



The Fatigue of Aviation Personnel in the Context of COVID-19

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A Collaborative Document Produced by EASA Together4Safety

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The importance of considering fatigue as a safety issue in the context of COVID-19

The ICAO Manual for the Oversight of Fatigue Management Approaches defines fatigue as:

A physiological state of reduced mental or physical performance capability resulting from sleep loss, extended wakefulness, circadian phase, and or workload (mental / physical activity) that can impair a person's alertness and ability to perform safety-related operational duties.

With many personnel working fewer hours, fatigue is not necessarily an issue that springs to mind in the context of the COVID-19 shutdown and gradual return to normal operations. Nevertheless, when EASA surveyed its collaborative analysis groups in May 2020, fatigue was identified as an emerging safety issue as a consequence of the pandemic and, as such, was included in the [Report on Safety Issues in the COVID-19 pandemic](#).

Fatigue was identified for three principle reasons:

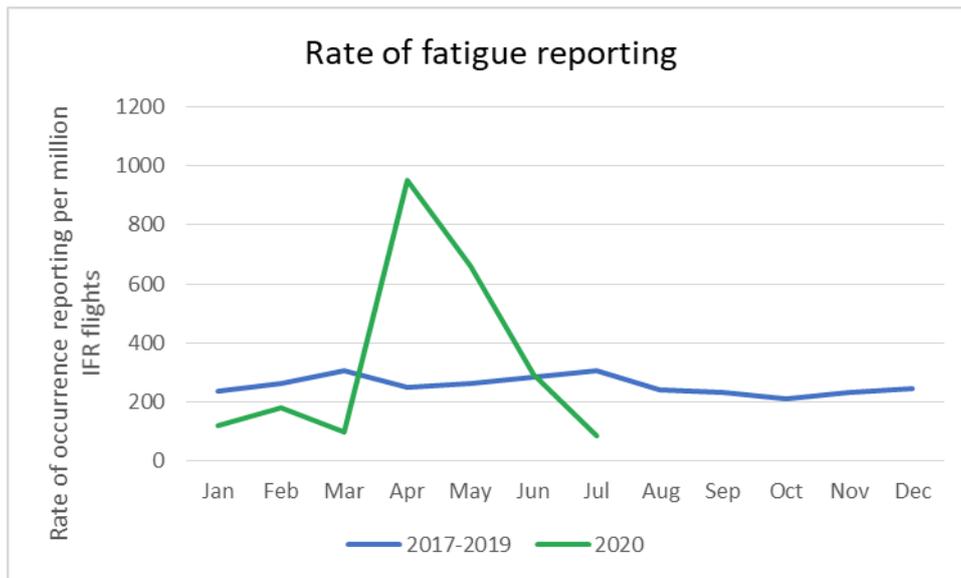
- The reduction in working staff has the potential to leave remaining staff working longer, more intense hours;
- Measures and changes to tasks relating to COVID-19 may cause a more fatiguing working day;
- COVID-19 influences many aspects of personal life, which may affect general physical and mental fitness.

In the aircrew domain, EASA has published a paper addressing air operators and pilots, "FTL Temporary exemptions under Article 71(1) of Regulation (EU) 2018/1139 (the Basic Regulation) Guidelines in relation to the COVID-19 pandemic", which highlights several hazards pertinent to operating in these new circumstances and should be read alongside this paper.

What the latest data are showing us?

Fatigue reports sent to Member States are recorded in the European Central Repository. The chart below compares the rate of fatigue reports in 2020 with the average of the previous three years.

The processing time between making a report and its being stored in the ECR is approximately 30 days. Therefore at the time of writing, the figures are complete up to the end of July. It can be seen that the rate of fatigue reports in April and May was higher than the three-year average and is now recovering to the levels seen in the first quarter of 2020. The jump in the fatigue-reporting rate in April and May provides us with a reminder that fatigue risks need to be managed, regardless of an organisation's level of activity.



What should you do to manage fatigue if you are an authority, organisation or individual?

- **Competent Authorities** should apply their existing fatigue management oversight, using the list of hazards below as examples of how organisations may need to adjust their approach in the current circumstances;
- **Organisations** need to use their existing fatigue-management approaches, taking into account the additional hazards listed later in the paper. Given the disruption created by the pandemic, attention must be given to returning to the established fundamentals of fatigue risk management and fatigue risk mitigation;
- **Individuals** may also use the list of hazards in considering how they manage their personal fatigue risk.

Consequences of fatigue

The consequence of fatigued personnel in the workplace is the increased likelihood of human error, with respect to both aviation safety and personnel safety. Fatigue is not a new hazard and many pre-existing considerations and mitigating actions are already available to organisations. Considerations that are new to the COVID-19 circumstances are as follows:

- Organisations should consider that staff reductions cannot be made in direct proportion to the reduction of traffic levels without risking a rise in levels of fatigue;
- In particular, where staff are unable or discouraged from using public transport, especially concerning staff working the nightshift, consideration should be given to providing sleep opportunities prior to departing the workplace or to providing transport home;
- The effects of [skills and knowledge](#) degradation during the shutdown may also prompt the need for refresher training on fatigue awareness – [the hyperlink](#) provides more information on this safety issue activity;
- An increased analysis of event data is a useful way of identifying fatigue as a contributing factor, which will enable organisations to understand the consequences of fatigue in the workplace.

Summary of the hazards that cause fatigue in the COVID-19 Pandemic

The collaborative group identified the following main hazards for authorities, organisations and individuals to consider in relation to fatigue in the context of COVID-19.

1 Underestimation of fatigue, its consequences and costs

As the crisis forces budget cuts and financial survival becomes more difficult, an organisation's prioritisation and [focus on safety](#) may decrease. There may also be a reduced focus on fatigue, fatigue reporting systems, and other voluntary safety reports. The misconception that staff not working during shutdowns will not suffer fatigue may also lead organisations to underestimate the need to address fatigue.

An increased focus on data and information gathering will support organisations in recognising fatigue levels in their organisations.

Underestimating fatigue is not a new hazard. However, the variations in work and increased anxiety relating to COVID-19 create new ways for personnel to become fatigued. Organisations should monitor this potential risk.

Staff should be enabled and feel sufficiently secure to report their fatigue and the organisation should accept this information without repercussions. In this regard, safety culture and just culture are important elements of ensuring that staff are fit for work. Particular attention should be given to this aspect in the context of reduced job security and increased pressure to support the organisation's survival.

2 Organisation's resource planning insufficiently considers fatigue

When new threats emerge, it is normal for the human perception of risk to change. The COVID-19 situation not only diverts our focus from pre-existing hazards such as fatigue to the risk of virus transmission, but it also demands attention in implementing operational changes.

Despite resource planning difficulties relating to COVID-19, fatigue still needs to be given careful consideration. Resource planning should take into account that tasks may take longer than they did previously and require more effort. Factors to be considered are:

- Availability of personnel;
- Additional procedures developed in response to COVID-19;
- Consider pre-duty briefings and shift-handovers via online meetings, which take longer than face-to-face meetings;
- Increased attention to COVID-19 issues that is beyond the scope of the job task.

Compounding factors of longer working time or overtime, and higher-pressure and or new tasks increase the likelihood of fatigue. Different types of aviation personnel will experience fatigue and those that are at higher risk of fatigue during the increase in traffic movements should be identified by organisations and be given appropriate job tasking.

3 Extended time at work

Many organisations experienced a significant reduction in work from March to June 2020 and as a result reduced their workforce, through either furlough or redundancy. As the level of work increases, staffing levels may lag behind this increase, thereby creating a higher workload for those already working. In particular, this is an issue for those returning equipment and infrastructure to service, such as maintenance engineers and staff at aerodromes. Increased working time should remain an unusual, rather than normal situation.

Matching the type of task to the duty time and time of day becomes important in these circumstances. Complex and safety critical tasks should not be performed by staff who have already been on duty for a long time or during the window of circadian low (WOCL).

COVID-19 testing and health screening adds an additional process to the working day and a delay to starting productive work. It may interfere with the ability of personnel to organise their day, not least because of an inability to control how long the screening takes. It introduces uncertainty - what if you or colleague test positive? This might be another reason to consider increasing the number of employees on duty.

4 Increased work during night hours

A substantial workload has been created in returning aircraft and equipment to service after storage. EASA released a safety information bulletin related to this topic called "Pitot-static issues after storage due to the COVID-19 pandemic". Where parts of the industry are under the pressure to return to their usual activities, longer shifts and round-the-clock working may become more frequent. This is particularly a risk for maintenance and aerodrome personnel, as well as for staff maintaining and operating simulator facilities that are operating longer hours and/ or with reduced resources to while also trying to meet an increased demand.

5 Higher intensity, more varied or challenge

Reductions in staffing levels and the introduction of new tasks related to COVID-19 may lead to more tasks being accomplished per person (more task variation). These tasks may be unfamiliar and are therefore more demanding of individuals, who may not be well suited, trained and qualified for the activities they are now performing. Individuals may also be reluctant to highlight this hazard because of corporate and self-induced pressure to both support their organisation and maintain employment. Where possible, matching staff to the work and ensuring diversity of expertise helps, as does introducing more breaks from the tasks. Training on new or amended tasks, clear step-by-step guidance, and pre-duty briefings can also support individuals.

6 Underload and overload

Underload becomes an issue when personnel are required to be present at work but with insufficient tasks to perform. For some personnel, particularly ATCOs, this has been the case during the past few months. Mitigations for underload include allowing personnel more breaks or rest periods, task variation, and creating duty periods of shorter duration. Organisations need to educate employees about the hazards associated with underload. Employees must help one another to recognise underload-related behaviour. In this case, peer pressure is a good behaviour.

Changes in work schedules and workload can mean that personnel experience rapid switches between underload and overload. Reduced operations may result in longer gaps between tasks, while reduced staffing means that when the work arrives it can be very busy and unusually varied. The loss of staff may also result in individuals performing multiple tasks where before these were performed by multiple individuals. Concretely, staff reductions cannot be made in direct proportion to the reduction of traffic levels without risking a rise in levels of fatigue.

Adjusting to the switch between underload and overload is easier if it can be anticipated by organisations. Organisations need to include a margin of personnel to account for the task variation as well as overall workload, based on their experience of the new operating environment.

7 Pressure to work regardless of physiological or physical state

Whether from the need to support the organisation in a crisis or the increased possibility of redundancy, people may feel the pressure to work when they should not.

The additional workload associated with COVID-19 in medical services, may have resulted in the postponement of many routine and non-urgent check-ups. This includes medical staff who are also aviation medical examiners, meaning there is a risk that conditions resulting in fatigue will not yet have been diagnosed.

These two factors cause a difficulty in applying fatigue management principles because the physical, physiological, and emotional state of employees is not well understood. Organisations are therefore reminded that they are responsible for ensuring that incidences of fatigue are reported by staff, either through a dedicated fatigue reporting system or through their safety reporting system. Organisations are also responsible for promoting a just culture, thereby ensuring fatigue and safety occurrence reports are received.

8 Effect of decreased wellbeing on sleep quality and quantity

The COVID-19 pandemic has undoubtedly increased uncertainty, anxiety and stress for society in general. The aviation industry operations are among the most affected. Together4Safety worked with the Flight Safety Foundation at the start of the pandemic to develop the "[Aviation professional's guide to wellbeing](#)", which has a section covering sleep as well as supporting topics that can reduce fatigue such as stress management and exercise.

In addition, the Together4Safety [Air Ops Community Site](#) has a dedicated section on staff wellbeing while Eurocontrol's Hindsight Magazine has addressed wellbeing in its [April 2020 edition](#).

To minimise the effects of decreased wellbeing on sleep, senior managers need to commit to minimising anxiety in the workforce as much as possible. There is a need for people in leadership positions to recognise the impact of decreased wellbeing on all roles in the organisation, including the senior managers themselves.

From the perspective of managing fatigue, personnel must feel confident to declare themselves fatigued without fear of negative consequences.

Emerging fears and/or frustrations amongst employees must be recognised and addressed. These concerns could be related to:

- Passengers and/ or colleagues not using PPE properly;
- Fear of contamination if a person nearby shows signs of being unwell;
- Uncertainty about the future;
- Medical checks being postponed, therefore medical impairment not being recognised;
- Concerns about family health and adequate safe child/elder care.

9 Additional PPE may fatigue people more quickly

Additional PPE may cause discomfort and may hamper normal work, meaning that staff may become fatigued more quickly. For example, communication, talking and listening to people wearing medical facemasks presents new challenges. This effect will vary depending on the professional role, with those who work in close contact with others required to wear PPE more often or for extended periods. The latter could, in addition to discomfort, lead to an increased body temperature, thereby introducing another fatigue-causing factor. Regular rest opportunities, during which the PPE might be removed, could alleviate this issue.

10 Restrictions during layover

Hazards relating to flight crews were published in [EASA FTL Exemptions guidance in March and updated in May 2020](#). COVID-19 restrictions in some countries, alongside the EASA Aviation Health Safety Protocol and operators' procedures, recommend that pilots and cabin crews stay in hotel rooms in order to minimise the risk of infection. This makes individuals' rest and sleep circumstances more difficult due to:

- Feelings of confinement;
- Social isolation;
- Lack of exercise;
- Increased time working on computers;
- Increased time on social media;
- Lack of daylight.

In addition, the restrictions make it harder or in some cases impossible for crews to choose their food. In these cases, the food provided may not necessarily be suitable, which could cause a lack of quality sleep. For example, high glycaemic index food could leave individuals hungry within a short period, fatty food could cause heartburn, or there could be an inability for individuals to avoid foods associated with allergies and intolerances. This could result in increased anxiety related to food access.

Examples of mitigating actions are sleep hygiene advice, layovers of not more than 24 hours and arrangements put in place with local hotels and caterers to ensure the availability of good food and the quality of rest and sleeping environments. Crews should be briefed in advance, so that they are aware and able to deal with issues related to their accessing appropriate food.

11 Changes to commuting arrangements

Where organisations have advised that personnel avoid public transport or where it is unavailable, there is a subsequent effect on the nature and duration of journeys to and from work. Variable traffic levels and changes to public transport availability may increase journey times, thereby reducing the opportunity for sleep. As flight activity remains below previous levels, it might also take longer for personnel who commute by air to complete their journey. It is important to provide employees with transport opportunities where possible, and to make (more) pre-commuting resting possibilities available.

Further reading and additional guidance on fatigue

1. [ICAO Fatigue Management Manuals](#)

What is in the reference?

ICAO Fatigue Management Manuals, with tailored editions available for airlines, general aviation operators of large and turbojet aeroplanes, air traffic service providers and helicopter operators.

Why is the reference recommended?

These manuals provide a standardised approach to fatigue management which every state and organisation should follow. They have been developed alongside industry partners.

2. [Webcast - Extending Flight and Duty Limits for COVID-19 "Special Ops"](#).

What is in the reference?

A webcast by ICAO scientists, discussing the risks and possible mitigating strategies of flight duty exemptions

Why is it important?

The webcast provides up to date and tailored advice, given the current situation.

3. [Webcast - Managing Fatigue in COVID-19 "Normal Operations"](#)

What is in the reference?

A webcast by ICAO related scientists, discussing fatigue mitigating strategies during Covid-19.

Why is it important?

The webcast provides up to date and tailored advice, given the current situation.