AVIATION SAFETY BULLETIN

CERTIFIED ISO 9001

ISSUE 3 | 2024

An official publication of the Civil Aviation Authority of Fiji

FLUORINE FREE FOAM

WHAT IS DANGEROUS GOODS ?

HOW DOES WORK CULTURE PREPARE YOU FOR FUTURE

ICAO OPENS OFFICE IN NADI, FIJI

'Promoting Effective Aviation Safety and Security in Fiji and the Region'.

FLUORINE FREE FOAM

FOCUS ON CONTROLLED FLIGHT INTO TERRAIN (CFIT)

AIR TRAFFIC CONTROLL IN FIJI—A JOURNEY OF EXCELLENCE AND DIVERSITY

OZEMPIC—THE MIRACLE WEIGHT LOSS DRUG

Cover Pic: Created by Editor

In this issue...

AVIATION SAFETY BULLETIN

PUBLISHED BY THE *:*

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PUBLICATION CONTENT Unless expressly stated as CAAF policy, the views expressed in this *Aviation Safety Bulletin* do not necessarily reflect the policy of the Civil Aviation Authority of Fiji. Articles are intended to stimulate discussion, and nothing in this *Aviation Safety Bulletin* is to be taken as overriding any Fiji Civil Aviation Legislation, or any statements issued by the Chief Executive or the Civil Aviation Authority of Fiji.

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Aviation Safety Bulletin can be downloaded from CAAF's website, **www.caaf.org.fj .**

Message from the desk of
Chief Executive

Bula Vinaka Fellow Aviation Stakeholders!

As we enter the fourth quarter of the year, it's a fitting time to reflect on the significant milestones we've accomplished together. One of the most noteworthy achievements has been the official opening of the International Civil Aviation Organization (ICAO) Pacific Small Island Developing States (PSIDS) Liaison Office in Nadi. This prestigious event marked an important milestone not only for the Civil Aviation Authority of Fiji (CAAF) but also for the Government of Fiji. We had the distinct honor of welcoming ICAO Secretary General Mr. Juan Carlos Salazar and ICAO Regional Director for the Asia Pacific Region Mr. Tao Ma, whose visit underscored the strategic importance of this new office for the Pacific region. The PSIDS Liaison Office will be instrumental in elevating aviation standards and ensuring Pacific Island States receive the technical and regulatory support required to meet international aviation obligations.

This edition of our bulletin highlights the breadth of CAAF's work throughout the year. Among the featured articles is a deep dive into the transition to fluorine-free foam, an important step in advancing our environmental responsibilities and reducing harmful emissions. We also examine the critical measures taken to prevent Controlled Flight into Terrain (CFIT) incidents, a key safety initiative in our operational improvements.

Diversity continues to be a hallmark of our operations, and we take pride in celebrating the fact that nearly 50% of our air traffic controllers are female, a testament to our ongoing commitment to fostering an inclusive and diverse workforce. Our article on emergency preparedness underscores the importance of resilience in operations, while our piece on dangerous goods ensures that we remain vigilant in handling hazardous materials safely.

Additionally, the recent donation of Modular Bomb Kits to Pacific nations by the U.S. Transportation Security Administration (TSA) emphasizes the importance of preparedness in maintaining aviation security across the region. We also provide updates on regulatory developments, including information on aircraft maintenance engineers' licenses and the status of Fiji's adherence to international air law instruments.

Finally, we delve into the aviation work culture, exploring how we can build an adaptable, forward-looking aviation industry, and examine the role of aviation medicine in our sector, with a specific focus on the popular weight-loss drug Ozempic and its potential implications for aviation professionals.

As the year draws to a close, I am incredibly proud of the progress we have made as a team. I look forward to concluding this chapter on a high note, with continued dedication and a shared commitment to safety, security, and excellence. Thank you for your ongoing hard work and commitment to our mission■

Ms Theresa O'Boyle-Levestam
Chief Executive

Fluorine Free Foam

Per- and polyfluoroalkyl substances (PFAS) have been used in aqueous film-forming foams (AFFFs) for fighting liquid fuel fires since the 1970s. Fluorine-free foams are foams that do not contain any PFAS. Both use the same approach to fighting liquid fuel fires.

Source: Getty Images

For decades, aqueous film forming foam, or AFFF, has been the gold standard for extinguishing dangerous liquid fuel fires. Now, with AFFF being rapidly phased out and new firefighting foams being developed, the fire protection world braces for what's next.

How they work

Firefighting foams form a "blanket" over liquid fuel that acts as a barrier preventing flammable vapors from escaping the liquid. This helps both to extinguish the fire and to prevent additional ignition of vapors. The more stable and long-lasting this foam blanket is, the more effective the foam is at containing flammable vapors and ultimately extinguishing the fire.

The problem

Although PFAS-containing foams are more effective than fluorine-free foams, in numerous scientific studies PFAS are linked to harmful effects on humans and animals and they do not degrade naturally in the environment. In response to the negative impacts of PFAS, the Department of Defense in January 2023 issued a new specification outlines the functional requirements for firefighting foams used on military bases. These foams must be able to effectively extinguish class B hydrocarbon liquid fuel fires without containing PFAS.

The next step

Many efforts are underway to find effective alternatives to PFAS-containing firefighting foams. However, given the rapidly evolving legislation and the urgency of the issue, researchers are hoping to find additives to existing foam formulations that can be deployed faster in the field.

For a certain generation of specialized firefighters tasked with protecting airfields, oil and gas facilities, AFFF has been as indispensable to their jobs as water is for structural firefighters, owing to its unique ability to quickly snuff out even the nastiest liquid fuel fire under a blanket of chemical bubbles. In the dangerous scenarios that can play out when large stores of fuel are threatened by fire, AFFF's qualities as a fast and reliable suppression agent have literally been a lifesaver. And yet, there is now near-universal agreement among health officials, environmental scientists, governments, and even firefighters that AFFF must go, preferably as soon as possible.

"We can all allude to how good AFFF has been for us, but AFFF is going away. If you are still dwelling on that point, then you are behind," Casey Grant, executive director of the research and engineering firm DSRAE LLC, told a room full of fire protection professionals during a presentation in June at the NFPA Conference & Expo in Boston. "There is no doubt that this issue is full of questions and complications for all of us, but we have to face the fact that this transition is happening."

Others, however, may find the move away from AFFF to be a bit more complicated. For fire protection officials, many of whom are squeezed between fast-approaching government bans on AFFF and the continued need to quickly extinguish dangerous liquid-fuel fires, the transition raises two major questions, what will replace AFFF, and what will the transition look like?

For more than a decade, foam manufacturers have been working on possible replacements for AFFF. There are now dozens of foam products on the market that claim to be made without fluorine, a key ingredient in AFFF that is also a source of PFAS.

Unlike AFFF, however, the effectiveness of fluorine-free foam comes with a lot of caveats and complexities, said Jerry Back, a researcher at Jensen Hughes. Over the last five years, Back has conducted hundreds of fire tests on the capabilities of fluorine-free foams. "These fluorine-free foams are not a drop-in replacement for AFFF; they are new products with different characteristics and use different methods for putting out the fire," Back told me in an interview this summer. Although the new foams perform "reasonably well," their different properties mean that "the transition from AFFF is going to be much more complicated than you would initially believe," he said.

Fluorine Free Foam cont....

Many of these complications arise from the simple fact that these new foams lack fluorine, a critical component of how AFFF works to suppress liquid fuel fires. When water alone is used on a liquid fuel fire, it can spread and possibly even accelerate the blaze. But combining water and an AFFF concentrate of 3–6 percent creates a frothy mix of billions of tiny bubbles light enough to sit atop the burning fuel and dense enough to begin to smother it. The fluorine also contains a small electrical charge that repels the fuel like an opposing magnet, creating a microscopic layer between the bubbles and the surface of the fuel. As liquid slowly drains out of the bubbles, it is held at the surface by this charge and "forms a very thin layer that covers the fuel, holds the vapors down, and to some extent cools the fuel. Without the fluorine, the denser liquid sinks below the fuel and its burning vapors and is much less effective.

Manufacturers and scientists have tried unsuccessfully for years to achieve a similar film layer without the PFAS-causing fluorine. "These fluorine-free foam products don't make a film on the fuel like AFFF," Back said. "They work simply by providing a physical barrier of bubbles that contains the fuel vapors and prevents them from mixing with oxygen. AFFF had two mechanisms to put out the fire; these new products only have one."

AFFF is extremely forgiving and versatile, able to put out fires in a single pass regardless of how aspirated, or foamy, the substance is coming through the hose. The new formulations, however, are highly dependent on foam quality, meaning dense, highly aspirated bubbles. Even with a denser foam blanket, tests have shown that firefighters must discharge more fluorine-free foam on a liquid fuel fire to achieve the same results as AFFF. "AFFF also tends to be more forgiving when you're trying to flow around obstructions in the fire field," said Back, who conducted the fire tests and co-authored the 2020 Research Foundation report. (Back's work won the 2020 Foundation Medal, awarded to the project that best exemplifies the Research Foundation's fire safety mission.)

The bottom line, he said, is that it takes roughly twice as long to put fires out with these new products compared to AFFF.

The higher degree of aspiration that the new foams demand may require fire departments to invest in new hose nozzles. They will also need to retrain firefighters on how to extinguish liquid fuel fires, considering the limitations and properties of the new foams.

Other issues that have emerged wherever AFFF has been replaced include the disposal of remaining AFFF concentrate and the assessment of equipment that ay be contaminated.

The petroleum industry has long relied on AFFF to snuff out fires at facilities worldwide, on both land and sea. Here, firefighters in the United Kingdom spray foam onto oil storage tanks during a fire at a depot on the outskirts of London.

The road ahead

Although fluorine-free foams may not contain PFAS, nobody can say yet with certainty that the chemicals they do contain won't eventually be found to be hazardous in other ways. "Nobody wants to transition to fluorine free and then in three or four years have to transition again.

Acknowledging that the journey has only just begun, the Research Foundation has applied for additional funding to continue its efforts to keep stakeholders informed. The proposed new project will aim to generate recommended best practices and tactics guidance for firefighters using the new fluorine-free foams. The results could help inform badly needed new training programs for departments across the world as they make the transition away from AFFF. Ongoing research will also be vital to stay on top of changes as foam technology continues to evolve.

Regardless of the final capabilities of new-generation foams, it will matter little if facilities managers don't spec the right foam or if firefighters aren't adequately trained to use it. The new foams are good enough as currently formulated to handle whatever situation is on the other end of the 911 call. Now it's up to the safety community to get ready■

Source: NFPA Journal, The New Foam by Jesse Roman 22 Jul 2022

ICAO Opens Office in Nadi, Fiji

The International Civil Aviation Organization (ICAO) has recently inaugurated a new liaison office in Nadi, Fiji, marking a significant step towards enhancing aviation safety, security, and sustainability across the Pacific region. This initiative is part of ICAO's broader strategy to support its 193 member states in improving their aviation infrastructure, regulatory frameworks, and operational capacities.

The establishment of the ICAO Pacific Liaison Office in Nadi is expected to foster greater collaboration among Pacific Island nations, enabling them to share best practices, develop joint strategies, and address common regional challenges more effectively.

The office will also provide tailored technical assistance and capacity-building programs to help these countries meet international aviation standards and improve their safety oversight mechanisms.

Furthermore, the new office will focus on enhancing aviation security measures and promoting environmentally sustainable practices within the industry. This is particularly crucial for the Pacific region, which is highly vulnerable to the impacts of climate change.

The opening of the ICAO office on 16th August 2024 in Nadi was acknowledged by Fiji's Acting Prime Minister and Minister for Tourism & Civil Aviation, Hon. Viliame Gavoka, who highlighted the shared resolve to improve aviation safety, security, and sustainability across the Pacific. The presence of ICAO's Secretary-General, Mr. Juan Carlos Salazar, and the Asia Pacific Regional Director, Mr. Tao Ma, at the inauguration ceremony emphasizes the significance of this initiative.

Overall, the ICAO Pacific Liaison Office in Nadi represents a crucial step towards strengthening regional collaboration, building aviation capacities, and promoting sustainable development within the Pacific's air transport sector, which is essential for the connectivity, tourism, and economic growth of these island nations■

Understanding ICAO's High Risk Categories

Focus on Controlled Flight Into Terrain (CFIT)

Aviation safety is paramount, and the International Civil Aviation Organization (ICAO) has identified several high-risk categories that contribute to aviation accidents. One of the most concerning is; Controlled Flight Into Terrain (CFIT). CFIT occurs when an airworthy aircraft, under the control of the crew, inadvertently flies into terrain, water, or an obstacle, typically without prior system warnings or visible signs of danger. While advances in technology and pilot training have reduced the frequency of CFIT, it remains a serious threat, particularly during approach and landing phases.

The Nature of CFIT

CFIT accidents typically occur in conditions of reduced visibility, at night, or in challenging terrain. Pilots may not be fully aware of the aircraft's proximity to the ground due to misjudgement, lack of situational awareness, or inadequate understanding of navigation systems. This is especially prevalent in non-precision approaches, where pilots are more reliant on visual cues or basic instruments.

The ICAO prioritizes CFIT prevention due to its severe consequences. According to ICAO, CFIT incidents have a high fatality rate because they often occur during critical phases of flight such as descent or approach, leaving minimal time for recovery (ICAO, 2020).

A Recent Example: The 2020 PIA Flight PK8303 Incident One of the most significant CFIT accidents in recent years occurred on May 22, 2020, involving Pakistan International Airlines (PIA) Flight PK8303. The Airbus A320, en route from Lahore to Karachi, crashed into a residential area during its second attempt to land. The final report from Pakistan's Aircraft Accident Investigation Board (AAIB) indicated that the crew did not adhere to standard operating procedures during the approach, descending too quickly while over-relying on automation. The aircraft's Ground Proximity Warning System (GPWS) activated multiple times, but the warnings were disregarded by the crew (AAIB, 2021).

Key Findings and Recommendations

The investigation into the PK8303 crash revealed critical errors linked to CFIT. Some key findings included:

- **Non-compliance with SOPs:** The crew's failure to follow procedures during approach significantly contributed to the crash.
- **Inadequate response to GPWS:** Despite the GPWS providing multiple alerts, there was no corrective action taken.
- **Fatigue and stress:** The psychological state of the pilots may have impaired their decision-making abilities.

Based on these findings, several recommendations were made:

1. **Enhanced Training:** Pilots should receive more rigorous training on approach procedures, emphasizing adherence to SOPs, especially when visual cues are limited.
2. **Fatigue Management Programs:** Airlines should improve pilot fatigue monitoring and management to ensure that pilots are well-rested and capable of making sound decisions.
3. **Improved Automation Awareness:** The investigation highlighted the need for pilots to fully understand the limitations of automation and to ensure that manual flying skills remain sharp (AAIB, 2021).

Preventing CFIT

To mitigate CFIT risks, ICAO and the aviation industry have invested in enhanced safety systems such as the Terrain Awareness and Warning System (TAWS) and improved flight crew training. However, as seen in the PK8303 incident, technology alone cannot prevent CFIT. Human factors, including decision-making under stress and fatigue, must be addressed to reduce the likelihood of future CFIT incidents.

Conclusion

CFIT remains a significant safety concern, particularly during approach and landing. The PK8303 incident underscores the importance of strict adherence to procedures, continuous pilot training, and addressing human factors like fatigue. While technology plays a vital role in CFIT prevention, a culture of safety and vigilance is equally essential to ensure that these accidents remain rare■

*Source: Aircraft Accident Investigation Board (AAIB) 2021, *Aircraft Accident Report of Pakistan International Airlines Flight PK8303*, Civil Aviation Authority, Pakistan. International Civil Aviation Organization (ICAO) 2020, *Safety Report*, ICAO, Montreal.*

Celebrating Air Traffic Control in Fiji

A Journey of Excellence and Diversity

As we approach the International Day of the Air Traffic Controller on October 20th, it's a fitting time to reflect on the remarkable journey of air traffic control (ATC) in Fiji. From its humble beginnings to its current state-of-the-art operations, Fiji's ATC has evolved significantly, marked by notable achievements, dedicated professionals, and a commitment to diversity.

A Historical Perspective

The history of air traffic control in Fiji is a testament to the nation's pioneering spirit. In the early days, air traffic control relied heavily on visual and radio-based navigation. The introduction of the Global Positioning System (GPS) in the late 20th century was a game-changer. Fiji was among the first countries to integrate GPS into its aviation system, revolutionizing the way air traffic was managed and ensuring safer and more efficient flights.

The establishment of the Civil Aviation Authority of Fiji (CAAF) in 1979 marked a significant milestone for aviation in Fiji. CAAF was tasked with regulating all aspects of civil aviation in Fiji, including air traffic control. A reorganization under Reform Act of 1999 aimed to enhance safety standards and streamline operations, setting the stage for future advancements.

Achievements in Air Traffic Control

Fiji's ATC has achieved several milestones over the years. One of the most notable is the implementation of the Aurora Air Traffic Management (ATM) system in 2010. This advanced system integrates oceanic, terminal area, and aerodrome control capabilities, providing comprehensive surveillance and control over Fiji's vast airspace.

The Aurora ATM system has significantly improved airspace efficiency and safety, allowing for optimal routing and reduced separation minima.

Another remarkable achievement is the successful transition to the new Aurora ATM system during the COVID-19 pandemic. Despite the challenges posed by the global crisis, Fiji Airports persevered, ensuring continuous training and upskilling of personnel. This commitment to excellence has positioned Fiji as a leader in air traffic management in the region.

The People Behind the Success

The success of Fiji's ATC is largely attributed to the dedicated professionals who work tirelessly to ensure the safety of air travel. Air traffic controllers in Fiji are based in the two international airports in Fiji, Nadi and Nausori Airport. Controllers are responsible for managing the Nadi Flight Information Region (NFIR), which covers a vast area of 6.5 million square kilometres.

One of the inspiring figures in Fiji's ATC history is Theresa O'Boyle-Levestam, the Chief Executive of CAAF. Starting her career as an ATC assistant, she broke barriers to become Fiji's first female air traffic controller. Her journey is a testament to the power of perseverance and the importance of mentorship. Today, women make up 40% of the ATC workforce in Fiji, reflecting the nation's commitment to gender diversity.

Embracing Diversity

Diversity is a cornerstone of Fiji's ATC. The workforce includes individuals from various backgrounds, contributing to a rich and inclusive environment. The recent waves of recruitment of air traffic controllers highlights this commitment to nurturing talent from diverse communities. This approach not only enhances the quality of service but also fosters a culture of inclusivity and mutual respect.

Looking Ahead

As we celebrate the International Day of the Air Traffic Controller, it's important to acknowledge the progress made and the challenges ahead. Fiji's ATC continues to evolve, embracing new technologies and methodologies to ensure the highest standards of safety and efficiency. The dedication of its professionals and the emphasis on diversity will undoubtedly drive further advancements in the years to come.

In conclusion, the journey of air traffic control in Fiji is a story of innovation, dedication, and inclusivity. As we honour the contributions of air traffic controllers, let us also look forward to a future where Fiji continues to lead in aviation excellence in our region■

Sources: *CAAF, Fiji Airports* https://www.bbc.com/travel/article/20190303-how-fiji-changed-the-way-we-travel
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Be ready for the emergency

After a forced landing in the bush, this pilot did three things that made the difference between survival and possible death.

It was the end of a successful winter hunting weekend in the Kaimanawa Forest Park. The pilot – who we're calling John – his dog, his sister, and their hunting buddy, boarded John's Cessna 172, bound for home.

John (PPL, with around 600 hours at the time) had already flown some of their gear out. As they prepared for their final departure mid-afternoon, he noticed the weather conditions deteriorating more quickly than expected. He decided they would head for Tūrangi rather than Taupō or Taihape.

"It was a routine flight, operating in an area I know well," John says.

"Coming out with the second load and my passengers, visibility seemed not too bad. I came through the trickiest part to navigate, but then there are two valleys with similar headings – and I flew into the wrong one."

Split-second decision

An engineer by trade, John is used to critical thinking. "The 172 is a low horsepower model so even though only moderately loaded in this case, once at altitude it leaves little performance to spare. I went to configure it the right way for a turn, but when I went to turn out, I could see the performance was not there for turning across the valley. I didn't want to go into a stall spin – that usually doesn't end well at low altitude – so I decided I needed to find a place to turn around or land. It became apparent, with no space to turn, we would have to land in the valley.

"Naturally, the stress levels went up. I didn't say much – there was no time – but I warned the others to tighten their seat belts for a forced landing, and headed up the valley.

"The time between realising it was the wrong valley, to landing at the end of it, was about 30 seconds, a minute at the most. There was no panic. I flew the aircraft up into the hill, flaring up the bank. The 172 is light, so that helped with landing at low air speed. There was a noise of crunching aluminium, and we ended up perched on the trees, the nose touching the bank and the tail out over a 40ft drop. My first thought was the risk of a fire, so I immediately turned the power off."

Personal locator beacon

"The aircraft ELT had not activated so I initially turned it on, but this interfered with the VHF comms I needed with aircraft overhead, so I turned it off. I considered activating the PLB that I carry in my pocket as it has GPS functionality but, already knowing our exact location, there was no need."

Although none of the group was physically injured, John's friend became distressed, and calming him down was the first step.

Stay with the aircraft

Then John made some key decisions that proved fundamental to their survival. Their wet weather clothing was among the gear he'd flown out earlier in the day. With rain setting in, and just a few hours until darkness, he decided the group would stay put.

"I knew there was no way we could walk out at night by ourselves."

Flight following

John contacted aircraft overhead to let LandSAR know the crashed Cessna's GPS coordinates, and asked them to relay the message that the group were not injured and would be able to walk out – but only with assistance.

He asked an overhead pilot to text his dad (who was flight following) to let him know they were okay, and to contact their friends waiting at Tūrangi aerodrome to say they would not be arriving.

John's anxiety levels rose when there was muddled communication between Christchurch Air Traffic Control and LandSAR, with his messages not being conveyed correctly. But with a bit of clarification, the rescue team was dispatched and headed into the forest.

Stay warm and dry

"We put on all the warm gear we had, including emergency blankets. We stayed in the plane, and waited. It wasn't that we couldn't get out, but we just didn't want to leave the aircraft because of the conditions. It felt like a very long time.

"Then around 2am – about nine hours after we landed on those trees – I heard the search and rescue guys yelling. I climbed out via the landing gear leg and wing strut to the ground next to the nose.
"I'm a hunter and I spend a lot of time on wild terrain, so I was able to get across to them, and I brought them back to the aircraft. We were keen to get out of there. We were pretty cold, and we got colder still when we were walking out."

Within an hour of leaving the stricken aircraft, the group and their LandSAR rescuers were out of the bush.

"I certainly appreciated them getting out of bed for the night," John says.

The after-effects

Four years have passed since the crash, and John says he's spent a lot of time re-thinking it.

"I remember vividly flying up the hill, approaching the bank, seeing the trees coming up, and the sound of the crunching aluminium. It's not something I have nightmares about, but I remember that quite vividly.

"It definitely gave me a bit of a shake-up, for sure. I felt a bit… I'm not sure what the word is… you get a bit flustered for a while.

"It was a bugger-up – my fault and no-one else's. I was angry and upset with myself that I went up the wrong valley."

He says a mix of complacency because of the familiar surroundings, combined with flying in marginal weather conditions, contributed to the event.

"It's that complacency thing. I was right in that risk profile. I was definitely in that classic buildup for an incident – too familiar with the surroundings, and complacent with all those different little things.

"But what I did was the right thing to do. I wanted to avoid stall spin. And the main thing is that, while I bent a plane, everyone was safe."

Although shaken up by the event, John got back to flying quite quickly after the crash.

Life-saving decisions

He says three factors were most important in ensuring the survival of his hunting group.

"We were flying in winter, so we planned to be at home base well before dark. We had plenty of fuel, and daylight, and we had lots of Plan Bs. If you're feeling stressed, it probably means you haven't given yourself enough options before you started the flight.

"Communication is everything. I'm a big fan of PLBs, because they have GPS. Some aircraft ELTs don't have GPS so they are only accurate to within a few kilometres.

"Having flight following was crucial. It would have been even more important in raising the alarm if we hadn't been able to make contact with aircraft overhead.

"When we got into trouble, my ability to make good decisions was helped by the fact I'd done a lot of field strip flying, and I had good instructors and good training for emergencies. Reading accident reports is also a great learning tool. Be ready for the emergency, so if it does happen, it's just a procedure"■

More advice

For more advice on how to survive after a precautionary landing, download Good Aviation Practice booklet from NZ CAA , Survival: GAP booklet: Survival [PDF 1.8 MB]

Source: Article uplifted from NZ CAA—Vector magazine

What is Dangerous Goods?

An occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property or environmental damage.

Image: SafetySignsAustralia

What is a dangerous goods incident?

An occurrence other than a dangerous goods accident, associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property or environmental damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods that seriously jeopardises the aircraft or its occupants is also deemed to constitute a dangerous goods incident.

The acceptance and carriage of dangerous goods without complying with the mandatory packing, marking, labeling, documentation, stowage and loading requirements may lead to an accident, serious incident or incident.

Unfortunately, there have been numerous fatal accidents over the years attributed in most part to the non-conformance to dangerous goods requirements.

A notable accident that was contributed to the non-compliance with the requirements for the safe carriage of dangerous goods was the **ValuJet** accident. In summary the ValuJet Airlines flight 592 was a regularly scheduled flight from Miami to Atlanta. On May 11, 1996, the ValuJet Airlines McDonnell Douglas DC-9 operating the route crashed into the Everglades about 10 minutes after departing Miami as a result of a fire in the cargo compartment caused by mislabeled and improperly stored dangerous goods cargo. All 110 people on board were killed.[1][2] It is the deadliest plane crash in Florida as of 2024.

At the end of a 15-month investigation, the National Transportation Safety Board (NTSB) determined that the fire had developed in a cargo compartment below the passenger cabin.[1] The cargo compartment was of a Class D design, in which fire suppression is accomplished by sealing the hold from outside air.

Any fire in such an airtight compartment would quickly exhaust all available oxidizers and then extinguish itself. As the fire suppression can be accomplished without any intervention by the crew, such holds are not equipped with smoke detectors.

The NTSB determined that just before takeoff, 144 [16] expired chemical oxygen generators, each slightly larger than the size of a tennis-ball can, had been placed in the cargo compartment in five boxes marked COMAT (company material) by ValuJet's maintenance contractor SabreTech. This violated Federal Aviation Administration (FAA) regulations forbidding the transport of dangerous goods in passenger-aircraft cargo holds.[a] Failure to cover the generators' firing pins with the prescribed plastic caps made accidental activation much more likely. The investigation revealed that rather than covering the pins, maintenance personnel simply cut the cords attached to the pins or applied duct tape around the cans, and consumer-grade adhesive tape was also used to secure the ends. SabreTech employees indicated on the cargo manifest that the "oxy canisters", which were loosely packed in boxes that were each sealed with tape and bubble wrap, were "empty." ValuJet workers then loaded the boxes in the cargo hold in the mistaken belief that the devices were simply empty canisters that would be safe and legal to transport on a passenger aircraft.[17]

What Is Dangerous Goods....

Cont...

Chemical oxygen generators, when activated, produce oxygen for passengers if the plane suffers a decompression. However, they also produce a great quantity of heat because of the exothermic nature of the chemical reaction involved. Therefore, not only could the heat and generated oxygen start a fire, but the oxygen could also keep the fire burning.

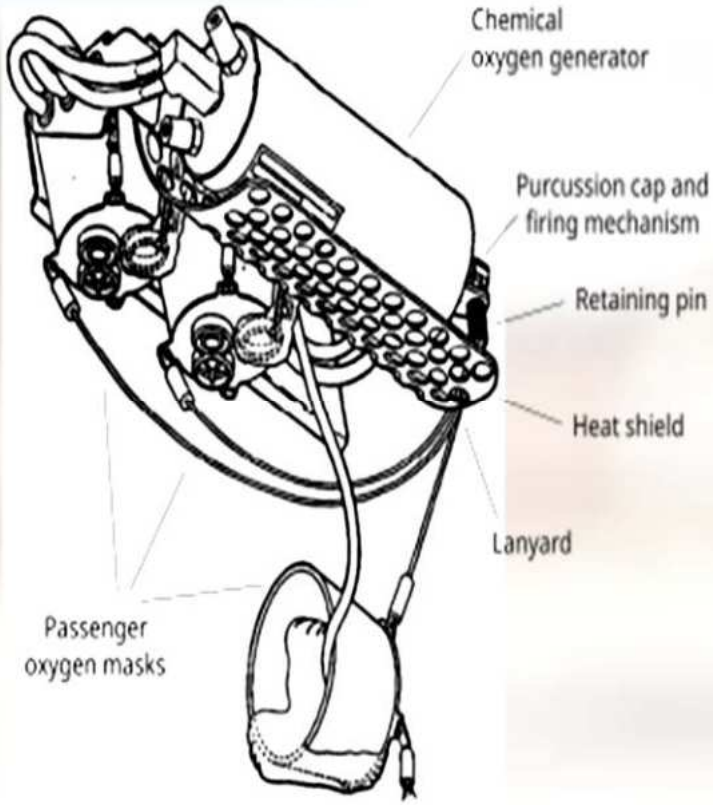
Investigators determined that one of the oxygen generators was likely triggered when the plane experienced a slight jolt while taxiing. As the aircraft taxied and took off, the generator began releasing heat that caused other canisters to activate. Each activation created more heat, which rapidly caused all of the generators to activate. The intense heat ignited a fire in the other materials in the cargo hold. The fire was worsened by the presence of two main aircraft tires, one of them mounted on a main wheel, and a nose tire and wheel that were also included in the list of materials shipped as COMAT.

Laboratory testing showed that canisters of the same type could heat nearby materials up to 500 °F (260 °C). The oxygen from the generators fed the resulting fire in the cargo hold without any need for outside air, defeating the cargo hold's airtight design. A pop and jolt heard on the cockpit voice recording and correlated with a brief and dramatic spike in the altimeter reading in the flight data recording were attributed to the sudden cabin-pressure change caused by one of the wheels in the cargo hold exploding from the heat.[17] Investigators also determined that in this process, the fire began to destroy control cables that ran to the back of the aircraft, which explained why the pilots began losing control before the plane crashed. The NTSB concluded that the aircraft was under positive control by the pilots until the time of the sharp right turn and dive immediately prior to impact.[1]

Smoke detectors in the cargo holds can alert the flight crew of a fire long before the problem becomes apparent in the cabin, and a fire-suppression system buys valuable time to land the plane safely. This would prevent a scenario similar to Flight 592 in which the emergency had escalated well beyond the flight crew's ability to respond by the time that the problem had become apparent. In February 1998, the FAA issued revised standards requiring all Class D cargo holds to be converted by early 2001 to Class C or E; these types of holds have additional fire-detection and fire-suppression equipment.[17][18] - Source ValuJet Flight 592 - Wikipedia.

The procedures for the safe carriage by air of dangerous goods are clearly stipulated in the International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air (issued bi-annually) and also in the International Airline Transport Association Dangerous Goods Regulations (issued annually).

Passenger Fixed Oxygen Supply Unit



The International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air and International Airline Transport Association Dangerous Goods Regulations also stipulates the mandatory dangerous goods training for personnel working for both a dangerous goods carrier and also non dangerous goods carriers.

The carriage of dangerous goods in Fiji airspace and for a Fiji registered aircraft/operator are covered under ANR 29. Under ANR 29(4) the International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air is the (as amended from time to time) is the prescribed standards approved by the Civil Aviation Authority of Fiji.

Any dangerous goods accident or incident must be reported as required under ANR 71 by the quickest means possible either verbally or electronically; and within ninety-six hours of the occurrence, in a current form approved by the Authority. It must be noted that under ANR 71(2)(i) any other occurrence which, in the opinion of such a person constitutes an occurrence endangering, or which if not corrected would endanger, the safety of an aircraft, its occupants or any other person must be reported.

There are many studies and statistics that point towards safer air travel today compared to the past. These studies and statistics are good for selling seats and cargo space onboard aircraft. However, as a Civil Aviation Authority one fatal accident is too many and we must all ensure that we play our part in the safety chain of air travel to prevent the loss of life.■

N 274181 006 5/18/96 Everglades, Florida
Saturday afternoon, Metro-Dade Search Team members wade through the muck with nets and poles looking for more evidence from the ValuJet Flight #592 crash in the Everglades.
Photo: © Candace Barbot / Miami Herald / Liaison Agency

CAA Fiji is keen to hear from you regarding our levels of service. If you believe you have constructive ideas on how we can improve our services, or would like to report instances where we have failed to meet your expectations, please send your feedback to CAAF, preferably using the QA 108 form that can be accessed from our website. This can be sent to CAAF via email or dropping it in the feedback box in the foyer of CAAF HQ, or

emailing to : *info@caaf.org.fj*

FCAIR

FIJI CONFIDENTIAL AVIATION INCIDENT REPORTING FORMS AVAILABLE ON WEBSITE www.caaf.org.fj *OR* FRONT DESK, CAAF HQ.

Transportation Security Administration (TSA) Donates Modular Bomb Kits to Five (5) Pacfic Island States

Image Servoteh:

As part of its ongoing assistance to; and cooperation with the Pacific, the Transportation Security Administration (TSA) donated Modular Bomb System (MBS) Kits to five (5) Pacific countries namely; the Cook islands, Fiji, French Polynesia, Kiribati and Samoa on 12th September 2024. The MBS Kits will be used for aviation security screener training and the conduct of covert testing at these international airports.

TSA's representative in Sydney, Ms Danielle Bergquist donated the MBS Kits on behalf of the organisation following a three (3) day workshop conducted by TSA and hosted by the Civil Aviation Authority of Fiji (CAAF). The workshop included eleven (11) participants from Fiji and seven (7) participants from the Pacific. There were two (2) TSA instructors that conducted the workshop and three (3) TSA administrators and support staff.

The highlight of the workshop was the airport exercise where participants were divided into teams and given the opportunity to practise what they had learnt at the passenger screening point using the MBS Kits. It was also a unique learning opportunity for the aviation security screeners to identify new threat items, including the 'tell tale signs'.

TSA's donation is a demonstration of its ongoing commitment to building stronger partnerships across the world to maintain the safety and security of aviation. Fiji has benefitted previously from TSA's aviation security specific training programmes and advanced technology symposiums.

VALIDATION OF KNOWN CONSIGNORS IN VANUA LEVU UNDER WAY

The Aviation Security and Facilitation Department (ASFD) has begun conducting validation inspections for known consignors in Labasa, Savusavu and Taveuni as part of its known consignor validation inspections for the regulated agent regime. Previously, most of the known consignors were located in Viti Levu. The growth in yaqona exports has seen an increase in known consignors from Vanua Levu exporting their consignments by air.

The validation inspections provide the Authority's inspectors an opportunity to meet the known consignors and clarify doubts they have in relation to the requirements of the regulated agent regime. It is our way of helping support local export■

AIRCRAFT MAINTENANCE ENGINEER

An Aircraft Maintenance Engineer (AME) is a skilled professional responsible for ensuring aircraft safety, reliability, and airworthiness. AMEs are essential guardians of aviation safety, ensuring that aircraft operate smoothly and passengers travel securely.

KEY ASPECTS OF THEIR ROLE

- Perform **scheduled inspections** on aircraft to identify any damage or malfunction.
- Carry out **preventive maintenance** to keep aircraft in optimal condition.
- AMEs troubleshoot and perform necessary **repairs or replacements** when issues arise.

CATEGORIES OF AME

MECHANICAL

Focus on physical components like engines, airframes, and related systems.

AVIONICS

Specialize in electronic systems such as communication, navigation, and instrumentation.

These skilled professionals work behind the scenes to keep our skies safe, ensuring aircraft are ready for takeoff!

REQUIREMENTS FOR AIRCRAFT MAINTENANCE LICENCE

1 AGE

The applicant shall not be less than 20 years of age.

2 KNOWLEDGE

The applicant shall have demonstrated a level of knowledge relevant to the privileges to be granted and appropriate to the responsibilities of an aircraft maintenance licence holder, in at least the following subjects:

1. Air Law & Airworthiness requirements
2. Natural Science & Aircraft General Knowledge
3. Aircraft Engineering
4. Aircraft Maintenance
5. Human Performance

3 EXPERIENCE

The applicant shall have had the following experience in the inspection, servicing and maintenance of aircraft or its components:

For the issue of licence with privileges for the aircraft entirety
1. Experience of at least 4 years; or
2. Two years if satisfactorily completed an approved training course

For the issue of licence with restricted privileges
1. Experience of not less than two years
2. Such a period as the state considers necessary to provide an equivalent level of practical experience to applicants who have satisfactorily completed approved training course

4 TRAINING

The applicant should have completed a course of training appropriate to the privileges to be granted.

5 SKILL

The applicant shall have demonstrated the ability to perform those functions applicable to privileges to be granted.

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Civil Aviation Authority of Fiji

Contact CAAF
Office Number: (679) 892 3155
E-mail: info@caaf.org.fj
Website: www.caaf.org.fj

Status of Fiji

International Air Law Instruments

The 41st session of the ICAO Assembly recognised in several resolutions that unification of international rules could be achieved through universal participation by all ICAO member states. This article provides Fiji's ratification status of international air law instruments. There are a total of 49 international air law instruments out of which Fiji has ratified 24.

INTERNATIONAL AIR LAW INSTRUTMENTS THAT HAS BEEN RATIFIED

1. Convention on International Civil Aviation Chicago, 7/12/44

2. International Air Services Transit Agreement Chicago, 7/12/44

3. Protocol on the Authentic Trilingual Text of the Convention on International Civil Aviation, Buenos Aires, 24/9/68

4. Article 93 *bis*, Montréal, 27/5/47

5. Article 45 , Montréal, 14/6/54

6. Articles 48(a), 49(e) and 61, Montréal, 14/6/54

7. Article 50(a), Montréal, 21/6/61, Vienna, 7/7/71

8. Article 50(a), Montréal, 16/10/74

9. Article 83 *bis*, Montréal, 6/10/80

10. Article 3 *bis*, Montréal, 10/5/84

11. Article 56, Montréal, 6/10/89

12. Article 50(a), Montréal, 26/10/90

13. Convention for the Unification of Certain Rules relating to International Carriage by Air Warsaw, 12/10/29

14. Protocol to Amend the Warsaw Convention of 1929, The Hague, 28/9/55

15. Convention, Supplementary to the Warsaw Convention, for the Unification of Certain Rules relating to International Carriage by Air Performed by a Person Other than the Contracting Carrier Guadalajara, 18/9/61

16. Convention for the Unification of Certain Rules for International Carriage by Air, Montréal, 28 May 1999

17. Convention on Offences and Certain Other Acts Committed on Board Aircraft, Tokyo, 14/9/63

18. Convention for the Suppression of Unlawful Seizure of Aircraft, The Hague, 16/12/70

19. Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation, Montréal, 23/9/71

20. Protocol for the Suppression of Unlawful Acts of Violence at Airports Serving International Civil Aviation, Supplementary to the Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation, done at Montréal on 23/9/71, Montréal, 24/2/88

21. Convention on the Marking of Plastic Explosives for the Purpose of Detection, Montréal, 1/3/91

22. Convention on International Interests in Mobile Equipment, Cape Town, 16/11/01

23. Protocol to the Convention on International Interests in Mobile Equipment on Matters specific to Aircraft Equipment, Cape Town, 16/11/01

24. Convention on the Privileges and Immunities of the Specialized Agencies, 21/11/47

– application to ICAO (Annex III), 21/6/48

INTERNATIONAL AIR LAW INSTRUTMENTS THAT FIJI IS YET TO RATIFY

1. International Air Transport Agreement Chicago, 7/12/44

2. Protocol on the Authentic Quadrilingual Text of the Convention on International Civil Aviation Montréal, 30/9/77

3. Protocol on the Authentic Quinquelingual Text of the Convention on International Civil Aviation Montréal, 29/9/95

4. Protocol on the Authentic Six-Language Text of the Convention on International Civil Aviation Montréal, 1/10/98

5. Article 48(a) Rome, 15/9/62

6. Article 50(a) New York, 12/3/71

7. Article 56, Vienna, 7/7/71, Montréal, 16/10/74

8. Protocol of Amendment (Final paragraph, Russian Text) Montréal, 30/9/77

9. Article 50 (a) Montréal, 26/10/90

10. Protocol of Amendment (Final paragraph, Arabic Text) Montréal, 29/9/95

11. Protocol of Amendment (Final paragraph, Chinese Text), Montréal, 1/10/98

12. Protocol to Amend the Rome Convention of 1952 Montréal, 23/9/78

13. Article 50(a) Montréal, 6/10/16

14. Article 56 Montréal, 6/10/16

15. Convention on the International Recognition of Rights in Aircraft Geneva, 19/6/48

16. Convention on Damage Caused by Foreign Aircraft to Third Parties on the Surface Rome, 7/10/52

17. Protocol to Amend the Warsaw Convention of 1929 as Amended by The Hague Protocol of 1955 Guatemala City, 8/3/71

18. Additional Protocol No. 1 Montréal, 25/9/75

19. Additional Protocol No. 2, Montréal, 25/9/75

20. Additional Protocol No. 3, Montréal, 25/9/75

21. Montreal Protocol No. 4, Montréal, 25/9/75

22. Protocol to Amend the Convention on Offences and Certain Other Acts Committed on Board Aircraft Montréal, 4/4/14

23. Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation, Beijing, 10/9/10

24. Protocol Supplementary to the Convention for the Suppression of Unlawful Seizure of Aircraft (Beijing, 10/9/10);

25. Convention on Compensation for Damage to Third Parties, Resulting from Acts of Unlawful Interference Involving Aircraft Montreal, 2/5/09

INTERNATIONAL AIR LAW INSTRUTMENTS THAT FIJI IS WORKING ON TO RATIFY

ICAO is calling on member States to ratify the following Conventions:

I. **Protocol to Amend the Convention on Offences and Certain other Acts Committed on Board Aircraft** (Montreal, 4/4/14);

II. **Convention on the Suppression of Unlawful Acts Relating International Civil Aviation** (Beijing, 10/09/10);

III. **Protocol Supplementary to the Convention for the Suppression of Unlawful Seizure of Aircraft** (Beijing, 10/9/10);

IV. **Convention for the Unification of Certain Rules for International Carriage by Air** Article 50 (a); and

V. **Convention for the Unification of Certain Rules for International Carriage by Air** Article 56 Montreal, 6/10/16.

CAAF is working closely with the Ministry of Civil Aviation to facilitate the ratification of the conventions■

Source: https://www4.icao.int/icao75/History/ICAOAndChicagoConvention

How does Work Culture Prepare you for the future?

According to ICAO, global passenger traffic continues to increase in 2023 with around 4.2 billion passengers transported worldwide, up from 3.2 billion passengers in 2022. Although still slightly below pre-pandemic levels with 5.4 billion passengers having being transported worldwide, passenger traffic in 2023 increased 30 percent from 2022. As indicated in the chart.

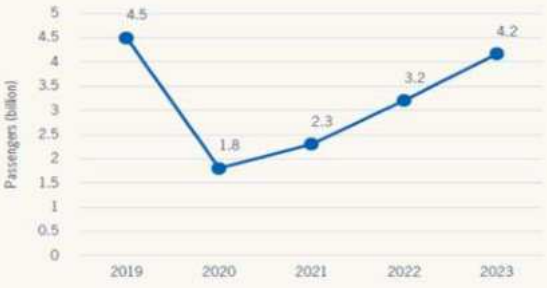

Chart 1. | Global traffic of passengers (billion)

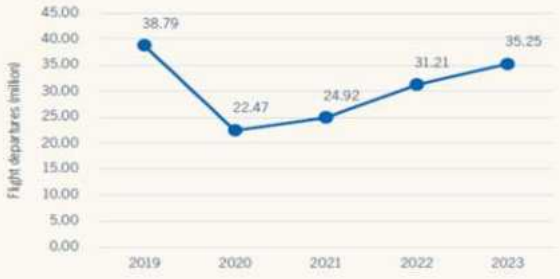

Chart 2. | Global traffic of flight departures (million)

The number of flight departures for scheduled commercial operation continue to increase by approximately 13 per cent with over 35 million departures in 2023 to around 31 in 2022.

If circumstances remain the same it is likely that the industry growth will remain at the same rate of around 30% in passenger traffic and 13% in flight departures. How are you and your organizations preparing for this steady growth in terms of safety?

It is always important to be aware of the interaction between critical factors that make up safe operations. These critical factors revolve around the core competence of individual people who perform specific tasks that build into procedures and processes, ensuring a robust aviation safety and security system. We, the individual workers, create the link that holds operations together. Therefore, it is equally important that we live in a working culture that complements our development into professionalism.

Professionalism: The standards, practices, or motivations associated with a profession.

Individuals need to develop discipline and competence to perform under any conditions to ensure that they achieve the desired results in the specific tasks they perform. A new working culture needs to be developed.

Individuals interact with others in their operations. The question is, are they capable of communicating? Are they assertive enough? Do they have the emotional intelligence to relate with each other in their work setting?

Individuals interact with the machines that they work on. Are they competent to work these machines safely, whether in the air or on the ground? In addition, are the individuals resting well to allow for peak performance?

Are the individuals informed of the impact of their environment on their operation? This includes weather conditions, political and geopolitical conditions, and financial conditions, to name a few. This awareness is essential for risk profiling and hazard identification for future strategies and planning.

Individuals need clear operating procedures not only to properly operate in fulfilling their tasks but also to maintain consistency in doing so.

The makeup and mindset of the individual are therefore crucial in operations, developing them to be resilient individuals. A working culture that fosters this development assures professionalism in an individual.

If the expected growth in aviation activities, as stated in the graphs above, is what it is, then the growth in human development as professionals should be in proportion. If the growth of aviation activities does not match the development of professionalism, there will be developments of unsafe conditions, which is very risky.

The profound question is this: Does your organization operate in a professional culture or manner? Is it developing individuals to have a mindset of a professional, or is it satisfied with the status quo?

To conclude, there is a serious need for the aviation industry to develop and step up its professionalism in every way to match the forecasted growth stated above■

OZEMPIC

The Miracle Weight Loss Drug

Introduction

Ozempic is the latest craze to hit the world as millions feted its amazing weight loss effects. Users have claimed weight loss of over 20% of their body weight within months of use. Many celebrities in Hollywood are on it including Elon Musk and Oprah Winfrey as rumors have it.

It is so popular that supplies have run out in many pharmacies in America. And its weight lowering effect so dramatic that some fear it will affect the sales and market shares of many products that cater to an obese population. From processed foods in supermarkets to Fast foods Outlets as people on this drug don't eat as much to statins and diabetes medications as millions will no longer need these drugs as obesity plunges.

At this early stage this drug is incompatible for use by Pilots and Air Traffic Controllers due to its side effects.

Any Aviator willing to use this drug will have to be grounded the entire time this drug is in use and monitored closely by their doctor for side effects. The manufacturer has recommended life time use as stopping the drug will result in regaining the weight lost and more.

What is Ozempic?

Ozempic belongs to a class of drugs called Glucagon Like Peptide -1 Agonists (GLP1 agonists). This group of drugs has been around for over 20 years primarily used for the treatment of Diabetes Mellitus Type 2.

The function of GLP-1 agonists is to lower serum glucose levels and thereby manage metabolic disease in affected patients.

Examples of drugs in this class include, Exenatide, Liraglutide, Dulaglutide and Semaglutide (Ozempic).

As per the 2023 American Diabetes Association (ADA) guidelines, GLP-1 agonists are recommended for mitigating Cardiovascular Risk. These agents not only lower the chances of cardiovascular events but also decrease the progression of Chronic Kidney Disease.

GLP-1 agonists are recommended in patients with prior Heart Attack and Stroke.

Weight loss was an incidental effect of GLP-1 agonists which resulted in the mass off-label use of this drug by Non – Diabetics as a weight loss drug.

The American Pediatrics Association (AMA) have now recommended Ozempic in obese children above 12 years old.

Mechanism of Action

GLP -1 is a peptide hormone secreted in cells lining the small intestine in response to eating. GLP -1 with other hormones like GIP (Glucose Dependent Insulinotropic Polypeptide) increases Insulin production and secretion by the Pancreas.

GLP -1 also slows gastric emptying promoting a feeling of fullness potentially slowing down eating.

GLP-1 also acts in the satiety centre in the Brain which brings about early satiety and stopping eating.

GLP-1 agonist drugs stimulate and enhance the GLP-1 receptors thus increasing the effect of GLP-1 hormone.

GLP-1 agonists enhance the effect of GLP-1. These drugs are metabolized in the liver and kidneys to inactive components and finally excreted by the kidneys.

Other Effects of GLP-1 Agonists

- Lowers systolic and diastolic blood pressure
- Lowers total cholesterol
- Improves left ventricular ejection fraction, myocardial contractility, coronary blood flow, cardiac output, endothelial function while reducing infarction size and overall risks of cardiovascular event.
- Increases glucose uptake in muscles, decrease glucose production in the liver and neuroprotection.
- Lowers all -cause -mortality.

Adverse Effects of GLP-1 Agonists

The most frequent adverse effects include nausea, vomiting and diarrhea.

Constipation, dizziness, tachycardia, dyspepsia and headaches can occur. Increasing the dose of these medications should be done slowly if nausea is present.

Hypoglycemia can occur but rare.
There are some reports of suicidal feelings and depression.

Boxed Warning

A boxed warning on any drug is a side effect that Food Drug Administration (FDA) deems important enough for patients and prescribers to be aware of.

In the trials this drug was seen to produce Thyroid tumors in Rats though the effect on humans is unclear.

Anyone with a history of thyroid cancer or family history should avoid taking the drug.

Acute hemorrhagic pancreatitis has been noted in users of GLP1 agonists.

Gastroparesis or Paralysis of the Stomach

This is a debated adverse effect. Patients have claimed their stomach have completely stopped all peristaltic activity making eating impossible and it persists even after stopping the drug.

Ozempic Face

This is a reported side effect that results in the face becoming thin and gaunt.

The weight loss from Ozempic could be so dramatic that muscle loss or atrophy results. It is reported that about 40% of the weight loss that results are due to muscle loss. Muscle integrity and health is important for metabolism of glucose and longevity.

How is Ozempic Supplied

Ozempic comes in the form of a prefilled pen like syringe with specified doses from 0.25mg and 0.5mg.
This is injected subcutaneously on a weekly basis.

Cost

Ozempic is expensive because it is currently patented since it was approved in 2017.

Budget Pharmacy sells it for $360 -00 per pen.

My Overall Assessment

A few people in our Aviation Community have enquired about Ozempic and no doubt many are struggling with Obesity and its health and regulatory problems. As I have said it is incompatible in Pilots and Controllers while on duty and one will have to take a long term leave if one intends to use this drug.

Its use in weight loss is new, over 2- 3 years now so there is a lot of unknowns at this stage of its adverse effects and long-term effects.

However, millions of people worldwide are on this drug and they are managing well with amazing life changing weight loss.

I consider this Drug a tool in weight management which has to go hand in hand with lifestyle changes and dietary considerations. The manufacturer has advised life - long use otherwise weight lost will be regained and more, however I feel that people could use this drug as a stepping stone to get to their goals fast, and then stop and continue with their lifestyle changes■

Author: Dr Isireli Biumaitotoya

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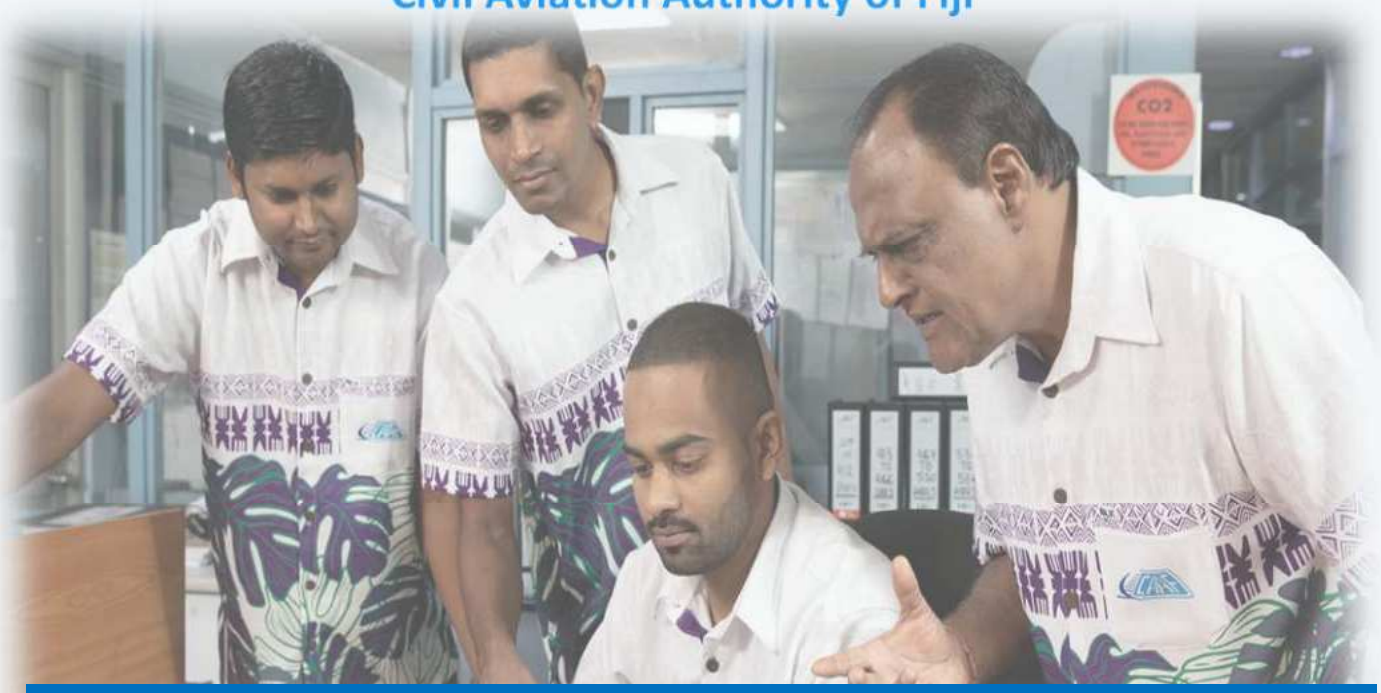
Civil Aviation Authority of Fiji



Security Tips to Prevent your Debit Card from Data Breach

More info @ www.caaf.org.fj