is based on harm minimisation, with a range of prevention strategies, from abstinence, to managing of severe and chronic drug misuse. Phone: 03 9278 8100 or visit their website: www.adf.org.au
- **Turning Point Alcohol and Drug Centre**—this was established in 1994 and is regarded as a leading provider of services in the AOD sector. The Centre is a registered training organisation and an accredited higher education provider. Phone: 03 8413 8413 or visit their website: www.turningpoint.org.au
- **National Drug and Alcohol Research Centre (NDARC)**—this was opened in 1987 and is based at the University of NSW. It is funded by the Australian Government as part of the National Drug Strategy. Phone: 02 9385 0333 or visit their website: www.ndarc.med.unsw.edu.au

Peer support

Peer support programs encourage pilots to get help and support for problems which affect their professional performance or mental health, and where strict confidentiality is desirable. Problems can be identified early and, with the help of trusted work colleagues, pilots may be guided towards counselling and, if necessary, treatment and rehabilitation.

A trusted work colleague or peer is someone who has been through a professional training program that equips them with the basic skills, knowledge,

attitudes and behaviours to undertake peer support work. An effective peer support person will have empathy, patience and good listening skills in order to create a safe space for people to share their very personal experiences and recovery process.

The peer support approach aims to systemically manage safety risks to an acceptable level. To get buy-in from pilots, programs should:

- be joint initiatives between operators and pilot associations
- have clear and transparent processes and be endorsed by senior management
- be implemented within the organisation's safety management system
- have a high degree of confidentiality and data protection, while also allowing the actions necessary to address safety concerns.

Peer support programs are often set up by professional pilot associations in cooperation with the regulator and an airline. They aim to resolve issues without direct employer involvement. There are benefits for both pilots and operators, who can reduce their costs significantly through lower sick rates and absenteeism, while keeping staff motivated and encouraging them to deal with problems rather than hiding them.

Peer support is helpful because it's supportive in the short-term, non-judgmental, and non-intrusive. It helps the person gain insight into their reactions, which encourages the individual to seek further help.

The main kinds of issues covered by peer support programs are:

- substance abuse and addiction
- problems coping with daily life, such as domestic problems, financial difficulties, emotional/mental stressors and training issues
- possible trauma after critical incidents.

Pilots can be referred to these programs by:

- themselves (self-reporting)
- concerned colleagues
- family and friends
- DAME, general practitioner, mental health professional, or company management.

If interventions aren't successful, a program is typically able to remove a pilot from flying (the regulator's medical staff would be involved) though still without the employer knowing any details or taking any action. If treatment is successful, the pilot is returned to flying without discrimination or punishment from the employer.

In the end, if a pilot won't accept help or cannot be successfully treated, the regulator can be asked to withdraw the pilot's medical certification. However, even then—if run in conjunction with an appropriate loss of licence insurance or ill health pension provision—it shouldn't destroy the pilot's livelihood. Removing the risk of financial jeopardy is important to encourage self or peer reporting.

Symptoms of substance abuse

Neurologists classify substance use disorder (chemical dependency) as a chronic neurobiological disease. Symptoms of substance abuse or dependence include:

- » compulsive use (overwhelming desire)
- » preoccupation (neglecting responsibilities)
- » tolerance and
- » denial of consequences.

Pilots who return a positive alcohol breath test often display these symptoms. This is not wilful behaviour; it's an insidious, cruel and deceptive illness. Testing often catches people only when the disease has progressed.

Statistically, three to four per cent of pilots will develop a chemical dependency during their flying career.

The following is an extract of the relevant legislation (CASR Part 67.C Table 67.150 1.6)

If there is any personal history of problematic use of a substance (within the meaning given by section 1.1 of Annex 1, *Personnel Licensing*, to the Chicago Convention):

(a) the person's abstinence from problematic use of the substance is certified by an appropriate specialist medical practitioner; and

(b) the person is not suffering from any safety relevant sequelae (condition which is the consequence of a previous disease or injury) resulting from the person's use of the substance; and

(c) the person provides evidence that the person is undertaking, or has successfully completed, an appropriate course of therapy

Note: In Annex 1, *Personnel Licensing*, to the Chicago Convention, 'Problematic use of substances' is defined as follows: 'The use of one or more psychoactive substances by aviation personnel in a way that:

a) constitutes a direct hazard to the user or endangers the lives, health or welfare of others; and/or

b) causes or worsens an occupational, social, mental or physical problem or disorder.'

'Psychoactive substances' is there defined as 'Alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded.'

HIMS

Until about 40 years ago, a pilot diagnosed with substance use disorder would have their medical certificate cancelled permanently.

The human intervention motivation study (HIMS) came into being as a risk mitigation strategy to help pilots who would otherwise be lost to the industry regain their medical recertification (with restrictions).

The HIMS methodology has been adopted in the USA since the mid-1970s but has only recently begun to evolve in the Asia-Pacific region. In the US, Federal Aviation Administration (FAA) statistics indicate long-term success of a HIMS process for afflicted pilots in the order of 90 per cent. While HIMS is still very new in Australia, the success rate to date has been similar, if not better.

HIMS is a proven way back to flying through the requirements of the regulations. It is not a regulatory process in any form.

Successful peer support programs such as HIMS use specifically trained pilot volunteers. They are supported by the regulator, pilot associations, and airlines, and draw on specialised external medical experts and advice. Their light administrative set-up, the voluntary nature of the peer pilots' services, and often voluntary support provided by external experts, enable them to be efficient and cost effective.

In Australia, charter and GA pilots who have sought assistance through trained peers, such as in HIMS, have developed very successful strategies in collaboration with their DAME/GP, employer, friends, family and HIMS trained peer pilots, with CASA oversight, to assist them meet the medical standard in Table 67.150/155 of the *Civil Aviation Safety Regulations 1998* (CASR).

The HIMS philosophy is pilot-driven, for pilots, and is an integral part of a peer support system. It is an aftercare, structured peer support and accountability process to assist pilots diagnosed with substance use disorder, and who would otherwise be faced with an indefinite medical certificate suspension, return to flying.

HOW HIMS WORKS

If a pilot has any personal history of problematic use of a substance, there are three requirements.

- The first two require assessment by a range of relevant practitioners and professionals.
- The third obliges the applicant to provide evidence that whatever management or intervention was required has been successful. Given the high risk of relapse in substance use, demonstration of stability is a fundamental part of this evidence.

HIMS offers a pilot-centred opportunity to seek support and treatment, and then build that evidence in an honest and transparent environment. This means that those involved in treatment and recovery are always aware of how things are progressing.

Consent is sought for the sharing of information with those parties at an early stage. It is not public knowledge. Privacy rules and obligations are strict.

The pilot will then need to prove *stability*, and by definition, that takes time. Factors identified in the CASA DAME Clinical Practice Guidelines weigh in favour of generally including at least 12 months abstinence with supportive sponsor and clinical reports, before there is consideration of whether

to issue or renew a class 1 or class 2 medical certificate. It may be possible though, through peer-led programs such as HIMS, to shorten the period before re-certification.

The following de-identified case studies are provided by the HIMS Australia Advisory Group whose role is to advance understanding and implementation of the HIMS philosophy and principles in Australia.

A path back to work through HIMS

Thankfully times are changing. Through CASA's progressive approach to substance abuse, and with the tireless help of the HIMS group, aviation professionals now have a viable system for a return to work with a substance use disorder diagnosis.

I have been back at work for several years now, after walking in to a GP's surgery one day and dobbing myself in. HIMS in this region was in its infancy back then—I had never heard of the HIMS program and in hindsight, my choice of GP was not a good one. Things did not go as I had planned.

These days, however, (things) are much more enlightened and help tailored to our industry is a phone call away. My recovery was initially rocky but by a stroke of good luck I met with a medical professional who steered me towards HIMS, which had been going in the USA for over 40 years and had a good reputation.

With time and with certain conditions my medical was reissued. Full of confidence and bravado, I showed my gratitude by promptly relapsing. Again, I reported myself and my medical was suspended. I think I was the only one surprised by my relapse; many people, ranging from doctors to ordinary members of AA were expecting it. It happens and is the nature of the disease that is substance use disorder.

Through the HIMS group work with CASA, I had another chance and again my medical was reissued with restrictions. With the support and encouragement from my doctor and a HIMS peer mentor, I began attending AA meetings with a different frame of mind. I now have a real sense of appreciation for this opportunity to continue to work in my chosen field.

My story with HIMS in Australia

I am an alcoholic—a very dramatic statement. From the outset, I did not have any formal training in addiction or the recovery from it; my recovery was a journey between my doctor, CASA and myself. At that point in time, the HIMS philosophy had not entered the Australian aviation industry mindset.

I was like everyone else, I loved my drink. While there is no way of telling when I crossed the line, I became dependent on my daily drinking and continued for many years, believing that it was my choice to drink the way that I did.

Although I had not (yet) done anything wrong airside, my behaviour after hours had raised some alarm bells. It took the intervention of my former employer, my DAME and CASA to force me to look at the illness I had, even before I realised I was sick.

I felt different, defenceless and under attack. I had not heard of an alcoholic pilot before and felt sure that my days within the industry were numbered. I was very scared and very angry.

My security had been threatened and I was heavily in denial. I was on the verge of losing my livelihood and my ability to fly after decades of work to achieve it. Even if I scraped through that, I knew that this blot on the landscape meant already my airline flying dreams were finished before they started. I saw my employers, my DAME, and most of all CASA, as the enemy and the ones I must put up a fight for and/or against, anything that it will take to get my medical certificate back.

There were plenty of people outside the industry, who seemed to want to be helpful, but within aviation, I felt completely alone. I believe that if I had the HIMS program to support me initially then I would have been able to enter into the process of recovery far earlier than I did. If I could have spoken to another alcoholic *pilot* who had been through the recovery and recertification process; then I would have had more chance of believing that possible for myself. I would have been able to see that there are many in the industry who are there to support me, including CASA. I would have been able to grab acceptance of my illness far earlier and had less risk of relapse.

I want to see a future where a pilot who feels like he or she is on the brink of losing all, can have some hope. That we as an industry can be mature enough to understand that this is a disease, not a moral failing. That we as pilots are just as vulnerable to addiction as every other profession, sometimes more so with the environments we find ourselves working in.

When I first came into recovery, I thought the very best outcome, and only real thing worthwhile would be to fly again. I got so much more than that. Life has taken on new meaning, and the sense of peace I have as I move amongst the world is like nothing I have ever experienced before.

My experience with HIMS

I lived my life as best I could. I worked hard, played hard, set goals and had good luck. My good luck was brought about by working hard and setting goals.

I lived by the water and flew seaplanes and state of the art helicopters to resorts by day. I managed a motel by night with my then girlfriend of four years.

The main resort I flew to was sold, the aviation company I ran and managed solo also sold, and my motel manager partner gave two weeks' notice to the owners and myself before she departed the scene.

I handled all of this as one would expect—I drank with all my new best mates, (the ones I met for the first time every day). They offered all sorts of great opportunities and well wishes while I continued to shout the drinks.

Along the way I was convicted of DUI offences, certainly not for the first time, and I faced losing absolutely everything of anything that was left of my life. My emotional wellbeing was far from sound and my life was in shambles. My father suggested I try and contact a confidential pilot support group called HIMS he had read about—I did, and the miracles began!

I rang the HIMS Australia chairman, an airline captain, who told me honestly and with compassion that this is a disease and that there were thousands of pilots around the world who were in my position at some stage now back flying and offered help to regain my medical certificate (which had already been suspended).

He placed me under the care of a HIMS trained peer pilot and general aviation HIMS specialist who told me honestly and with all

encouragement that there is a way to manage this disease; in short 'the answer isn't rocket science, just stop drinking—easy!' (Sarcasm intended!)

As long as I provided evidence of my recovery path, continued contact with my peer monitor pilot, do as I was asked with regard to sobriety plans suggested and demonstrate continued abstinence, I was assured there would be a good chance of regaining my medical certificate (with restrictions) within 12 months.

I was encouraged to go to a (specialised) clinic as soon as possible, under the care of an addiction medicine specialist. They arranged aftercare with people they identified with as suitable under the circumstances. They followed and prompted my journey all the way to me now being CEO of a small aviation company, both fixed wing and helicopters.

Following this structured HIMS program, I've managed to build trust and mutual respect with CASA AvMed and can note they have adjusted and offered opportunities for me to improve my career and my life. I was contacted personally by the CASA doctors and nurses handling my case and treated as a responsible human being. I have since written to CASA AvMed to express my appreciation of being given a second chance.

I don't believe I have ever felt so emotionally and clinically sober as I do now. I handle stressful situations with outcomes far beyond my expectations and I am very very grateful. I owe these people my life!

For more information, visit the HIMS Australia Advisory Group website at www.hims.org.au All correspondence is treated as strictly confidential.

Key points for professional pilots

Understanding what affects our ability to perform well as professional pilots in the cockpit is critical to safe flight operations. Pilots need to manage their diet, exercise, sleep and rest opportunities; deal with daily stress; focus on their physical and mental wellbeing; seek support from colleagues when necessary; and ensure they do not have alcohol or drugs in their system when they fly. A pre-flight check of yourself as well as your aircraft is a good idea.

The 'I'm Safe' checklist is one way of putting this into practice. Use it to access your readiness to fly.

Illness—am I suffering from any illness or do I have any symptoms?

Medication—am I currently taking any prescription or over-the-counter drugs?

Stress—am I worried about anything?

Alcohol—what has been my alcohol consumption over the last 24 hours?

Fatigue—have I had sufficient sleep?

Eating/emotion—have I had enough to eat and how is my emotional wellbeing?

Before every flight you should ask yourself, 'Am I fit to fly'? An honest and objective evaluation of your physical and mental health should determine your decision to take your passengers' safety into your hands.

Key points for charter operators

Operators should ensure that the effects of flying and non-flying duties are considered to minimise any negative impacts on their pilots' performance. As well as providing appropriate practical human factors training to give their pilots the knowledge and skills they need for day-to-day operations, charter operators should provide appropriate organisational structures to control human performance hazards and minimise their associated risks. Systems include fatigue risk management, peer support networks and drug and alcohol education and testing programs.

Your systems should be evidence and risk-based and their effectiveness measured to assure you can discharge your duty of care as an accountable operator for your passengers' health and safety.

Resources

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KEY TERMS

depression Negative feelings about ourselves (from mild to severe) that impact our physical health and affect concentration levels, alertness, reaction time and decision-making to make life more difficult to manage from day to day.

fatigue Physical and/or mental weariness which extends beyond normal tiredness.

stressor Any event or environmental stimulus that causes you to feel tense or aroused.

stress Your physiological and psychological response to stressors that at moderate levels generates alertness and focused performance, but in excess results in many negative physical and mental effects.

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