Addendum to Final report AO-2015-002: Mast bump and in-flight break-up,
Robinson R44, ZK-IPY, Lochy River, near Queenstown, 19 February 2015

The Transport Accident Investigation Commission is an independent Crown entity established to determine the circumstances and causes of accidents and incidents with a view to avoiding similar occurrences in the future. Accordingly it is inappropriate that reports should be used to assign fault or blame or determine liability, since neither the investigation nor the reporting process has been undertaken for that purpose.

The Commission may make recommendations to improve transport safety. The cost of implementing any recommendation must always be balanced against its benefits. Such analysis is a matter for the regulator and the industry.

Addendum to Final Report

Aviation inquiry AO-2015-002
Mast bump and in-flight break-up,
Robinson R44, ZK-IPY,
Lochy River, near Queenstown,
19 February 2015

Approved for publication: June 2017

Transport Accident Investigation Commission

About the Transport Accident Investigation Commission

The Transport Accident Investigation Commission (Commission) is a standing commission of inquiry and an independent Crown entity responsible for inquiring into maritime, aviation and rail accidents and incidents for New Zealand, and co-ordinating and co-operating with other accident investigation organisations overseas. The principal purpose of its inquiries is to determine the circumstances and causes of occurrences with a view to avoiding similar occurrences in the future. Its purpose is not to ascribe blame to any person or agency or to pursue (or to assist an agency to pursue) criminal, civil or regulatory action against a person or agency. The Commission carries out its purpose by informing members of the transport sector and the public, both domestically and internationally, of the lessons that can be learnt from transport accidents and incidents.

Commissioners

Chief Commissioner	Jane Meares
Deputy Commissioner	Peter McKenzie, QC
Commissioner	Stephen Davies Howard
Commissioner	Richard Marchant
Commissioner	Paula Rose QSO (from May 2017)

Key Commission personnel

Chief Executive	Lois Hutchinson
Chief Investigator of Accidents	Captain Tim Burfoot
Investigator in Charge	Ian McClelland
General Counsel	Cathryn Bridge

Email	inquiries@taic.org.nz
Web	www.taic.org.nz
Telephone	+ 64 4 473 3112 (24 hrs) or 0800 188 926
Fax	+ 64 4 499 1510
Address	Level 11, 114 The Terrace, PO Box 10 323, Wellington 6143, New Zealand

Important notes

Nature of the addendum report

This addendum report has not been prepared for the purpose of supporting any criminal, civil or regulatory action against any person or agency. The Transport Accident Investigation Commission Act 1990 makes this final report inadmissible as evidence in any proceedings with the exception of a Coroner's inquest.

Ownership of report

This report remains the intellectual property of the Transport Accident Investigation Commission.

This report may be reprinted in whole or in part without charge, provided that acknowledgement is made to the Transport Accident Investigation Commission.

Citations and referencing

Information derived from interviews during the Commission's inquiry into the occurrence is not cited in this final report. Documents that would normally be accessible to industry participants only and not discoverable under the Official Information Act 1982 have been referenced as footnotes only. Other documents referred to during the Commission's inquiry that are publicly available are cited.

Photographs, diagrams, pictures

Unless otherwise specified, photographs, diagrams and pictures included in this addendum report are provided by, and owned by, the Commission.

Verbal probability expressions

The expressions listed in the following table are used in this report to describe the degree of probability (or likelihood) that an event happened or a condition existed in support of a hypothesis.

Terminology (adopted from the Intergovernmental Panel on Climate Change)	Likelihood of the occurrence/outcome	Equivalent terms
Virtually certain	> 99% probability of occurrence	Almost certain
Very likely	> 90% probability	Highly likely, very probable
Likely	> 66% probability	Probable
About as likely as not	33% to 66% probability	More or less likely
Unlikely	< 33% probability	Improbable
Very unlikely	< 10% probability	Highly unlikely
Exceptionally unlikely	< 1% probability	

R44 Raven II ZK-IPY

(Courtesy of Over The Top)

Source: mapsof.net

Location of accident

Contents

Abbreviations

CAA	Civil Aviation Authority of New Zealand
Commission	Transport Accident Investigation Commission
GP	general practitioner
Robinson	Robinson Helicopter Company

Data summary

Aircraft particulars

Aircraft registration:	ZK-IPY
Type and serial number:	Robinson Helicopter Company R44 Raven II, 10555
Number and type of engines:	one IO-540-AE1A5 normally aspirated, reciprocating
Year of manufacture:	2004
Type of flight:	training
Persons on board:	two
Instructor's licence:	commercial pilot licence (helicopter)
Instructor's age:	42
Instructor's total flying experience:	4,704 hours, including 4,528 on helicopters and 952 hours on type

Date and time	19 February 2015, 1342[1]
Location	Lochy River, near Queenstown
	latitude: 45° 11.15′ south
	longitude: 168° 35.7′ east
Injuries	two fatal
Damage	helicopter destroyed

[1] Times in this report are in New Zealand Daylight Time (Co-ordinated Universal Time + 13 hours) and expressed in the 24-hour format.

1. Executive summary

1.1. On 19 February 2015 a Robinson Helicopter Company R44 helicopter registered ZK-IPY (the helicopter) was returning to Queenstown from a training flight when it suffered a mast bump and crashed in bush near the Lochy River. The instructor and student on board were killed.

1.2. The Transport Accident Investigation Commission (Commission) investigated the accident, but the cause of the mast bump and resulting in-flight break-up could not be conclusively determined. The Commission's final report was published on 25 August 2016.

1.3. On 31 August 2016 the Commission was advised of new evidence concerning the mental health of the instructor prior to the crash, in 2014. On 28 September 2016 the Commission resumed the inquiry to evaluate the new evidence, conduct further enquiries and identify any relevant safety issues.

1.4. The Commission concluded that it is very unlikely that any medical factor contributed to the accident. As a result, no changes were made to the original findings in the published report. The Commission made a further finding: that it is very likely that the instructor was medically fit to fly when his most recent medical certificate was issued.

1.5. The Commission also found that: there are currently too many ways for a holder of an aviation document to circumvent the civil aviation process designed to prevent pilots flying if they are not medically fit to do so; and that there is currently a low awareness amongst medical practitioners of their duty to report to the Civil Aviation Authority if they become aware that a pilot has developed a medical condition that would otherwise render them unfit to fly.

1.6. The Commission made recommendations to the Director of Civil Aviation: that he improve the mechanisms for informing medical practitioners of the requirement to report to the Civil Aviation Authority; and that he review the medical application process to ensure that it is more robust in identifying potentially serious health issues with pilots and other aviation document holders.

1.7. The Commission also made a recommendation to the Chief Executive of the Ministry of Health that they consider adding the following functions to the national electronic health record database being developed:

- that a person's occupation be added to the record to allow monitoring of individuals in safety-critical occupations who have potentially adverse health conditions or medications, so that the appropriate authority can be alerted to possible public safety risks
- a mechanism to draw the attention of all health practitioners to their obligation to notify the appropriate authority when a person or patient has a health condition or need for medication that could pose a threat to public safety in that individual's occupation.

2. Conduct of the resumed inquiry

2.1. At about 1600 on Thursday 19 February 2015, the Civil Aviation Authority (CAA) notified the Transport Accident Investigation Commission (Commission) of the accident. The Commission opened an inquiry under section 13(1)b of the Transport Accident Investigation Commission Act 1990, because it believed that the circumstances of the accident had or were likely to have implications for transport safety, and because the Commission was already inquiring into two other break-ups involving Robinson Helicopter Company (Robinson) helicopters.

2.2. On 27 April 2016 the Commission approved a draft report for circulation to interested persons for comment. Eight submissions were received and considered by the Commission. Any changes as a result of those submissions were included in the final report.

2.3. The Commission approved the final report for publication on 27 July 2016, and the report was published on 22 August 2016.

2.4. On 31 August 2016 the Coroner informed the Commission of medical information concerning the instructor, who was the pilot in command of the helicopter at the time it crashed. The Commission determined that the information was new and potentially significant evidence that it had not considered. On 28 September 2016 the Commission resumed its investigation into the accident.

2.5. Between September 2016 and December 2016 the Commission exercised the powers given to it under the Transport Accident Investigation Commission Act and the Commissions of Inquiry Act 1908 to obtain records from medical organisations that had been involved with the instructor. Relevant medical staff and several new witnesses were interviewed, and some previous witnesses were re-interviewed.

2.6. A senior psychiatrist was engaged to assist the Commission's medical consultant and to provide specialist advice.[2] On 10 January 2017 the psychiatrist provided the Commission with a report on his review of the new evidence.

2.7. On 29 March 2017 the Commission approved the draft addendum for circulation to interested persons for comment. Submissions were received from four interested persons. The Commission considered the submissions and amended the addendum as appropriate,

2.8. On 28 June 2017 the Commission approved the addendum for release.

[2] Dr Mark Davis, MBChB, MRCPsych, FRANZCP.

3. Factual information

3.1. The initial inquiry

3.1.1. On 19 February 2015, Robinson R44 ZK-IPY (the helicopter) was returning to Queenstown from a training flight when it broke up in mid-air and crashed in bush near the Lochy River, killing the instructor and the student on board.

3.1.2. The helicopter broke up in the air as a result of 'mast bumping', which happens when the inner part of a main rotor blade or rotor hub contacts the main rotor shaft. The Commission found that the student was about as likely as not to have been flying the helicopter when the mast bumping occurred, and that the weather was suitable for the flight. No pre-existing defects or mechanical failures on the helicopter were identified. The cause of the mast bump was not determined.

3.2. New information

3.2.1. On 31 August 2016, the Coroner informed the Commission that the instructor had undergone treatment for a mental health condition some months prior to the accident.

3.2.2. The Commission determined that this was new and potentially significant information about the instructor. The purpose of resuming the inquiry was to assess:

- whether any new circumstances could affect the Commission's previous findings
- whether any new circumstances could result in new findings
- whether there were any new safety issues arising that might need to be addressed.

3.3. The instructor

Personal history

3.3.1. The instructor began his aviation career in March 1998, flying helicopters with the British Royal Marines. He completed a tour of active duty in Iraq before leaving the service in September 2003. He emigrated to New Zealand and obtained a flying job in Central Otago. In July 2012 he commenced a three-year contract flying helicopters in Papua New Guinea, on a month on, month off rotation.

3.3.2. In February 2014 the instructor self-referred to a psychotherapist for counselling. In late March, after returning from Papua New Guinea, he attended an appointment with his general practitioner (GP) for problems with sleeping and anxiety. The GP made an initial diagnosis of 'depression with anxiety component'. The instructor resigned from his flying contract in Papua New Guinea at this time and took a non-flying job in New Zealand. Further appointments with his GP and other medical practitioners followed.

3.3.3. In early August 2014 the instructor felt a marked improvement in his mental health and stopped taking all medications at this time. People who were close to him, including his GP, noticed an improvement.

3.3.4. During August 2014 the instructor was offered two flying jobs in Queenstown. On 1 September 2014 he began flying for the operator (Over The Top Limited) for which he had worked previously.

3.4. Regulatory requirements in regard to pilot medical certificates

Pilot medical certificate

3.4.1. The instructor was required to hold a valid medical certificate in order to exercise the privileges of his pilot licence.[3] His pilot medical certificate had lapsed, so prior to resuming flying for the operator he applied for a renewal. On 17 August 2014 he underwent an examination by a Civil Aviation Authority (CAA)-approved medical examiner. On 21 August 2014 he was re-issued with a class 1 medical certificate with no restrictions, which was valid until 21 February 2015. On 4 February 2015 he applied for a renewal of the medical certificate and was examined and assessed as 'fit' by a CAA medical examiner. The replacement certificate was in the process of being issued with no restrictions at the time of the accident on 19 February 2015.

3.4.2. Prior to a medical examination an applicant must complete a CAA 'Application for Medical Certificate' form. This form is reviewed by the CAA medical examiner during the examination. The form includes a section on medical history. The applicant is required to answer questions relating to specified illnesses and injuries. They are also required to list recent visits to health professionals and any medication taken. There are specific questions on some psychological and mental health conditions (see Appendix).

3.4.3. On the two most recent applications for a medical certificate, dated 17 August 2014 and 4 February 2015, the instructor reported problems with sleeping. He did not declare any of the medication he had taken or make any reference to any psychological or mental health conditions.

Civil Aviation Act

3.4.4. A medical certificate may be invalidated if the holder's medical condition changes, for example because of injury or illness. Section 27C(1) of the Civil Aviation Act 1990 states:

> ... if a licence holder is aware of, or has reasonable grounds to suspect, any change in his or her medical condition or the existence of any previously undetected medical condition that may interfere with the safe exercise of the privileges to which his or her medical certificate relates, the licence holder -
>
> > (a) must advise the Director [of Civil Aviation] of the change as soon as practicable; and
> >
> > (b) may not exercise the privileges to which the licence holder's medical certificate relates.

3.4.5. There is a similar obligation placed on various people who become aware that the holder of a medical certificate has had a change in their medical condition, or has a previously undetected medical condition. Section 27C (2) and (3) of the Civil Aviation Act further states:

> (2) if an aviation examiner or medical examiner or operator is aware of, or has reasonable grounds to suspect, any change in the medical condition of a licence holder or the existence of any previously undetected medical condition in the licence holder that may interfere with the safe exercise of the privileges to which the licence holder's medical certificate relates, the aviation examiner or medical examiner or operator must advise both the licence holder and the Director of the change as soon as practicable.
>
> (3) if a medical practitioner has reasonable grounds to believe that a person is a licence holder and is aware, or has reasonable grounds to suspect, that the licence holder has a medical condition that may interfere with the safe exercise of the privileges to which the licence holder's medical certificate relates, the medical practitioner must, as soon as practicable,
>
> > (a) inform the licence holder that the Director will be advised of the condition; and
> >
> > (b) advise the Director of the condition.

[3] A medical certificate is required to exercise the privileges of most categories of pilot licence and by air traffic controllers.

4. Analysis

Introduction

4.1. The various medical practitioners involved with the instructor's medical care, and the various people closely associated with the instructor at professional and personal levels, agreed that the instructor's mental demeanour had significantly improved, if not fully returned to normal. This view was shared by the Commission's independent psychiatry expert, who having reviewed all of the available material was confident that it was feasible for the instructor to have made a full and sustained recovery before the instructor returned to flying.

4.2. When considering these expressed views in context with the known circumstances of the accident as described in the main report, the Commission has concluded that it is very unlikely that any medical factor contributed to the accident. Accordingly, none of the original findings has been amended.

4.3. However, the resumed inquiry identified two new safety issues:

- the CAA medical certification process does not provide sufficient assurance that an applicant has no undisclosed health condition
- many medical practitioners are unaware of their legal obligation to inform the Director of Civil Aviation that a licence holder has a medical condition that may interfere with the safe exercise of the privileges of the licence to which the holder's medical certificate relates.

Were there any medical factors that could have contributed to the accident?

4.4. There was no history of the instructor having had any mental health issue prior to 2014. His discharge medical records from the Royal Marines showed that he was in good health and had no ill effects from his service in Iraq. The first documented indication of a health issue was when he visited a counsellor on 28 February 2014, during a break from flying in Papua New Guinea. Four weeks later he visited his GP complaining of problems with sleeping, low mood and anxiety. The GP diagnosed 'depression with anxiety component' and prescribed a range of medications. The Commission's psychiatry expert, after reviewing the medical records, said the instructor's condition during this time might have been more accurately described as a Depressive Disorder Not Otherwise Specified.

4.5. The sudden turnaround in the instructor's mental health was observed by a number of people close to him, including his GP. The return to normal health was considered by the Commission's psychiatry expert to be feasible. This was particularly so in this case where "the history indicates the probability that his disorder was associated with (if not caused by) the existence of significant psychosocial stressors".[4] The stressors were related to his past.

4.6. The psychiatry expert also said that a rapid recovery was possible as a result of a distraction from his own difficulties associated with past stressors.

4.7. The consulting psychiatrist reviewed the medications taken by the instructor, and confirmed that it was highly unlikely that the instructor would have experienced any discontinuation-related symptoms or long-term effects. The consulting psychiatrist commented that the "(likely) diagnosis of Depressive Disorder Not Otherwise Specified had fully remitted by September 2014 and remained in remission up until the time of his death" – some five months later.

4.8. Those witnesses who were aware of the instructor's mental health issues were confident that his return to normal health was sustained. The instructor's employer and fellow work colleagues were in agreement that the instructor had not changed in any way from when he

[4] The Commission's consulting psychiatry expert.

had worked there two years previously. He had quickly reintegrated into the company and was a valued and trusted member of the team.

4.9. The instructor's GP had met the instructor several times socially after he returned to flying and had no concerns about the instructor's mental health in that period.

4.10. The medical examiner had known the instructor since November 2003, when he performed the instructor's first pilot medical examination in New Zealand. He had subsequently performed all the instructor's medical examinations, 12 in total, the last examination being on 4 February 2014, 15 days before the accident. The medical report had a tick box for 'Psychiatric examination'. The medical examiner had ticked 'Yes' on each occasion, confirming 'normal, without unusual features'. The medical examiner, like others interviewed, had no concerns about the instructor's fitness to fly (medical examinations are discussed further in the following section.)

4.11. The Commission's psychiatry expert advised that based on the evidence provided on the instructor's history and the accident sequence, he considered it very unlikely that the state of the instructor's mental health had any influence on the accident.

Findings

1. It is very likely that the instructor was medically fit to fly when his most recent medical certificate was issued, or approved to be issued.

2. It is very unlikely that there were any medical factors that contributed to the accident.

The process for issuing CAA medical certificates

4.12. The current application process for a CAA medical certificate relies on the honesty of the applicant to disclose their medical history fully when completing the application. The medical examiner carries out a physical examination of the applicant and may question the answers in the application form. If there is nothing to trigger further action, the application will normally continue uninterrupted and a certificate will be issued.

4.13. The instructor completed two medical examinations between recovering from his mental health issues and the accident. The first examination was about five days after he was assessed as having returned to full health. The instructor did not fully disclose the extent of the treatment he had received in addressing his mental health issues.

4.14. The instructor recorded only two of his visits to his GP, and said that both visits were regarding problems sleeping. There were at least five other GP visits and numerous consultations with various health professionals that the instructor did not disclose. This included a consultation with a consultant psychiatrist to whom he was referred through the mental health service, which was 10 days before his aviation medical examination. He had also been prescribed and had taken a range of medications that were not noted on either application for an aviation medical certificate.

4.15. Civil aviation procedures did not require a medical examiner to contact an applicant's GP prior to the issue of a medical certificate. They would normally only do so if they had a specific health concern that they had decided to assess further. In this case the medical examiner determined that the instructor was fit to fly and had no concerns about his physical and mental health.

4.16. Had the instructor disclosed the full extent of his treatment, this may not have precluded him obtaining his medical certificate. However, it would likely have generated further enquiries from the medical examiner and the CAA medical section, that would likely have resulted in the instructor being required to undergo a more formal assessment before being issued with a medical certificate.

4.17. The full and honest disclosure of an applicant's medical history has the potential to incur additional costs to the applicant and time to obtain a medical certificate. There can also be the perception on the applicant's part that they may lose their licence. There could therefore be a natural reluctance for applicants to give full disclosure. There is also the potential for this to dissuade medical certificate holders from seeking help in the first place, which could be more of a safety issue.

4.18. Under the current system there is an opportunity for applicants to minimise the risk of losing a medical certificate by using different GPs for specific purposes. A clean record can be maintained with the GP declared in the application form, while another GP is used for the treatment of problems the applicant prefers to keep confidential. This was not the case for the instructor. However, it further highlights how the current CAA system for maintaining appropriate aviation medical standards can be circumvented.

4.19. The purpose of medical practitioners having to report to the CAA any change in the medical condition of, or the existence of any previously undetected medical condition in a licence holder was to prevent pilots circumventing the system in this way. This is discussed in the following section.

Duty for medical practitioners to report

4.20. The instructor's GP was not aware of the need to inform the CAA about the instructor's mental health and treatment. The GP knew that the instructor had not flown during the period of his illness and expressed no concerns about his returning to flying. He did not consider it an issue at the time.

4.21. The CAA has undertaken a range of initiatives to inform medical practitioners of their obligations under the Civil Aviation Act to inform the CAA of potential safety risks involving their patients. However, many of the medical practitioners spoken to during the inquiry were not aware of their obligations under the Act[5], which suggests that further work is required to ensure that all medical practitioners are aware of their obligations.

4.22. The requirement for medical practitioners to report to the CAA is an important check in the system to prevent its being circumvented.

4.23. The CAA could not be sure of the number of cases where medical practitioners, pilots and air traffic controllers had failed to disclose relevant health issues fully. Since 2004 the CAA had undertaken some 14 prosecutions under section 48B of the Civil Aviation Act.[6] These mainly related to either false declarations or failing to disclose information.

4.24. This inquiry has highlighted weaknesses in the medical certification process for civil aviation document holders. The issue could be relevant to other transport modes and other industries where participants are required to hold medical certificates of some sort.

4.25. Commission staff met with the Chief Medical Adviser and other staff of the Ministry of Health to discuss ways to reduce the potential for serious illnesses to be concealed by people in safety-sensitive occupations such as transportation. Arising from these discussions it was agreed that the Commission's medical consultant would write a chapter for the Cole's Medical practice in New Zealand 2017 edition; write an article for the Medical Protection Society on the balance of public safety and patient privacy; and work with the New Zealand Nurses Organisation to raise the level of awareness to notify concerns amongst the nursing profession.

4.26. The Ministry of Health is currently developing a national electronic health records database. One method of improving medical examiners' ability to assess applicants' fitness for duty

[5] Pilot licence holders, as well as air traffic controllers.
[6] Civil Aviation Act 1990, section 46B Fraudulent, misleading, or intentionally false statements to obtain medical certificate.

would be for them to have access to such a database and be able to query an applicant's recent medical, mental and prescription history.

4.27. The Commission has made a recommendation to the Ministry of Health to explore enhancing the national database to address the safety issues identified above.

International initiatives to address mental health issues in aviation

4.28. Following the Germanwings Flight 9525 accident in France in 2015, both the European Aviation Safety Agency-led Germanwings taskforce on the accident and the Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation civile issued recommendations to address issues with the system for administering aviation medical certificates in Europe. A number of initiatives have been proposed that are expected to improve the level of safety by introducing new requirements:

- to strengthen class 1 medical examinations for applicants for and holders of certificates by including drugs and alcohol screening and comprehensive mental health assessments as well as improved follow-up where there is a history of psychiatric conditions
- for aero-medical centres and aero-medical examiners to report to the competent authority all incomplete medical assessments, thus preventing fraud attempts
- to increase the quality of the aero-medical examinations by improving the training, oversight and competency assessment of aero-medical examiners
- for the holders of medical certificates to return them to the licensing authority in case of suspension and revocation of their medical certificates.

4.29. Since the Germanwings accident the International Civil Aviation Organization has initiated a 'health promotion amendment process' aimed at addressing the issue of mental health in aviation. The process aims to change current 'recommendations' to a 'standard' that States must comply with. The proposed standard is:

> 1.2.4.2 States shall apply, as part of their State safety programme, basic safety management principles to the medical assessment process of licence holders, that as a minimum include:
>
> a) routine analysis of in-flight incapacitation events and medical findings during medical assessments to identify areas of increased medical risk, and
>
> b) continuous re-evaluation of the medical assessment process to concentrate on identified areas of increased medical risk.
>
> 1.2.4.3 The licensing authority shall implement appropriate aviation-related health promotion for licence holders subject to a medical assessment to reduce future medical risks to flight safety.

4.30. The recommendations made to the Director of the New Zealand Civil Aviation Authority resulting from this inquiry will go some way to meeting the proposed International Civil Aviation Organization standard.

Findings

3. There are currently too many ways for a holder of an aviation document to circumvent the civil aviation process designed to prevent pilots flying if they are not medically fit to do so.

4. Medical practitioners are required to report to the Civil Aviation Authority if they become aware that an aviation document holder, such as a pilot, develops a medical condition that would otherwise render them unfit to fly. There is currently a low awareness amongst medical practitioners of their duty to report.

5. Safety actions

No new safety actions were identified.

6. Recommendations

General

6.1. The Commission may issue, or give notice of, recommendations to any person or organisation that it considers the most appropriate to address the identified safety issues, depending on whether these safety issues are applicable to a single operator only or to the wider transport sector. In this case, recommendations have been issued to the Director of Civil Aviation and the Ministry of Health.

6.2. In the interests of transport safety, it is important that these recommendations are implemented without delay.

Recommendations to the Civil Aviation Authority

6.3. The medical practitioners associated with the care of the instructor, and many of the others spoken to during the course of the investigation, were unaware of their obligations under the Civil Aviation Act to inform the CAA about a licence holder who has a known or suspected medical condition that may affect their ability to conduct their duties safely. Despite the efforts of the CAA, this lack of awareness of the Civil Aviation Act appears to be wider than just among those involved with this case.

On 28 June 2017 the Commission recommended to the Director of Civil Aviation that he improve the mechanisms for informing medical practitioners of the requirement to report to the CAA any health issues with a CAA licence holder that may interfere with that person's ability to exercise the privileges of their licence safely. (019/17)

On 6 July 2017 the Deputy Director Aviation Infrastructure and Personnel, CAA replied:

> Notwithstanding past and ongoing effort to educate medical practitioners about their duty to report to the CAA any health issues with a CAA licence holder that may interfere with that person's ability to exercise the privileges of their licence safety it is acknowledged this activity needs to be ongoing and the results of the Commission's investigation highlight this need. Accordingly this recommendation is accepted and the work will continue on an ongoing basis. As this educational work will need to be enduring in its nature and will be undertaken on an ongoing basis it is not practicable to specify a final implementation date. In conducting this ongoing work will we however review the manner in which we have sought to educate medical practitioners in the past and look to identify additional pathways that may be complimentary to those previously used. This review will be completed by 1 December 2017.

6.4. Section 27C(1) of the Civil Aviation Act requires medical practitioners to inform the Director if they believe a person is a licence holder and is aware, or has reasonable grounds to suspect, that the licence holder has a medical condition that may interfere with the safe exercise of the privileges to which the licence holder's medical certificate relates.

The Civil Aviation Act defines a medical practitioner as a health practitioner who is registered as a practitioner of the profession of medicine. This does not recognise that other health professionals (as defined in the Health Practitioners Competence Assurance Act 2003) may be providing care to a licence holder. Other health professionals, such as psychologists, could know, or become aware of, a CAA licence holder having a medical condition that may interfere with the safe exercise of the privileges of their licence.

On 28 June 2017 the Commission recommended the Director of Civil Aviation consider measures to ensure that other appropriate health practitioners, not included under the current definition in the Civil Aviation Authority Act, notify the Director when they are aware, or have reasonable grounds to suspect, that the holder of a CAA licence has a medical condition that may interfere with the privileges to which their medical certificate relates. (020/17)

On 6 July 2017 the Deputy Director Aviation Infrastructure and Personnel, CAA replied:

> We recognise the basis for this recommendation and the outcomes the Commission is seeking to achieve. We are supportive of these. However changes to the Civil Aviation Act 1990 (the Act) would be required to support any effective measures aimed at implementing the recommendation. The Act is administered by the Ministry of Transport. As such, any recommendation for a change to the content of the Act should be made to the Secretary for Transport.

6.5. The medical examiner did not, and saw no reason to, contact the instructor's GP as part of the medical assessment process. Had he done so, it is likely that he would have learned of the instructor's recent illness and initiated a more formalised review of the instructor's fitness to fly. A procedural requirement for medical examiners to consult GPs would help to ensure that they are fully informed about applicants' health.

On 28 June 2017 the Commission recommended to the Director of Civil Aviation that he review the medical application process:

- to ensure that it promotes a positive reporting culture for applicants
- that is more robust in identifying potentially serious health issues that may interfere with the safe exercise of the privileges to which applicants' medical certificates relate
- to ensure that the system supports medical examiners exercising their discretion to consult medical practitioners when assessing applications for medical certificates. (021/17)

On 6 July 2017 the Deputy Director Aviation Infrastructure and Personnel, CAA replied:

> By way of context to the CAA's response, it should be noted that consistent with developments overseas, the CAA has recently consulted with stakeholders regarding the appropriate medical certification standard for the holders of a private pilot licence. The international trend is for a reduction in the standard of any aviation medical certificate or even the removal of the requirement for such a certificate altogether. This reflects a view that the regulatory burden that has been imposed in the past is unreasonable given the very small number of accidents with a medical cause factor. It is important to note, however, that if such a change were to occur in New Zealand it would be very unlikely to apply to the medical certification of pilots conducting hire or reward activity. Therefore, the preceding context does not reduce the validity of the Commission's recommendations as they might apply to the holders of the aviation documents required for the performance of hire or reward operations.
>
> The CAA accepts the first element of this recommendation and will do what it can to promote a "positive reporting culture" for medical certificate applicants to the degree it can do so while still acting decisively to protect the public interest when it has reasonable cause for concern about matters of potential aeromedical significance. The CAA will review current processes in line with this recommendation by 1 December 2017.
>
> The CAA accepts the second element of this recommendation as it applies to the holders of aviation documents utilised for professional purposes. The CAA will review current processes in line with this recommendation by 1 December 2017.
>
> The CAA considers that the third element of the recommendation is unworkable in that it would currently be unlawful in terms of the Civil Aviation Act for the Director to require an applicant, as a precondition to the issue of a medical certificate, to provide information from their GP or other medical practitioner, or to authorise the CAA to access that information, in the absence of reasonable cause in a specific case for requesting that information. In addition, the CAA considers that the provisions of S27C (3) of the Civil Aviation Act which requires medical practitioners to inform the Director if they have reasonable grounds to believe that a licence holder has a medical condition that may interfere with the safe exercise of the privileges of the licence they hold does not provide sufficient authority for the GP to share all medical information regarding a licence holder patient with a Medical Examiner. Any effective system in support of medical examiners in the manner anticipated by this element of the recommendation would require changes to the Civil Aviation Act. Given the above and the fact that the Ministry of Transport administers the Civil Aviation Act, the CAA recommends that the Commission consider making a recommendation to the Secretary for Transport for amendment of the Civil Aviation Act requiring GPs to provide, on request from a Medical Examiner, medical

information regarding a patient who holds, or is seeking, aviation medical certification.

Recommendation to the Ministry of Health

6.6. There is the potential for applicants for medical certificates to attempt to circumvent the medical assessment process by inaccurately representing their state of health through the misreporting of their treatment, including undisclosed medications and possible multiple GPs and other health professionals. This risk is shared by other transport modes that require a person to hold a medical certificate or make a declaration on their health status. A national health database would provide one means of addressing this risk.

On 28 June 2017 the Commission recommended to the Chief Executive of the Ministry of Health that he consider adding the following functions to the national electronic health record database under development:

- that a person's occupation be added to the record to allow monitoring of individuals who hold transport-related documents that require periodic medical checks, and who have potentially adverse health conditions or medications, so that the appropriate authority can be alerted to possible public safety risks
- a mechanism to draw the attention of all health practitioners to their obligation to notify the appropriate transport authority when a person or patient has a health condition or need for medication that could pose a threat to public safety in that individual's occupation. (022/17)

On 3 July 2017 the Chief Medical Officer for the Ministry of Health replied:

> The National Electronic Health Record Business Case project is a significant project that is working though a Treasury Better Business Case (BBC) process. This process is for agencies that have significant proposals that will have a whole of life cost of more than $25 million.
>
> The BBC process has a number of stages and at this point we are close to completing stage 2 of 4. At the completion of stage 4 we expect that we will begin to implement the solution for the National Electronic Health Record, timing for the duration of the implementation phase is yet to be determined. With our current timeline, we expect this to begin no earlier than late 2018 pending approval from Cabinet and successfully delivering the business case process and large scale procurements required.
>
> With these timings in mind, we recognise that there is a requirement to hold the occupation for an individual and to be able to undertake reporting and processes related to the occupation should potentially adverse health and/or medications be identified. At this stage we cannot commit that the functionality that has been suggested will be implemented and will not be in a position to do so until the Business Case process is completed. However, while we cannot yet confirm the details of this type of functionality, we can and will take this into account during our deliberations and include in our business case documentation the advantages of having this type of functionality tied into the Electronic Health Record once established.

Appendix: CAA Application for a Medical Certificate form

Application for a Medical Certificate

I apply to the Director of Civil Aviation for a medical certificate, and hereby request a Medical Examiner to examine me for that purpose. I understand that I must pay the required Medical Certificate Application Fee of $313.00 (including GST) as required by the Civil Aviation Fees and Charges Regulations 2012 **before** I attend an appointment with a Medical Examiner.

Manual Payment Option Details: Cheque ☐ as attached **OR** Visa ☐ MasterCard ☐ complete below.

DO NOT SEND CASH AND DO NOT COMPLETE THE FOLLOWING PAYMENT DETAILS IF YOU HAVE PAID THE FEE ONLINE

Name on Card		
Card Number		Expiry Date *(mm/yyyy)* /
Signature		

Electronic Payment Option Details: (CAA Medical Examiner to complete). www.caa.govt.nz/payment

Receipt Number: _____ (attach confirmation) **Date Payment Made:** _____

My personal, licence, and medical details are as follows:

1. Surname: *If changed recently, give previous surname in brackets*	**2. Title:**	**3. CAA Client ID:**
	Mr Mrs Miss Ms ____	
4. Given Name:		**5. Gender:**
		M F
6. Known as:	**7. Date of Birth:**	**8. Age:**

9. Address for Service: *Civil Aviation Act, s8, requires applicants to provide an address for service (ie, a physical NZ address) and to promptly notify the Director of any changes.*	**10. Postal Address:** *(If different from Address for Service.)*

11. Tel Business:	( )	**Work Fax:**	( )
Tel Private:	( )	**Home Fax:**	( )
12. Email:		**13. Mobile:**	

14. Preferred method for urgent written contact: *(If we have to contact you urgently about personal medical information, we need to know your preferred means of communication.)*	**Email** ☐ **Home Fax** ☐ **Neither** ☐
15. Certificate applied for:	Class 1 & 2 ☐ Class 2 ☐ Class 2 – No IFR ☐ Class 3 ☐ part 115 ☐
NZ Aviation document currently held:	ATPL ☐ CPL ☐ Private ☐ ATC ☐ None yet ☐
16. Other or previous licences: Have you ever had a civil aviation licence or medical certificate issued before, either in New Zealand or from another authority? *(Give year, country and licence Type/Number)*	

17. Employer / Aero club / Training Facility:		**Occupation:**	
18. Aircraft types flown recently:		**Total Hours:**	**Last 6 months**
19. General Practitioner contact details:			

Page 1 of 4 *CAA 24067/001*

Name_____ Client ID_____

20. MEDICAL HISTORY: Have you ever experienced any of the following? *(Circle correct answer eg.* (Y) *)*

20.1	Eye or vision trouble	Y	N
20.2	Needed new glasses or contact lenses since last CAA medical Examination	Y	N
20.3	Eye or corneal surgery	Y	N
20.4	Hay fever	Y	N
20.5	Middle ear infection	Y	N
20.6	Sinusitis	Y	N
20.7	Hearing trouble	Y	N
20.8	Problems with balance	Y	N
20.9	Any other Ears, Nose & Throat problems or surgery	Y	N
20.10	Asthma or wheezing	Y	N
20.11	Chronic Cough	Y	N
20.12	Any other lung problem	Y	N
20.13	Any shortness of breath	Y	N
20.14	Pulmonary embolism or deep vein thrombosis	Y	N
20.15	Coughed or vomited blood	Y	N
20.16	Any severe allergy	Y	N
20.17	Heart problem	Y	N
20.18	Vascular problem	Y	N
20.19	Suffered any chest pain	Y	N
20.20	Rheumatic fever	Y	N
20.21	High or low blood pressure	Y	N
20.22	Severe abdominal pain	Y	N
20.23	Hernia	Y	N
20.24	Oesophagus, Stomach, liver gall bladder or intestinal trouble	Y	N
20.25	Diagnosed or treated for cancer, tumour, growth or malignancy (including skin cancer)	Y	N
20.26	Anaemia or blood disease	Y	N
20.27	Headaches/migraines which have interfered in any way with daily living?	Y	N
20.28	Headaches/migraines requiring medication?	Y	N
20.29	Dizziness or fainting spell	Y	N
20.30	Unconsciousness for any reason	Y	N
20.31	Head injury	Y	N
20.32	Seizures/fits	Y	N
20.33	Stroke	Y	N
20.34	Paralysis	Y	N
20.35	Any other neurological disorder	Y	N
20.36	Diagnosed depression	Y	N
20.37	Anxiety disorder/panic Disorder	Y	N
20.38	Learning difficulty	Y	N
20.39	Attention deficit or hyperactivity Disorder	Y	N
20.40	Post traumatic stress disorder	Y	N
20.41	Suicide attempt	Y	N
20.42	Any other Mental illness	Y	N
20.43	Substance dependence or substance abuse	Y	N
20.44	Use of legal or illegal recreational drugs or substances	Y	N
20.45	Alcohol dependence or abuse	Y	N
20.46	Muscle, bone or joint injury	Y	N
20.47	Back pain, injury or "back trouble"	Y	N
20.48	Swollen or painful joints	Y	N
20.49	Suffered any pain severe enough to be disabling	Y	N
20.50	Passed blood with or in urine or faeces	Y	N
20.51	Kidney, bladder or prostatic disease	Y	N
20.52	Easy fatigue-ability or sleep in the day	Y	N
20.53	Investigations for abnormal glucose tolerance, high blood sugar, or diabetes	Y	N
20.54	Medical Certificate for absence of 7 or more days from work or school	Y	N
20.55	Rejection or premium loading for life or health insurance	Y	N
20.56	Rejection or retirement from employment on medical grounds	Y	N
20.57	Admission to hospital, psychiatric or in patient facility	Y	N
20.58	Taken any type of medicine or alternative medicine for more than 2 weeks	Y	N
20.59	Had a positive laboratory test for HIV infection	Y	N
20.60	Investigation for any disorder	Y	N
20.61	Any major medical or surgical procedure	Y	N
20.62	Day surgery	Y	N
20.63	Any other illness, disability, debility, infirmity, treatment or surgery	Y	N
	Females only		
20.64	Any troubling menstrual problems	Y	N
20.65	Other gynaecological problem	Y	N
20.66	Any obstetric problem	Y	N
20.67	Breast lump or other breast problem	Y	N
20.68	PREGNANCY: Are you pregnant?	Y	N

Name_____ Client ID_____

21. Has any medical certificate ever been denied, suspended, or revoked within or outside of New Zealand?	☐ Yes ☐ No
22. Have you ever been convicted of an alcohol or drug-related offence, including a drink-driving offence, or is any action pending for such an offence?	☐ Yes ☐ No
23. Have you received any Notice under Section 27I or 27H of the Civil Aviation Act (suspension, restriction, endorsements, etc) during the period of the current or last medical certificate?	☐ Yes ☐ No
24. FAMILY HISTORY: Have any members of your family had vascular disease, hypertension, diabetes, heart disease, psychiatric disease or neurological disease? (Please mention age)	☐ Yes ☐ No

	Mother	Father	Siblings	Grandparents	Other
Name of disease and age when discovered					

25. SMOKING: Have you ever smoked? ☐ Yes ☐ No
If yes:

In total, how many years have you smoked for? _____

Average quantity smoked? _____ (Packs/week)

Are you still smoking or have you smoked within the last 12 months? ☐ Yes ☐ No

26. ALCOHOL: Do you drink alcohol? ☐ Yes ☐ No
If yes, how much do you drink per week? (be specific)

Beer (Cans)	Wine (Glasses)	Spirits (Measures)	Total Units Weekly

I usually drink: at weekends ☐ most days ☐

27. Have you VISITED a health professional within last 3 years? ☐ Yes (explain below) ☐ No

Date	GP/Specialist	Reason

28. Have you taken any MEDICATION in past 3 years for 2 weeks or more? ☐ Yes (explain below) ☐ No

Name	Dosage	Purpose	Date started	Date finished

29. If you answered "Yes" to any questions from 20 to 28, please provide all details of each instance – use extra pages or attach any documents as required.

Question No:	Details:

Name_____ Client ID_____

30. Consent

I consent to the disclosure to the Director and, or his delegate, of any medical information relating to me, which is held by a registered medical practitioner, hospital or other organisation. I consent to the disclosure to the Director, of information about convictions for alcohol or substance abuse from the Land Transport Agency or other organisations.

I hereby authorize the Director to use information obtained concerning me for any purpose authorised by law. I authorise such information to be disclosed by the Director to any person who requires such information to carry out any function authorised by law. I understand that the Director may provide relevant medical information to other international jurisdictions for the purpose of aviation medical certification.

31. Acknowledgement

I acknowledge and understand the following:

That I have obligations under the Civil Aviation Act 1990, in relation to -

1. the provision of information, for the purpose of obtaining a medical certificate. I understand that failing to comply with these obligations is an offence, and
2. advising a medical examiner or reporting to the Director if I become aware of, or suspect that there is any change in my medical condition or the existence of a previously undetected medical condition that may interfere with the safe exercise of the privileges to which my medical certificate relates, and
3. the making or causing to be made of any fraudulent, misleading, or intentionally false statement for the purpose of obtaining a medical certificate constitutes an offence under section 46B of the Civil Aviation Act 1990, and is subject, in the case of an individual, to imprisonment for a term not exceeding 12 months or to a fine not exceeding $10,000, and
4. the failure to notify Director of any change in medical condition or the existence of a previously undetected medical condition constitutes an offence under section 46C of the Civil Aviation Act 1990, and is subject, in the case of an individual, to imprisonment for a term not exceeding 12 months or to a fine not exceeding $5,000.

I have read this application form, familiarised myself with it and understand its contents, including the consent and acknowledgement in paragraphs 30 and 31. I confirm that all the information that I have entered onto this form is true and accurate in all respects:

Applicant's Signature | Date / /

I have explained this form to the applicant and confirm that he/she has signed it in my presence.

Witnessed by (ME) | Date: / /

Recent Aviation Occurrence Reports published by the Transport Accident Investigation Commission (most recent at top of list)

Interim Report AO-2017-001	Collision with terrain, Eurocopter AS350-BA, ZK-HKW, Port Hills, Christchurch, 14 February 2017
AO-2013-011	Runway excursion, British Aerospace Jetstream 32, ZK-VAH, Auckland Airport, 2 November 2013
AO-2014-006	Robinson R44 II, ZK-HBQ, mast-bump and in-flight break-up, Kahurangi National Park, 7 October 2014
Interim Report AO-2016-007	Collision with terrain, Robinson R44, ZK-HTH, Glenbervie Forest, Northland, 31 October 2016
AO-2014-004	Piper PA32-300, ZK-DOJ, Collision with terrain, Near Poolburn Reservoir, Central Otago, 5 August 2014
AO-2015-002	Mast bump and in-flight break-up, Robinson R44, ZK-IPY, Lochy River, near Queenstown, 19 February 2015
AO-2013-008	Boeing 737-300, ZK-NGI, Loss of cabin pressure, near Raglan, Waikato, 30 August 2013
AO-2013-003	Robinson R66, ZK-IHU, Mast bump and in-flight break-up, Kaweka Range, 9 March 2013
AO-2014-002	Kawasaki BK117 B-2, ZK-HJC, Double engine power loss, Near Springston, Canterbury, 5 May 2014
AO-2013-006	Misaligned take-off at night, Airbus A340, CC-CQF, Auckland Airport, 18 May 2013
AO-2010-009	Addendum to Final Report: Walter Fletcher FU24, ZK-EUF, loss of control on take-off and impact with terrain, Fox Glacier aerodrome, South Westland, 4 September 2010
AO-2012-002	Airbus A320 ZK-OJQ, Bird strike and subsequent engine failure, Wellington and Auckland International Airports, 20 June 2012
AO-2013-005	In-flight loss of control, Robinson R22, ZK-HIE, near New Plymouth, 30 March 2013
AO-2013-007	Boeing 737-838, ZK-ZQG, stabiliser trim mechanism damage, 7 June 2013
AO-2013-009	RNZAF Boeing 757, NZ7571, landing below published minima, Pegasus Field, Antarctica, 7 October 2013

Price $12.00

ISSN 1179-9080 (Print)
ISSN 1179-9099 (Online)