

AVIATION SAFETY BULLETIN



ISO 9001:2015 CERTIFIED

ISSUE 3 | 2019

An official publication of the Civil Aviation Authority of Fiji

737 MAX

REMAINS GROUNDED

LOOSE OBJECTS

RISKS WITH BATTERIES

RNP AR APCH

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



RNP AR APCH



LOOSE OBJECTS



737 MAX REMAINS GROUNDED



BUILDING A JUST CULTURE

Cover Photo : Nausori Aerodrome

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AVIATION SAFETY BULLETIN

PUBLISHED BY THE :

Aviation Safety Bulletin (ASB) Committee
 Civil Aviation Authority of Fiji (CAAF)
 Private Mail Bag, NAP 0354,
 Nadi International Airport, Fiji.
 Tel: (679) 8923 155 | Fax: (679) 6721 500
 Email: info@caaf.org.fj

Editor - Roshni Deo

Committee - Alisi Namora, Asif Khan and Waisale Sigawale

Design : ASB Committee

PUBLICATION CONTENT Unless expressly stated as CAAF policy, the views expressed in *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 *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 Editor, CAA Fiji, Private Mail Bag
 NAP 0354, Nadi International Airport, Fiji or
 email: info@caaf.org.fj.

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From the Acting
Chief Executive

Welcome to the third edition of the CAAF Aviation Safety Bulletin (ASB).

We have just crossed the try line of the third quarter of the year and time to take stock of where we are before the final push in the last quarter of the year.

I noted in the previous quarter the approaching ICAO ICVM and am pleased to advise that the Validation Mission was successful with the Authority coming out with flying colours with the results.

The overall EI result for Fiji prior to the ICVM was **63.95%** which was below the world average of **65.4%**. Subsequent to the ICVM, the overall preliminary EI for Fiji rose to **78.31%** which is third in the Pacific Region behind Australia and New Zealand and 11th out of 39 States in the APAC Region. This result will undergo a final validation process before being confirmed.

In this regard, I wish to thank all staff who were in the forefront of the audit and also those who tirelessly played a supporting role.

I must also thank the Fiji aviation industry and operators/service providers who were visited by the ICAO validation team for their professionalism and support towards meeting the audit requirements in a very timely manner who can also proudly claim to be contributors to the successful outcome and upholding a high level of aviation safety.

As we progress together, Fiji will need to strategize and ensure that the deficiencies that were identified by the ICAO Mission are addressed. The Aviation Industry in Fiji are encouraged to raise the standard of operations in our different organisations, which will assist in setting the platform for a better aviation culture in Fiji and in the Pacific region.

Till next time, keep the skies safe.

AJAI KUMAR,
ACTING CHIEF EXECUTIVE

1 in every **3**
Fijians is being
diagnosed with
diabetes, that
is **30%** of
Fiji's
population.

Read article on page 17...

SAFETY FIRST!



“Aviation in itself is not inherently dangerous. But to an even greater degree than the sea, it is terribly unforgiving of any carelessness, incapacity or neglect.”

– Captain A.G. Lamplugh
1930

RNP AR APCH

Development of ICAO Guidance for RNP AR APCH Procedures:

- Developed based on operational experience in implementing unique approach procedures in multiple States, i.e. United States (Alaska Airlines), Canada (West Jet), New Zealand, Australia (Qantas);
- Developed to take advantage of navigation capabilities in existing RNP-certified aircraft;
- “AR” = “Authorisation Required” – Similar to how CAT III Instrument Landing System (ILS) is approved by Civil Aviation Authorities (CAA);
- RNP AR APCH capabilities are available in a limited number of current aircraft and for which current operators have limited experience;
- Specific authorisation ensures adequate CAA oversight of aircraft and operator to safely conduct these procedure.

Applications:

- RNP AR APCH can be used to increase safety and access where conventional approach cannot be aligned to runway.
- RNP AR APCH can be used to improve safety and increase access in mountainous terrain.
- RNP AR APCH can be used to increase access in congested airspace.

A Successful RNP Implementation Requires All the following Elements To Be Put In Place:



Continued from previous page...

KEY ELEMENTS OF OPERATIONAL APPROVAL: RNP AR APCH



RNP AR APCH Training

- RNAV training and experience → may provide a solid foundation for RNP approach operations.
 - Unique attributes of RNP approach operations require training.
- Understand operations procedures and best practices.
 - Critical to safe operations during RNP AR APCH
- Individuals must complete appropriate ground &/or flight Training before engaging in RNP approach operations.

May require expanded aircraft systems training;

 - Operators may address topics separately, or
 - Integrate RNP approach training with other training curriculum.

ANSP Considerations

- RNP AR APCH procedures are based on GNSS
 - Ensure no local interference.
- Ensure procedure design is in accordance with Criteria.
 - Any characteristics outside scope of the procedure design criteria can have significant impact on the aircraft qualification and
 - operational procedures.

Summary

- RNP AR APCH operations based on diverse experience with modern aircraft.
- Typical applications include airports in mountainous area or with airspace constraints.
 - Varying accuracy value, curved paths and RNP.
 - More flexible than RNP APCH, fewer capable aircraft depending on RNP AR characteristics used on the procedure.
- Important to coordinate among operator, ANSP, regulator and aircraft manufacturer when implementing.
 - Initial approvals can be complex, take advantage of previous approvals in same Aircraft.

RNP-AR NADI RWY 20

Fiji Airports is implementing an RNP-AR (Authorisation Required) Approach and associated STARs for RWY 20 at Nadi International Airport in harmony with the Fiji National Air Navigation Plan and the ICAO Resolution A37/11 on PBN initiatives.

AIRCRAFT CATEGORY

The RNP-AR RWY 20 Approach is being designed for CAT B, C and D aircraft.

AIRSPACE

Controlled Airspace containment will be provided for RNP-AR approaches and associated STARs.

TARGET IMPLEMENTATION DATE

Proposed effective date on 10 OCT 2019.

OPERATOR APPROVALS

CAAF Standards Document – Performance Based Navigation details the requirements for operators to obtain their operations approval for RNP-AR Fiji. This can be accessed online on the CAAF website: <https://www.caaf.org.fj> ■

Picture Source: digitalpilotschool.com

737 MAX REMAINS GROUNDED

“...I’m not going to sign off on the aircraft until I would fly it myself.”

Steve Dickson, FAA Administrator



Steve Dickson

According to the latest reports, the Boeing 737 MAX could remain grounded for the remainder of the year. The Boeing 737 MAX was grounded five months ago following two fatal accidents.

Up until this time, while Boeing has been working on a fix to the issues that grounded the aircraft, some other issues have emerged which Boeing is also required to fix.

The fix to these issues include a robust process of cross-checks between the two flight control computers [where the MCAS is located] whenever the system makes adjustments to the horizontal stabiliser position.

This crosscheck, reviews a number of system inputs and improves failure-conditions, associated with the stabiliser trim system operation. The intent of these more robust improvements is to reduce both the likelihood of system failures and the reliance on pilot actions for un-commanded horizontal stabiliser movement.

These changes affect various aspects of the certification effort and require Boeing to update documentation, including the system safety assessment. There is still more work to be done. Near-term area of focus are finalising the safety assessments and evaluating the design changes impact to crew workload and training requirements.

It is fair to say that once the Boeing 737 MAX returns to the skies, it will be one of the most closely scrutinised aircraft in service.

2020 re-entry to service ?

According to FAA sources the latest scenario suggests it won't be flying again until 2020. The final software package with which Boeing is introducing is yet to be submitted to regulators, according to a Boeing representative. However, safety is Boeing's top priority in returning the aircraft to service, and this is key.

Boeing cannot afford to rush the fix, if it means the aircraft is not safe. Boeing has also confirmed all along that the regulatory authorities determine the process for certifying the MAX software and training updates and the timing for lifting the grounding order.

Chaz Bickers, a spokesman for Boeing said the following;

“We will work to meet the administrator’s requests and we continue to support global regulators as we work to safely return the aircraft to service.”

In addition, the Newly-appointed FAA Administrator, Steve Dickson mentioned the following during an interview with NBC News:

“I’m the final signoff authority in the U.S., and I’m not going to sign off on the aircraft until I would fly it myself.”

He also added;

“I can guarantee you, that the airplane will not be flying again until I’m satisfied that it’s the safest thing out there.”

However, it makes sense for Boeing to be cautious with indicating any sort of timescale. Should a timeframe be published and then missed, this could reflect badly on both the plane and the manufacturer. ■

There is still more work to be done.

R-E-S-P-E-C-T

Speaking of respect... Lets use this word as a mnemonic to help you remember just a few of the things you can do to enhance your weather wisdom and ensure a safe flying season:

R

Review

Review your own currency and proficiency and remember that they aren't necessarily the same. Make an honest assessment of your experience and comfort level for flying in marginal weather.

E

Educate

Education on weather never stops. Learn as much as you can about weather. How do you get weather information? What can you learn about weather? Have you reviewed weather minimums?

S

Share

Share what you know: make PIREPs to let other pilots know about the weather conditions you encounter, both good and bad. Your fellow pilots will appreciate knowing not only the areas to avoid, but also the "GA-friendly" altitudes and locations.

P

Plan

Plan for the worst. Have a plan — including an escape or diversion plan — for every flight that involves possible encounters with adverse weather. Planning also includes using the tips in this issue to develop or update your personal minimums.

E

Exercise

Exercise your skills on a regular basis, and remember that proper practice makes perfect. Take a safety pilot, or periodically hire a qualified instructor to make sure your skills stay sharp.

C

Communicate

Communicate your experience and best practices and encourage other pilots to do the same. Talk to fellow pilots, family, and friends about weather decision-making wherever you are; on the ramp or even at the airport restaurant.

T

Train

Training is always a good idea. In fact, a good pilot never stops learning and training, especially when it comes to aviation weather. While we're on the subject of training, is this the year to go after that new certificate, rating, or endorsement? ■

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 by faxing it to the Executive Office on 672 1500, or dropping it in the feedback box in the foyer of CAAF HQ, or emailing to :

info@caaf.org.fj

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OR FRONT DESK, CAAF HQ.

Building A Just Culture



This article explores the process of “how to build a Just Culture”. It is about building trust, about dealing with inevitable mishaps, and about developing the capability in an organisation to look at an incident from multiple perspectives before coming to a judgment.

The main purpose of reporting is risk control and accident and incident prevention, not the attribution of blame. This is achieved by encouraging people that reporting is free of any form of reprisal. Therefore, in order to receive as many reports as possible, organisations must foster a culture in which staff feel secure that the organisation will treat them justly and fairly when they do report. This fairness must extend to circumstances where staff may feel concern that their report could implicate themselves because of their actions.

What is a Just Culture Policy?

It is a statement, outlining the Just Culture, and should cover the following matters:

“We are committed to operate according to the highest safety standards.

To achieve this goal, it is imperative to have uninhibited reporting of all accidents, incidents, events, hazards, risks and other information that may compromise the safe conduct of our operations. To this end, every staff member is warmly encouraged to, and responsible for, reporting any safety-related information.

Reporting is free of any form of reprisal. The main purpose of reporting is risk control and accident and incident prevention, not the attribution of blame. No action will be taken against any staff member who discloses a safety concern through the reporting system, unless such disclosure reveals, beyond any reasonable doubt, an illegal act, gross negligence, or a deliberate or wilful disregard of regulations or procedures.

The method for collecting, recording and disseminating safety information guarantees the protection to the extent permissible by law, of the identity of those who report safety information.”

Engaged Air safety Culture

An Engaged Safety Culture is a term used by NASA to stress the active and inclusive nature of the desired culture with its definition as follows:

“An Engaged Air Safety Culture is that set of enduring values and attitudes, regarding Air Safety issues, shared by every member, at every level, of an organisation. It refers to the extent to which each individual and each group of the organisation:

- ◆ seeks to be aware of the risks induced by its activities;
- ◆ is continually behaving so as to preserve and enhance safety;
- ◆ is willing and able to adapt when facing safety issues;
- ◆ is willing to communicate safety issues; and
- ◆ continually evaluates safety related behaviour.”

The Engaged Safety Culture, if carried out correctly, should be made up of the following components:

Reporting Culture

Managers and operational personnel freely share critical safety information without the threat of punitive action.

Open and honest reporting of safety concerns by all members of an organisation is essential to understanding and managing the potential causes of future accidents. All staff should have the ability to file safety reports anonymously thus allowing every staff member the opportunity to file openly without fear of reprisals. The SMS should also give the staff member filing the report the ability to monitor their safety case during the stages of Investigation providing them with up-to-date feedback on their case which they are encouraged to challenge if they deem appropriate.

Learning Culture

An organisation must possess the willingness and the competence to draw the right conclusions from its safety information system and the will to implement major reforms.

Learning followed by communication is a central part of a safety culture. If lessons identified within one sphere are not effectively communicated across all areas, there is potential for undesired outcomes to be repeated. Proper investigation of occurrences and management of resultant recommendations is key to an effective learning culture.

Continued from previous page...

Questioning Culture

A Questioning Culture is the keystone of a Safety Culture. People and organisations need to be encouraged to ask questions such as “Why?”, “What if?” and “Can you show me?” as opposed to making and accepting assumptions. During initial SMS training, staff should be reminded that safety reporting is not about blame and not always because an individual has made an error. The reporting scheme is in place to challenge non-effective procedures or processes and prevent any similar occurrences in the future.

Flexible Culture

The complex and diverse nature of aviation dictates that the response to safety concerns be flexible. Rigid adherence to inadequate policies will not enable satisfactory resolutions to problems. Policy and procedures will need to evolve constantly to ensure that safety is maintained at the highest level. Staff should be encouraged to report non-effective or inadequate procedures and suggest where areas of improvement may lie. Changes in management, location or the scope of the business are assessed through the SMS to highlight how any significant changes effect the level of risk.

Leadership Commitment

It is widely accepted that leadership commitment is vital if a successful Safety Culture is to develop within an organisation; it is unrealistic to expect the desired culture to flourish if the leadership are not committed to it. When it becomes apparent that an error was made, the organisation will neither assume nor seek personal fault or guilt. There is a strong belief that punishment is counterproductive to safety. The error that leads to an investigation is not closed by condemning or finding the guilty one, but by discovering the underlying problems in the system, by rectifying this and by repairing the damages done. Company staff should be reminded and encouraged by management of the need to report safety issues. The Accountable Manager, who endorses the Safety Policy, who chairs the Safety Review Board

meetings actively reviews the current hazards within the company, and their associated level of risk before accepting the risk as; As Low As Reasonably Possible (ALARP), and therefore, Tolerable.

Open Communication

Clear and unguarded communication of safety related information, throughout all levels of the organisation, is required if the intelligence contained within such information is going to be exploited to the full. All levels of the workforce should be encouraged to report an issue in person to the Safety Officer. In turn any pertinent information from any occurrences will be disseminated to all staff via Safety Newsletters. There should be constant discussion with the staff what the right professional behaviour is for their jobs and where the boundaries of tolerated and non-tolerated acts are. The organisation leaders and staff agree about what the consequences are if these norms are crossed.

Effective Decision Making

Air Safety needs to be fully embedded within all aspects of an organisation’s decision making processes to ensure that the safety impact of any decisions is considered and understood. By assessing any significant organisational changes or plans through the SMS safety is always a primary concern when decision making at high level. This ethos is encouraged and embodied throughout the whole company by training staff to always make safety a priority when making decisions within their own role or department. Safety should never be compromised for commercial reasons.

Just Culture Procedure

In most cases, occurrence and hazard reports will be reviewed and actioned on the basis that there is no blame but that does not mean that ‘anything goes’. Only where these reports reveal, beyond any reasonable doubt, an illegal act, gross negligence, or a deliberate or wilful disregard of regulations or procedures, will the Just Culture procedure detailed in Figure 1 be invoked.

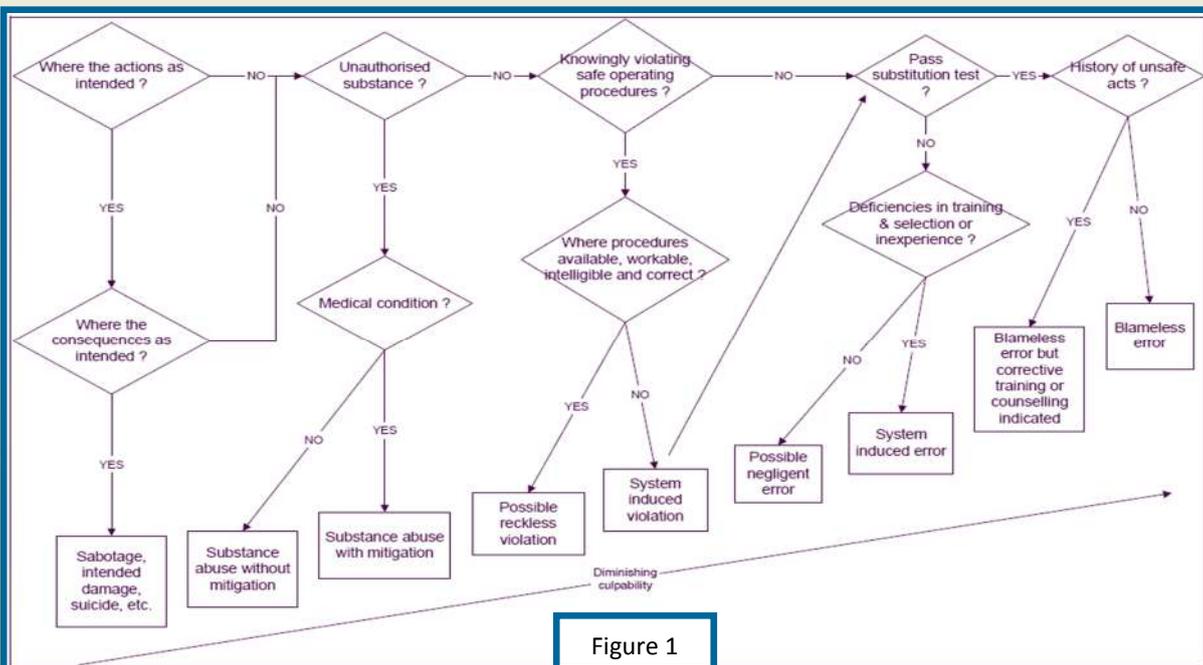


Figure 1

Just Culture Balance

The secret to having an effective Just Culture is, balance, the right balance between being fair, non-judgemental, and leading by example. All of which, are not easy! ■

Weather Decision Making and Personal Minimums

GOAL:

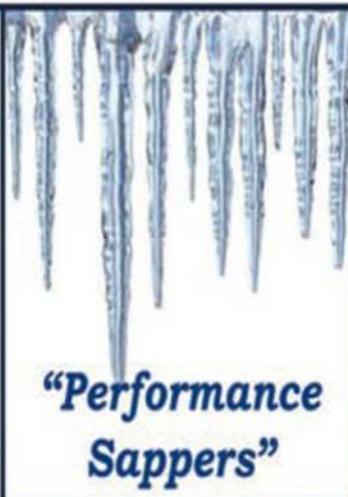
Analyze capabilities of the pilot/plane "team" in terms of expected weather conditions.



Wind & Turbulence



Ceiling & Visibility



"Performance Sappers"

Pilot

How much crosswind can I safely handle?
 What is the strongest crosswind I've experienced?
 How recent is my crosswind experience?

Instrument rated?
 Legally current?
 Proficient?
 What are the lowest conditions I've comfortably handled?
 What pressures do I face?

Have I calculated the required performance for these conditions?
 Am I proficient in the techniques and procedures needed to get the required level of performance from the airplane?

Plane

What is the maximum demonstrated crosswind component for this aircraft?
 For turbulence, what is the design maneuvering speed (V_A), and what power setting will achieve it?

Is the aircraft legally equipped for IFR flight?
 Do all required instruments work properly?
 Is there any unfamiliar equipment?

Do the performance calculations show that the aircraft can perform as needed for these conditions?
 Can it still perform when I add a safety margin?



DRONE PERMIT APPLICATION PROCESS



Formal Application

For Recreational use, fill out OP 137.
For Commercial use, fill out OP 138.



Application Evaluation

CAAF evaluates submitted application.



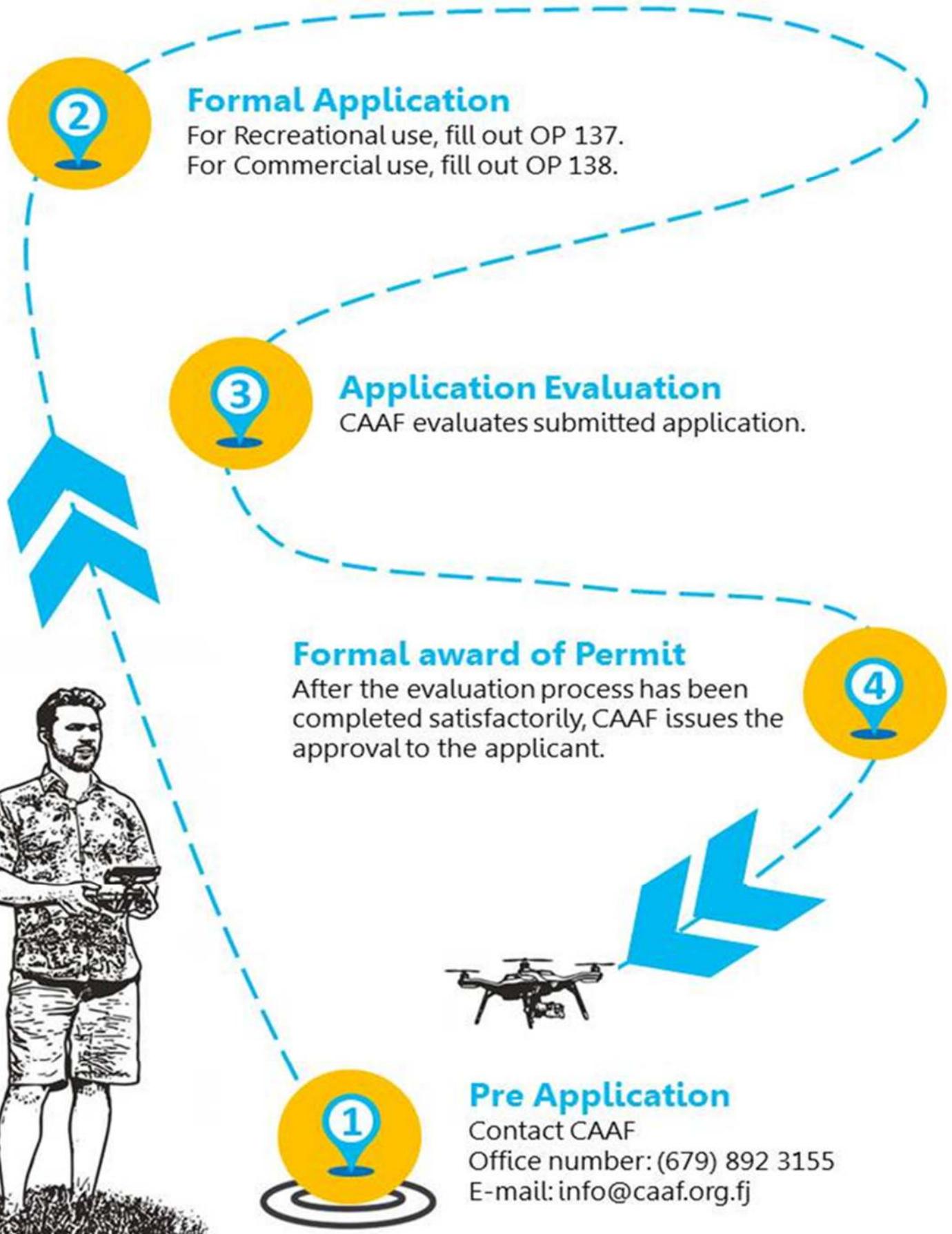
Formal award of Permit

After the evaluation process has been completed satisfactorily, CAAF issues the approval to the applicant.



Pre Application

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



LOOSE OBJECTS

Unsecured items in and around helicopters can be deadly and significant safety hazard.

One operator remembers the day a \$10 tarpaulin was picked up by the downwash of a Hughes 369 and hurled through the main rotor disc – causing over \$350,000 worth of damage. The transmission, rotor head, drive shaft, engine, blade, and other components all needed overhauling or replacing. Additional to this were the significant insurance costs – not just the excess but the future premium increases, and the loss of revenue while the helicopter was on the ground.

Inside

A more recent incident has highlighted the need to secure items inside the helicopter properly. A box sitting on the front seat of an R22, secured only with the inertial reel harness, slipped sideways off the seat and jammed the cyclic, giving the pilot a nasty surprise, and causing a loss of control on landing.

Frank Robinson (founder of the Robinson Helicopter Company) tells the story of a friend who put a tress stump on the seat on the seat of an R22 and secured it with the inertial reel harness. The stump fell forward, jamming the cyclic forward. The pilot could not get it back on to the seat and crashed through the roof of a shop – tragically killing himself but fortunately nobody else.

Many a situation has occurred where an unsecured item has worked its way out of an open door. Far too often, the item passes through the tail rotor on its way to being lost.

Keeping a cabin tidy is just as important. Anything that can work its way into an open crevice probably will.

Rob Mills, Flight Operations Inspector Rotary Wing recalls, "I once had to ditch a Jet Ranger, and when it came to exiting the helicopter, the stuff that had been lying around the cabin – like spare headsets, maps, and tie-downs – was caught up around my feet. It made me think quite carefully about cabin tidiness." Camera lens caps, pens, spent ammunition cartridges and loose seat belt buckles are particularly bad offenders.

Continued to next page...





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Outside

Making sure loose items in landing areas are secured is equally important. Even objects that seem weighty, like helicopter doors, can be sucked up through the rotor blades. Even something that seems innocuous, like a plastic bag, can cause significant vibration and damage to the blades.

Briefings

There is something about the noise, the smell, and the 'Invisible' rotor disc that disconnects a person's brain when there are around helicopters.

A thorough briefing for everybody in and around a helicopter is essential, even if they think they know what they are doing—it's often the experienced person who tends to do the most dangerous things.

In your briefing, cover all the things you want them to do, all the things you don't want them to do, and then watch them like a hawk—always expecting the worst. And tell them to resist the urge to put their heads down and run, like they've seen in the movies! They must see where they are going at all times. ■

[Article uplifted from Vector Autumn 2019]



QUALITY CONTROL CORNERSTONE FOR AVIATION

Having an efficient quality control system in aviation is critical to a robust and forward looking industry. The conduct of regular inspections, tests and annual audits help individual operators in Fiji identify vulnerabilities and put in place practical measures to mitigate the risks to their operations and air travel, while enhancing safety and security.

Risk based assessments help each operator 'zero in' on the areas of vulnerability and provides a snapshot of the health of the organization. Quality control is often likened to a health check where the doctor examines the patient to determine the status of the patient's health or the cause of the patient's sickness. Similarly, through the use of inspections, tests and annual audits, each operator is able to determine the health of their organization.

“Efficient quality control requires honest evaluation, management commitment and support.”

In Fiji, aviation security operators are required to conduct monthly inspections or tests, including annual audits of their processes to enhance the implementation of security standards. This self-examination, if done honestly, provides valuable information for growth and improvement. However, not all operators see the value in conducting regular inspections, let alone, tests and audits. The Authority is working in partnership with the aviation industry to enhance quality control.

Efficient quality control requires honest evaluation, management commitment and support. Persons conducting quality control activities have to be properly trained and preferably, independent of operations. They must have a direct reporting line to the head of the organization or else their quality control reports may be watered down, altered or never see the light of day.

In aviation, the conduct of good quality control activities mitigates risks, creates a robust operating environment and promotes confidence in air travel. Quality control is an enabler for investment and economic growth and must continue to be an important component of the safety and security equation. ■

EARLY CONFLICT RESOLUTION METHOD COULD REDUCE CONTROLLER WORKLOAD

Real-time simulation by EUROCONTROL and partners demonstrates how controller workload can be reduced by adapting the work method for early conflict resolution. The simulation has also shown how the adapted method can be seamlessly integrated into existing operations, as well as accepted by air traffic controllers (ATCOs).

The adapted working method for ATCOs is based on **Medium-Term Conflict Detection (MTCD)** and data link communications. It is a part of the SESAR 2020 PJ10 solution entitled “**Increased Performance in the Provision of Separation**” aiming to improve the air traffic controller’s conflict detection and resolution tools, principally by increasing the accuracy of the **4D Trajectory Prediction (TP)**.

EUROCONTROL and partners had previously conducted a modelling study to determine whether improved TP would contribute to reducing controller workload. The study revealed that an important potential benefit of the improved TP is in reducing the number of low-probability conflicts, allowing the controllers to reduce the size of their notional “uncertainty buffers”, and thus reducing the number of potential conflicts to be analysed and monitored.

The study also revealed that enhanced TP could lead to earlier resolution of potential high-probability conflicts. This would be possible by adapting the controller team working method, whereby the planner controller would resolve conflicts, where appropriate, using route clearances sent to the aircraft via Controller-Pilot Datalink (CPDLC), either directly by the planner, or through coordination with the upstream controller. If this resolution action is taken before a possible conflict enters the executive controller’s “tactical horizon”, it will relieve the executive controller of the workload associated with analysing the conflict.

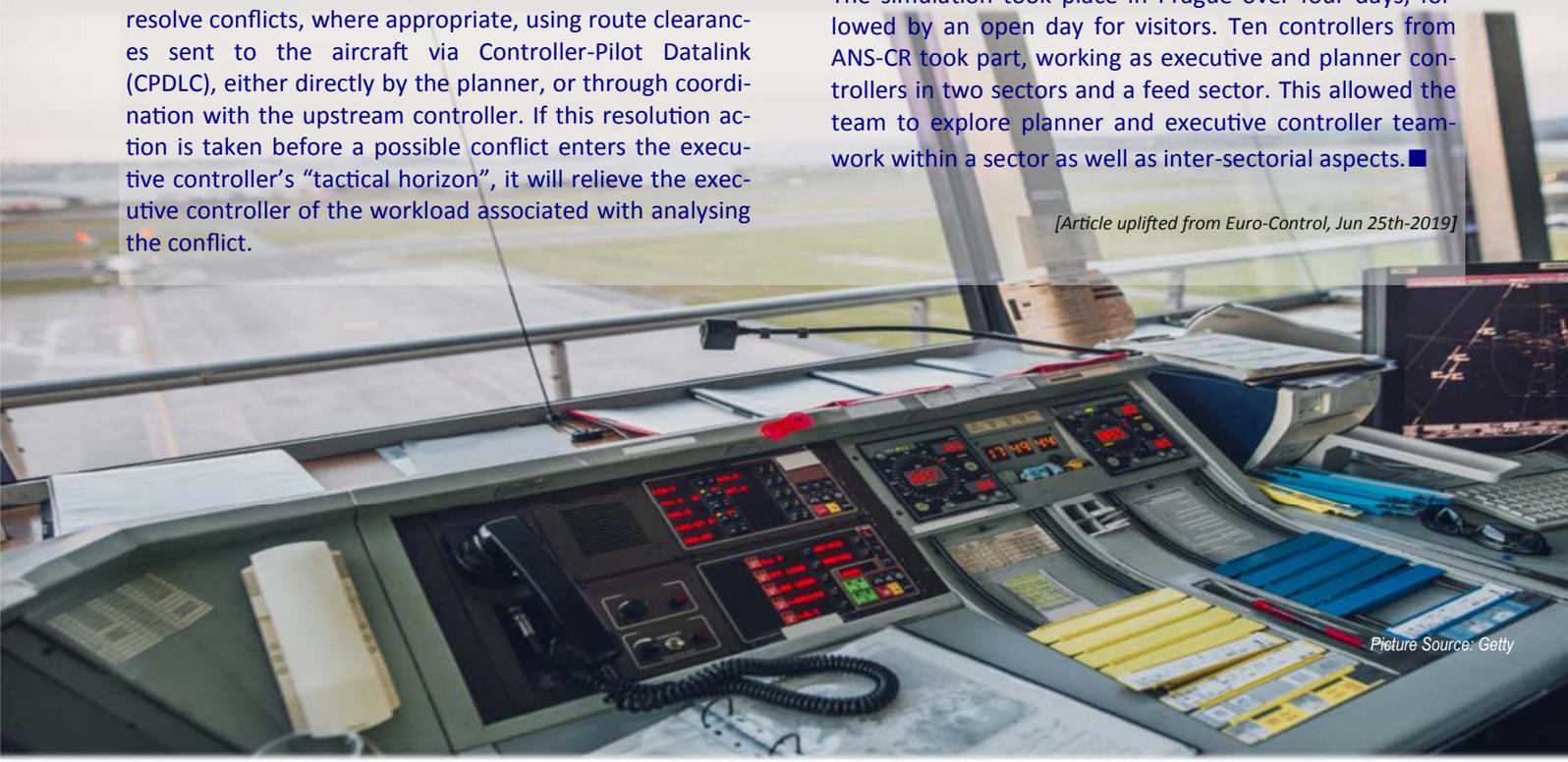
The route clearance takes the form of “CLEARED TO <abc> VIA <xyz>”, where <xyz> is a geographical point that is inserted in the aircraft’s route, and <abc> is a point where the aircraft will re-join its original route. The benefits of such a clearance over an assigned heading are many:

- *The controller does not have to issue a further instruction for the aircraft to resume own navigation*
- *When used for separation, the separation achieved is far less dependent on when the aircraft starts the manoeuvre*
- *The ground track of the aircraft is not influenced by changing wind.*
- *Predictability is improved for both the controllers and aircrew.*

EUROCONTROL performed the real-time simulation to validate the study findings in partnership with the Air Navigation Services of the Czech Republic (ANS-CR) and Thales. The goal was to address the acceptability of the adapted working method by the controllers, as well as to assess issues such as the teamwork of the planner and executive controllers, their shared situational awareness, and additional system requirements to assist the controller in deciding the resolution clearances.

The simulation took place in Prague over four days, followed by an open day for visitors. Ten controllers from ANS-CR took part, working as executive and planner controllers in two sectors and a feed sector. This allowed the team to explore planner and executive controller teamwork within a sector as well as inter-sectorial aspects. ■

[Article uplifted from Euro-Control, Jun 25th-2019]



RISKS WITH BATTERIES

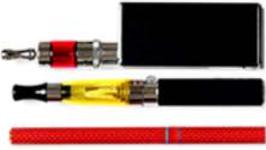
Be Safe on the Aircraft!

Some types of batteries can not be taken onto the aircraft because there are risks with them exploding, catching fire, leaking acid or caustic chemicals, harming people and property. It is not safe to carry them on the aircraft - they are 'restricted from carriage'.

Aviation security x-rays bags going on planes to make sure there is nothing dangerous in them. If something comes up on the x-ray that needs checking, the bag will be opened and searched.

What can you take on the plane?

You can take these common battery-powered items but they need to be packed in different ways. Refer to the following examples to see what to do:

Battery-powered items	Carry-on bag	Check-in bag
Electronic devices 		
E-cigarettes 		
Spare lithium (ION and metal) batteries 		
Power banks 		

Power tools 	Carry-on bag 	Check-in bag 
Heat-producing articles Underwater torch  Soldering Iron	Carry-on bag 	Check-in bag 
Smart bags (with lithium battery for recharging devices) 	Carry-on bag 	Check-in bag 

When to contact your airline?

You need to get in contact with **your airline** if you want to take:

- Battery-powered medical devices;
- A portable electronic device such as a laptop that contains fuel cells rather than the more usual lithium battery;
- Battery powered wheelchair – must be approved by your airline;
- Lithium 'metal' batteries that exceed 2 grams^[1] – must be approved by your airline;
- Lithium ION batteries that exceed 100Wh^[2] – must be approved by your airline;
- Smart bags – must be approved by your airline;
- Devices that generate heat – must be approved by your airline.

Continued from previous page...

What types of batteries can I take on the plane without approval from the airline?

The following are generally accepted:

- lithium ION that do not exceed 100Wh.
- lithium Metal that do not exceed 2g.
- Dry-cell AAA, AA, C and D Cell batteries.

These kinds of batteries must be in an electronic device if they are to go in check-in luggage. *For any further clarifications, please contact your airline.*

What about non-spillable lead batteries?

Non-spillable lead acid battery cannot travel if:

- They exceed 100Wh or 12V.
- There is no proof the battery is compliant with Special Provision A67.

For any further clarifications, please contact your airline.

What about portable electronic devices?

If the device is to be checked-in with your main luggage, ensure that it is turned off [not in sleep or hibernation modes].

- **Want to use it during the flight?** Its OK to take your **laptop, tablet or cellphone**.
- They can go in your check-in or carry-on luggage – but not a Samsung Galaxy Note 7 cellphone, these are prohibited.
- You can take a maximum of 15 portable electronic devices with you. If you want to carry more you must get an approval from your airline.

What about e-cigarettes?

Have an e-cigarette? You **can not** smoke it on the plane but it must be in your carry-on luggage, with you in the cabin - not in check-in luggage.

What about spare lithium [ION and metal] batteries?

- OK to have in your carry-on luggage.
- They must **NOT** go with check-in luggage under any circumstances.
- You can take up to twenty spare batteries but only two can exceed 100Wh (but not 160Wh). These batteries must have electrical tape placed across their terminals, to protect from accidental activation and they must be in a separate plastic bag or protective pouch.

What about powerbanks?

- OK to have in your carry-on luggage.
- They must **NOT** go with check-in luggage under any circumstances.
- You can take up to two that exceed 100Wh (but they must not exceed 160Wh).

Powerbanks are considered to be spare batteries. You can take up to two in total (for example two powerbanks; or one powerbank and one battery).

What about power tools?

Pack power tools and other devices you won't be using during the flight into your check-in luggage.

- Make your tools safe to travel by:
 - Removing all drill-bits, blades and other tool attachments from the tool and pack separately with your check-in luggage.
 - Placing the tool with the battery in it, into its fitted -moulded tool case. Any spare battery must be carried in your carry-on luggage.
 - Do not place spare batteries inside their charger. This does not protect the battery.
- If the tool is not travelling in a fitted moulded tool case:
 - the battery can remain in the device; and
 - place electrical tape across the activation switch when it is in the "Off" position; or
 - remove the battery from the device and carry separately in your carry-on luggage as a spare.

What about devices that produce heat?

What about underwater torches, soldering irons and other devices that generate heat? Its okay to take onto the plane but only if approved by your airline and only if the battery does not exceed 160Wh.

What about smart bags that can recharge other devices?

- Bags with lithium batteries that do not exceed 0.3g or 2.7Wh allowed as carry-on or checked luggage.
- If the batteries exceed 0.3g or 2.7Wh the batteries must be removed and carried as "spares" in carry-on.
- If the batteries exceed 0.3g or 2.7Wh and that batteries cannot be removed the airline must be contacted and requested to advise on the carriage of the bag. ■

[Source: Article uplifted from CAA NZ]

[1] Lithium metal batteries for medical devices may exceed 2g but not 8g

[2] Lithium batteries must not exceed 160Wh

[3] Special Provision A67 identifies batteries as safe to travel by air. Information on compliance can be found on the battery, in an operating manual, on a Material Safety Data Sheet or from the manufacturer's webpage [print copy].

DIABETES MELLITUS

Diabetes is a condition in which our body cells are unable to use blood sugar (glucose) for it is required as a source of energy for cells in muscle and tissues. For brain glucose is the main source of fuel.

In 2013, Diabetes caused 5.1 million deaths worldwide. Every six seconds, a person dies from diabetes. Diabetes is very common in Fiji and the number is growing. Currently almost 1 in every 3 Fijians is being diagnosed with diabetes, that is 30% of Fiji's population.

Cause of diabetes varies with the type of diabetes.

There two (2) chronic conditions :

Type 1 diabetes and **Type 2** – which are not reversible.

Potentially reversible conditions are :

Gestational diabetes which occurs during pregnancy and prediabetes.

Symptoms

- Increased thirst;
- Frequent urination;
- Extreme hunger;
- Unexplained weight loss;
- Fatigue;
- Irritability;
- Blurred vision;
- Slow healing sores;
- Frequent infections – gums or skin and vaginal infections;
- Increased breakdown of muscles and fat – this happens when enough insulin is not available and leads to ketone bodies in urine.

Insulin

It is important to understand how glucose is processed in the body. Insulin is produced by the specialised cells in the gland pancreas situated just below the stomach. Insulin helps sugar to enter and so reduces sugar in the blood. Secretion of insulin decreases when sugar level in the blood decreases.

Role of Glucose

Food and Liver are the major source of glucose. Glucose is the source of energy for cells of muscles and other tissues and brain. Sugar is absorbed into blood stream and enters the cells with the help of insulin. Liver stores sugar as glycogen and when required is converted to glucose.

Risk Factors

- Weight – fatty tissue is resistant to insulin.
- Family history -parent or sibling with diabetes, risk is increased.
- Inactivity – sedentary life is a risk factor – physical activity increases to utilize of glucose.
- Age – risk increases as one gets older :
 - ◇ tend to exercise less – lose muscle mass and gain weight;
 - ◇ type 2 diabetes is also seen in children, young adults and adolescents.
- Cholesterol and Triglyceride – when “good” cholesterol is low – risk of diabetes is high. Level of triglyceride, a type of fat in the blood, is high – risk of Diabetes increases.
- Gestational diabetes – this is seen in pregnancy – risk if diabetes increases.
- Polycystic Ovary Syndrome – this condition in women – who have irregular menstrual cycle, who have excess hair growth and obesity – risk of type 2 diabetes is high.
- High Blood Pressure – there is increased risk of type 2 diabetes.

Complications

Long term complications of diabetes develop gradually. Risk of complications developing fast if one do not adhere to ones doctor's advice, not taking medication regularly and no or reduced physical activity.

- ✓ Cardio-vascular disease –
 - Coronary artery disease and chest pain
 - Heart attack
 - Stroke
 - Narrowing of arteries

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- ✓ Kidney damage –
 - Kidneys filters waste products and these take place in glomeruli made of clusters of blood vessels which act as filters and when these are damaged it leads to kidney failure.
- ✓ Eye damage
 - Diabetes damage the blood vessels in the retina of the eye and this leads to blindness. Diabetes also leads to cataract - opacity of lens in the eye glaucoma – increased tension in the eye.
- ✓ Foot damage
 - Poor blood supply due to narrowed blood vessels and loss of sensation from damage to nerves result in blister formation and cuts left untreated lead to serious infection, which heal poorly and lead to gangrene and ultimately require amputation of toes or foot or leg.
- ✓ Nerve Damage
 - Damage to nerves is due to excess sugar which damages tiny blood vessels supplying blood to nerves. Feeling of burning sensation, tingling and numbness. These usually gradually spread upwards with loss of sensation in limbs. Damage to nerves related to digestion can cause nausea, vomiting, diarrhoea or constipation. For men lead to erectile dysfunction and decrease libido.
- ✓ Skin damage
 - Skin damage can lead to bacterial and fungal infections which are very difficult to Treat.
- ✓ Hearing impairment
 - Is common in people with diabetes.
- ✓ Alzheimer's disease
 - Poor blood sugar control increases the risk of dementia. There are various theories of risk of developing Alzheimer's but not proven.

Diagnosis

Your doctor may use following tests:

- Fasting blood sugar -test is carried out after over night fasting in the morning. Reading less than 5.6 mmol/ l is conceded normal. This could vary depending upon the laboratory. Blood level above 7.0 mmol/l or higher, taken on two separate occasions, is considered to diabetic.
- Oral glucose tolerance test – This test is carried out after over night fasting and then drinking sugary liquid. Blood sugar levels are tested periodically for next two hours.
 - Blood sugar levels :
 - * below 7.8 mmol/l is normal;
 - * between 7.8 mmol/l to 11.0 mmol/l pre-diabetes;
 - * above 11.1 mmol/l or higher suggests diabetes.
- Random blood sugar test – Blood sugar level higher than 11.1 mmol/l suggests diabetes. This test is carried out regardless of when food was taken.
- Glycosylated haemoglobin (HbA1c) – indicates ones blood sugar level for past two or three months.
 - Normal blood level is below 5.7 percent.
 - Blood level between 5.7 percent and 6.4 percent is considered prediabetic.
 - Blood level above 6.5 percent on two separate occasions, considered to be diabetic.

Management

- Eat healthy food.
- More physical activity.
- If overweight, to lose weight. Keep weight within healthy range for your height.
- Regular blood tests as per your doctor's recommendation.
- **Your doctor will prescribe medication, what is right for you – Follow his instruction implicitly** ■

(Article by Dr R Ponnu S Goundar)



DIABETES



ISO 9001:2015 CERTIFIED
Civil Aviation Authority of Fiji



ARE YOU FLYING SAFELY?

*Drones are **PROHIBITED***

*within 5km of International Aerodromes, 3km from
any other Aerodrome and above 200 feet.*