



What Do We Really Know?

Reporting of Pilot Medical Conditions: an International
Perspective

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Agenda



1 Accident Investigation

2 Medical Reporting

3 Possible Improvements

4 Discussion

Accident Investigation

Accident in Aleknagik, AK (2010)

Single-engine, amphibious de Havilland DHC-3T impacted mountainous terrain. Pilot and 4 passengers fatally injured; 4 others seriously injured.



Accident Investigation

NTSB Investigation

Lack of a cockpit flight recorder significantly impeded investigation into probable cause.



Aircraft and Flight Conditions

- Airplane was equipped with avionics to assist with navigation, situational awareness, and terrain avoidance.
- No evidence of pre-impact mechanical failures in aircraft.
- Aural and visual alerts from radar altimeter about 4 to 6 seconds before impact.
- Airplane was in a climbing left turn when it collided with terrain, and flight control inputs were made shortly before impact.

Accident Investigation

Pilot Medical Condition

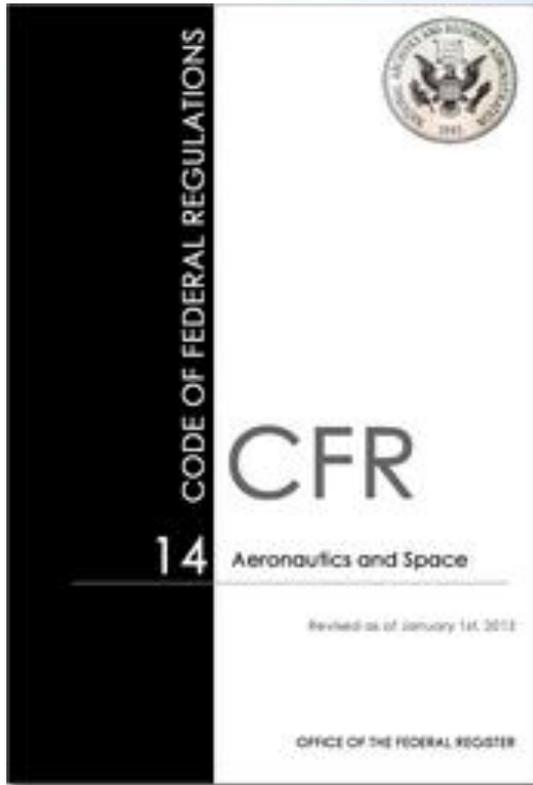
Information Submitted to FAA

- March 2006: 3 cm intracerebral hemorrhage (ICH) in right basal ganglia w/ventricular extension
- Cognitive deficits for months after event.
 - “Situational awareness” off in car
 - Flight simulator performance subpar
- Strong family history of ICH.
- No history of hypertension.



Accident Investigation

U.S. Guidelines



14 CFR Part 67

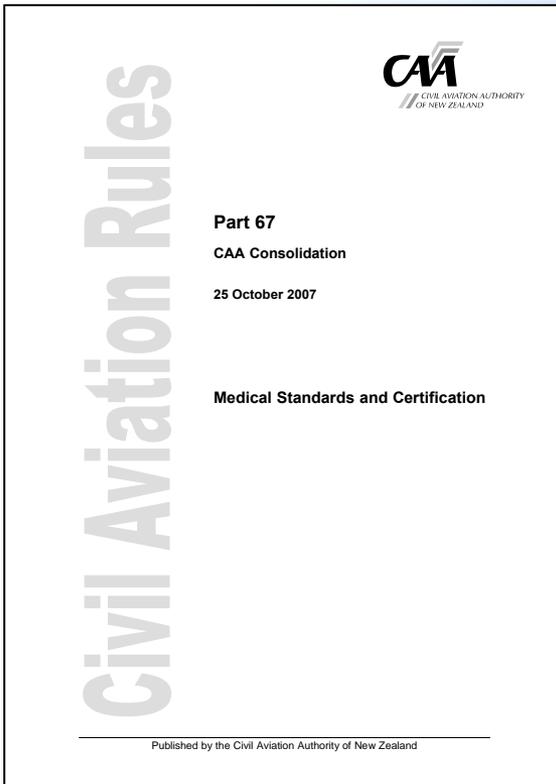
“...a transient loss of control of nervous system function(s) without satisfactory medical explanation of the cause” is disqualifying for every class of airman medical certificate.

Aeromedical Certification Reference Manual

“cerebrovascular accidents ... special issuance consideration will be given to those who can demonstrate full recovery of motor, sensory, language, and intellectual function.”

Accident Investigation

N.Z. Guidelines



Civil Aviation Rules 67

An aeromedically significant “...disturbance of consciousness or function ...” is disqualifying for every class of airman medical certificate.

CAA Medical Information Sheet

“It is **unlikely that the ongoing risk of medical incapacitation will be low enough for a professional pilot ... to be issued a ... medical certificate after a stroke.** The ongoing risk of medical incapacitation will, in many cases, also be too high for the issue of a class 2 medical certificate.”

Accident Investigation

N.Z. Medical Certificate Issuance

April 2009: Unrestricted Class 2 Medical Certificate Issued

- Application left blank for:
 - Have you experienced [a] neurological disorder?
 - Admission to hospital...or inpatient facility?
- Pilot circled "N" for other questions
 - Have you experienced...[a] vascular problem?
 - A stroke?

Name _____ Client ID _____

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

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	Dysphagia, 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/bipolar 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 inpatient 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

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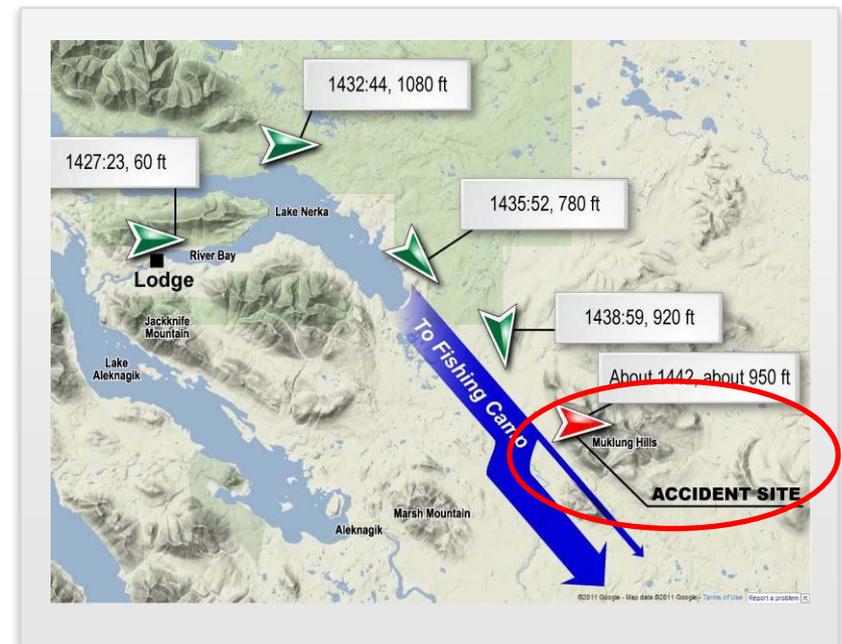
Accident Investigation

NTSB Probable Cause

Pilot's temporary unresponsiveness for reasons that could not be established from the available information.

Medical Recommendation

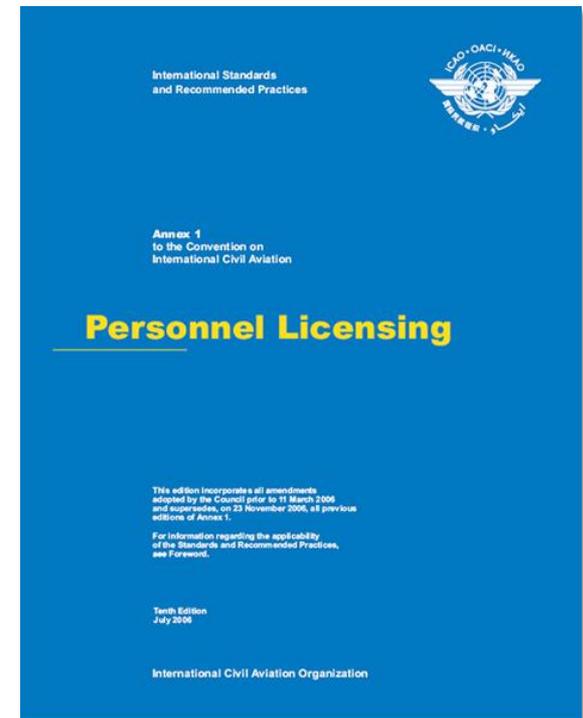
- Revise current FAA guidance on issuance of medical certification subsequent to ischemic stroke or intracerebral hemorrhage.
- Ensure clarity of guidelines and include specific requirements for:
 - Neuropsychological evaluation
 - Appropriate assessment of the risk of recurrence or other adverse consequences subsequent to such events.



Medical Reporting

Interval Examinations

- ICAO Annex 1, Chapter 1
 - Medical examinations by designated examiners at specific intervals.
 - Results of examinations to licensing authorities.
- ICAO Annex 1, Chapter 6
 - Certified statement from pilot regarding medical history.
 - Medical assessment requirements and recommendations.



Medical Reporting

Interval Examinations

Examinations fairly consistent for most ICAO member states.

- Trained examiners
- Periodic exams
- Information on existing conditions
- Affirmation of accuracy and completeness
- Basis for aeromedical decision-making
- Failure to provide accurate information may result in rejection or prosecution



Between Examinations

- ICAO Standards and Recommended Practices, Annex 1, Chapter 1
 - Prohibited from operation during times of decreased medical fitness or when using substances that might render them unsafe.
 - *Recommendations* that states provide guidance and ensure pilots don't fly if unable to meet standards.
- Reporting between required exams
 - "All over the map"

Medical Reporting

No Interval Reporting Required

United States

- Onus is on pilots
 - Must cease exercising privileges whenever medical fitness is insufficient to fly safely.
 - Often, no specific guidance to pilots regarding disqualifying conditions or medications
- Enforcement difficult
 - Subjective determination (unclear thresholds)
 - Only way to know about violation is with third-party reports and/or investigation



Medical Reporting



Interval Reporting Required by *Pilot* (in addition to refraining from flying)

Australia

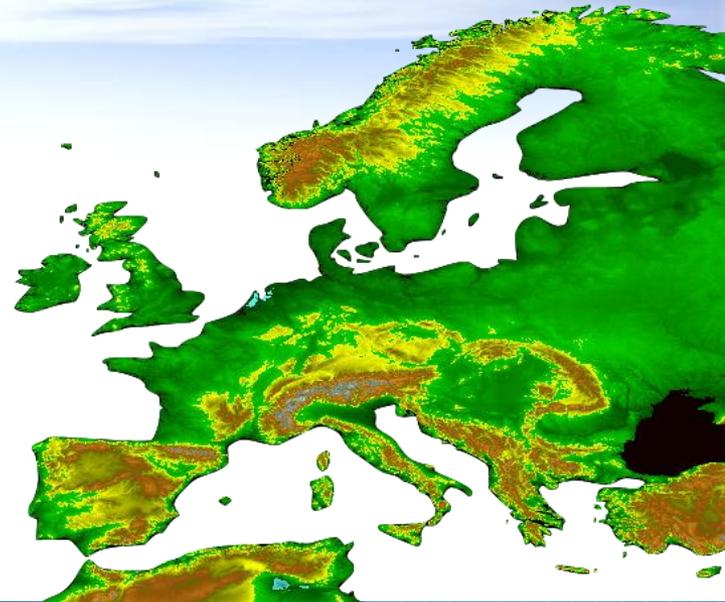
Pilots must report condition impairing their ability for >30 days
(>7 days commercial)

European Union

Pilots must seek advice of aeromedical examiner/center:

- After surgical operation or procedure
- When starting regular medication use
- After significant personal injury
- With significant illness
- With pregnancy
- With hospital or clinic admission
- With first use of corrective lenses

Enforcement still a challenge



Medical Reporting

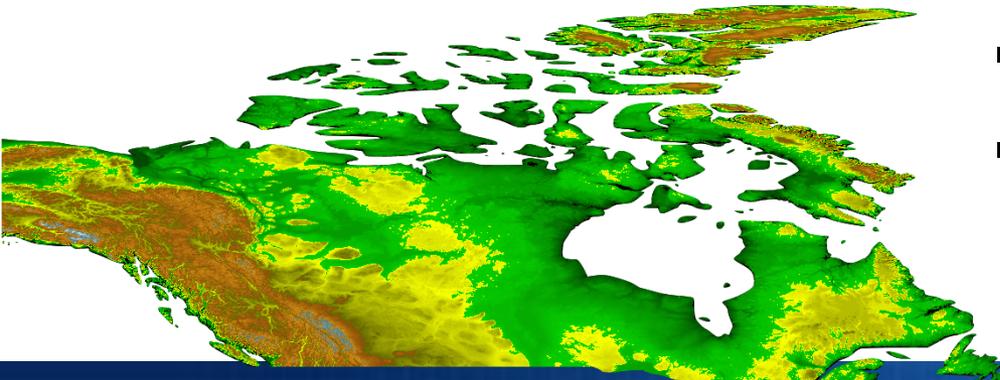
Interval Reporting Required by *Treating Practitioner* (in addition to refraining from flying)

Canada

- Pilots must inform physicians/optometrists that they fly
- Practitioners must report conditions “likely to constitute a hazard to aviation safety” to Ministry of Transport
- Emphasized by medical licensing bodies and associations
- Protects good faith reporting

Enforcement

- Would likely require specific investigation
- Legal and logistical challenge for Ministry of Transport to discipline practitioners



Medical Reporting

Interval Reporting by *Pilot* and *Treating Practitioner*

New Zealand

- **Pilot** must report any condition “that may interfere with the safe exercise of the privileges to which his or her medical certificate relates.”
- **Examiner or practitioners** must report if “reasonable grounds to believe that a person is a license holder.”
- **Flight examiners and operators** who become aware of impairing medical conditions.
- Protection against civil or criminal liability; additional guidance available.

Israel

- **Pilot** must report hospitalization, >15 days off work, deterioration of fitness (on license).
- **Examiners** required to report any significant changes.
- **Treating physicians** required to report findings of “aeromedical significance.”

Other Potential Actions

Certifying authority could request information directly from healthcare databases

- Socialized medical care delivery
- Limited privacy protection

Identification of every case of a pilot visiting a medical practitioner

- Small populations and very few pilots
- All pilots government employees

Others (no existing compendium)



Medical Reporting

Potential Problems in International Operations



Reporting Requirements Vary

- Reporting requirements in one locale are not always the same as in another.

No Centralized Database of Information

- Medical information provided in one place not necessarily reported somewhere else.

Disqualification Not Universal

- Disqualification in one locale does not necessarily mean disqualification in another.

Reporting Not Ubiquitous

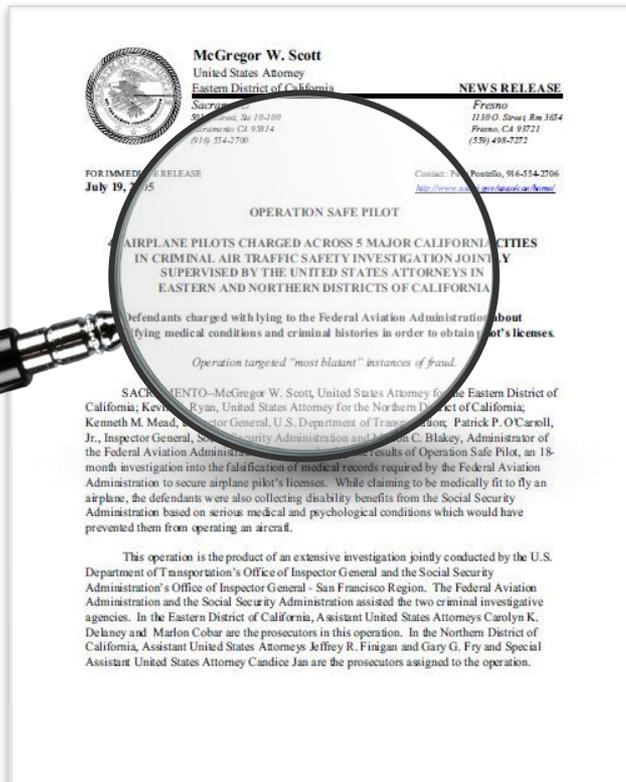
- Reporting does not always take place (even when required).
- Lack of enforcement (license actions only).

Possible Improvements

Scope of Problem

Operation Safe Pilot – U.S. DOT IG 2007

- 40,000 airman certificate holders
- 3,200 receiving disability benefits
- 45 cases prosecuted, including ATPs, commercial pilots, and physicians
- Cardiac, schizophrenia, addiction, etc.



Defendants charged with lying to the Federal Aviation Administration about disqualifying medical conditions and criminal histories in order to obtain pilot's licenses.

Operation targeted "most blatant" instances of fraud.

Possible Improvements

- Strategies to allow ICAO states to communicate
 - Actions regarding medical certificate
 - Pertinent medical information
- More accurate medical information
 - Socialized systems may be more comprehensive
 - Screenable conditions do not require accurate historical information (e.g. substance dependence, obstructive sleep apnea)
- More systematic reporting requirements
- Better data – international studies?
- Enforcement



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Discussion

