



# 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

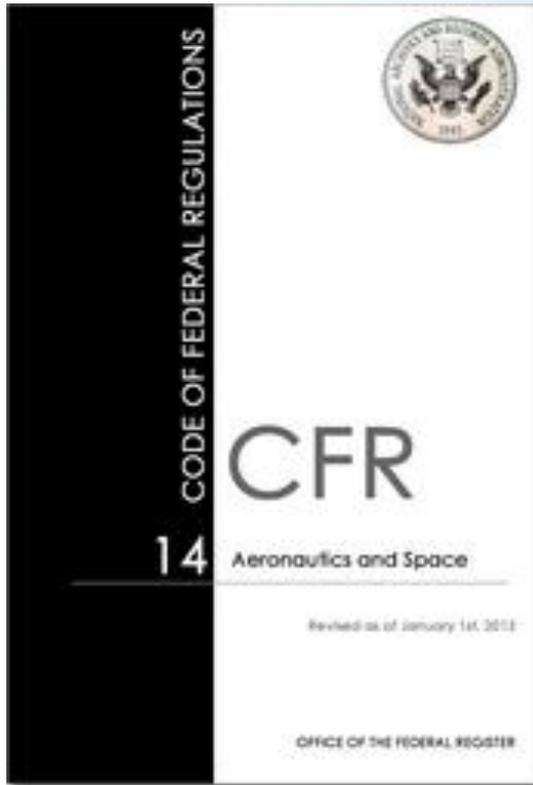
### Information Submitted to FAA

- 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.

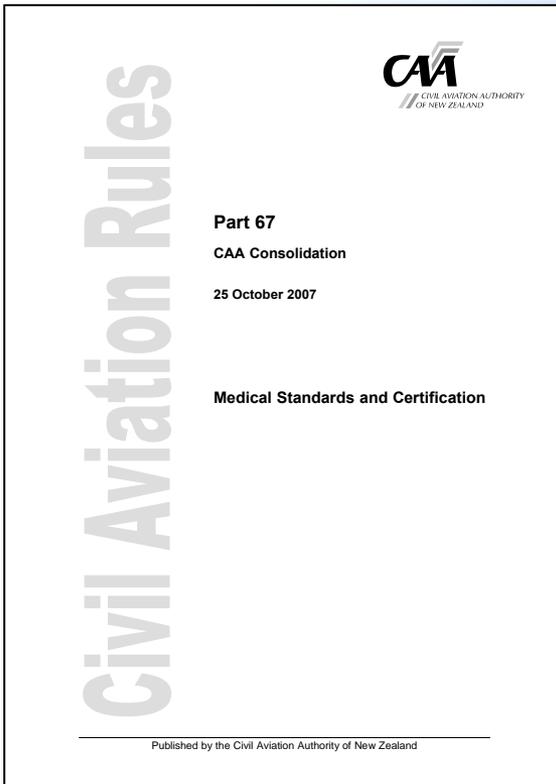
### Aeromedical Certification Reference Manual

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

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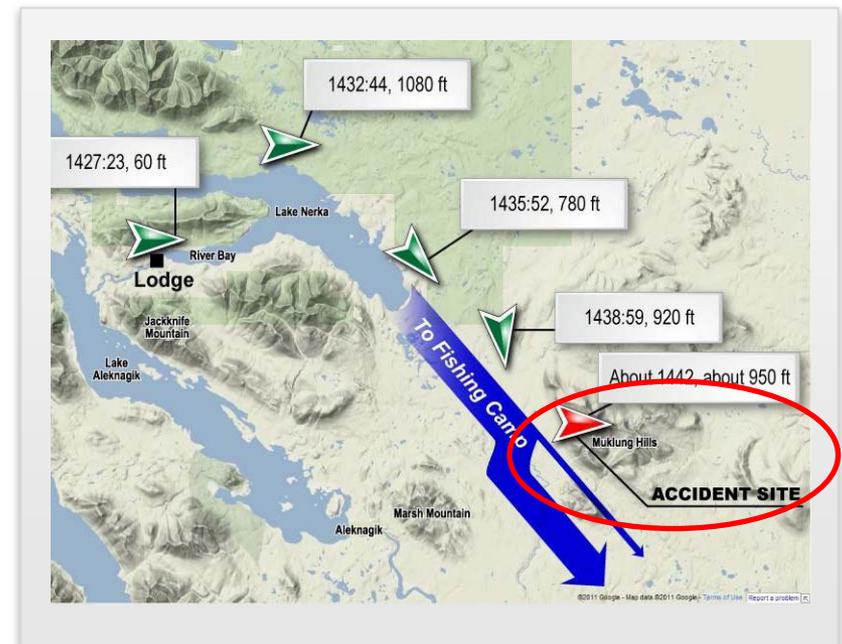
# Accident Investigation

## NTSB Probable Cause

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

## Medical Recommendation

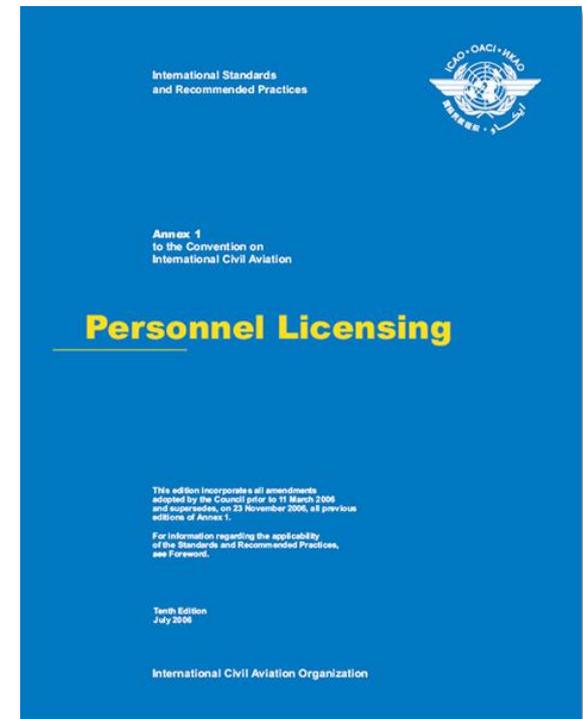
- Revise current FAA guidance on issuance of medical certification subsequent to ischemic stroke or intracerebral hemorrhage.
- Ensure clarity of guidelines and include specific requirements for:
  - Neuropsychological evaluation
  - Appropriate assessment of the risk of recurrence or other adverse consequences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

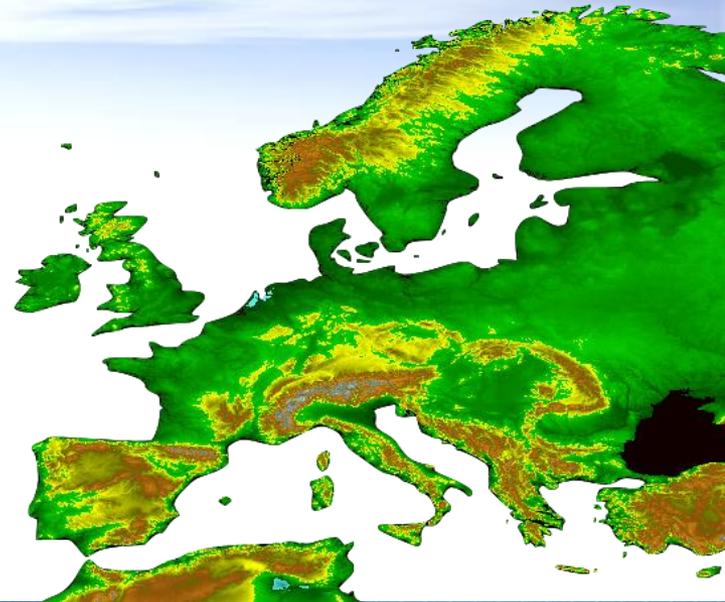
Pilots must report condition impairing their ability for >30 days  
(>7 days commercial)

### 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

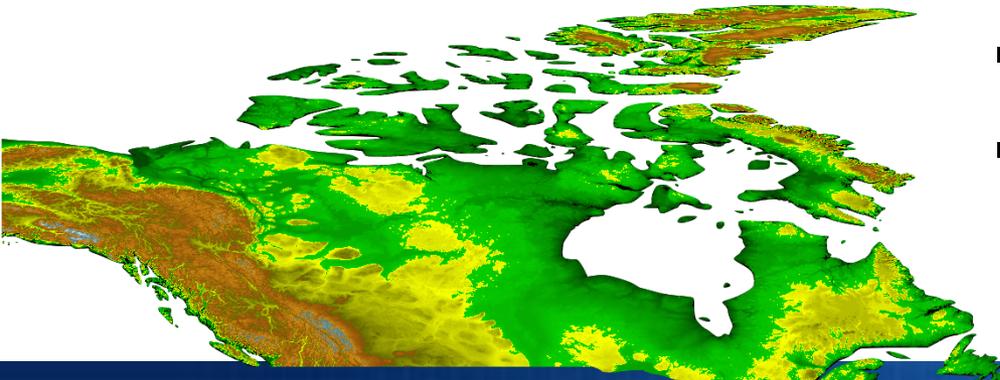
## Interval Reporting Required by *Treating Practitioner* (in addition to refraining from flying)

### 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

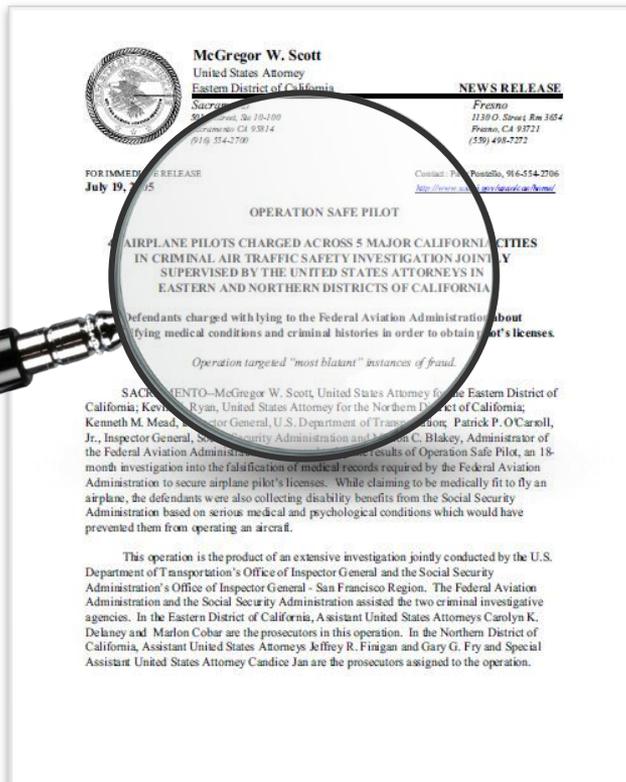
- Reporting does not always take place (even when required).
- Lack of enforcement (license actions only).

# 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.

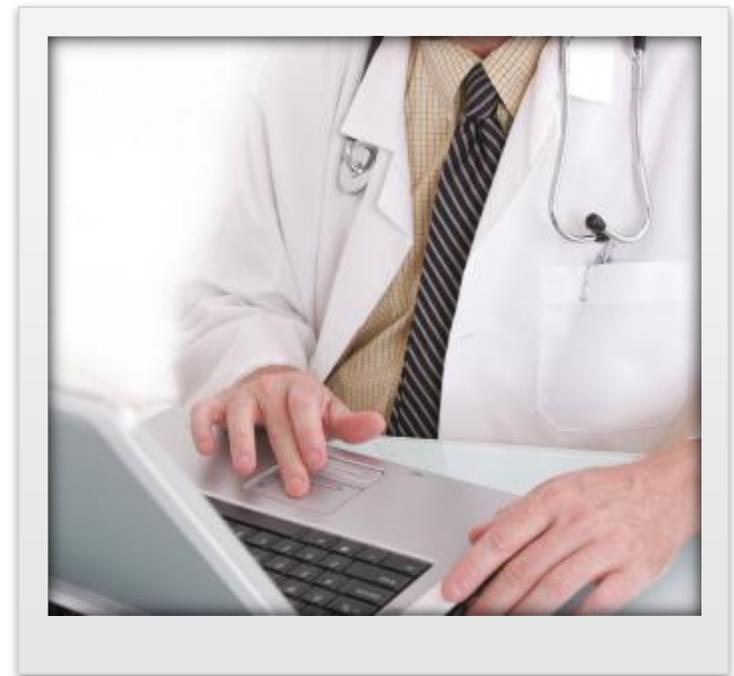


Defendants charged with lying to the Federal Aviation Administration about disqualifying medical conditions and criminal histories in order to obtain pilot's licenses.

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

