



### What Do We Really Know?

#### Reporting of Pilot Medical Conditions: an International Perspective

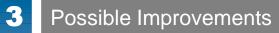
Mitchell A. Garber MD, MPH, MSME

# Agenda



Accident Investigation
------------------------

2 Medical Reporting



#### Discussion



### 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.

### **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.

### **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.

### **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."

### **U.S. Medical Certificate Issuance**

October 2008: Unrestricted (not special issuance) FAA 1<sup>st</sup> Class Airman Medical Certificate issued through FAA Regional Flight Surgeon

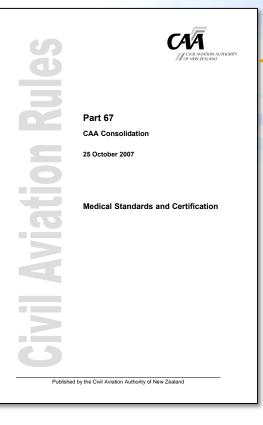
- No attempt to address etiology of ICH.
- No assessment of likelihood of recurrence.
- No formal neuropsychological evaluation.
- No FAA neurology consultation.

#### NTSB

Decision to issue Unrestricted 1<sup>st</sup> Class Airman Medical Certificate was inappropriate.

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### **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."

### **N.Z. Medical Certificate Issuance**

### April 2009: Unrestricted Class 2 Medical Certificate Issued

20.1	Eye or vision trouble	Y	N	20.36	Learning difficulty	Y	N
10.2	Needed new glasses or contact lenses	Y	N	20.39	Attention deficit or hyperactivity Disorder	Y	N
	since last CAA medical Examination			20.40	Post traumatic stress disorder	Y	N
0.3	Eye or corneal surgery	Y	N	20,41	Suicide attempt	Y	N
6.0	Hay fever	Y	N	20.42	Any other Mental Elness	Y	N
0.5	Middle ear infection	Y	N	20.43	Substance dependence or substance.	Υ	N
0.0	Sinusitis	Y	N	and the second	abuse	-22	
0.7	Hearing trouble	Y	N	20.44	Use of legal or illegal recreational drugs or substances	Y	N
8.0	Problems with balance	Y	N	20.45	Alcohol dependence or abuse	Y	N
9.0	Any other Ears, Nose & Throat problems or surgery	Y	N	20.40	Muscle, bone or joint injury	Y	N
0.10	Asthma or wheezing	Y	N	20.47	Back pein, injury or 'beck trouble'	Y	N
0.11	Chronic Cough	Y	N	20.48	Swollen or painful joints	Y	N
0.12	Any other lung problem	Y	N	20.49	Suffered any pain severe enough to be	Y	N
0.13	Any shortness of breath	Y	N	Contradio I	deabling		
0.14		Y	N	20.50	Passed blood with or in urine or faeces	Y	N
	thrombosis		· · ·	20.51	Kidney, bladder or prostatic disease	Y	N
0.15	Coughed or vomited blood	Y	N	20.52	Easy fatigue-ability or sleep in the day	Y	N
0.16	Any severe allergy	Y	N	20.53	Investigations for abnormal glucose	Y	N
0.17	Heart problem	Y	N	S	tolerance, high blood sugar, or diabetes		
0.18	Vascular problem	Y	N	20.54	Medical Certificate for absence of 7 or	Y	N
0.19	Suffered any chest pain	Y	N	20.55	more days from work or school	Y	N
02.00	Rheumatic fever	Y	N	20.00	Rejection or premium loading for life or health insurance	r	
10.21	High or low blood pressure	Y	N	20.56	Rejection or retirement from	Ŷ	N
0.22	Severe abdominal pain	Y	N	1	employment on medical grounds	0	
0.23	Hernia	Y	N	20.57	Admission to hospital, psychiatric or in	Y	N
0.24	Oesophagus, Stomach, liver gall bladder or intestinal trouble	Y	N	20.56	patient facility Taken any type of medicine or	Y	N
10.25	Diagnosed or treated for cancer, tumour, growth or malignancy (including skin	Y	N		alternative medicine for more than 2 weeks		
0.26	canoer) Anaemia or blood disease	Y	N	20.59	Had a positive laboratory test for HIV infection	Y	N
0.27	Headaches/migraines which have	Y	N	20.00	Investigation for any disorder	Ŷ	N
	interfered in any way with daily living?			20.01	Any major medical or surgical procedure	Y	N
0.28	Headaches/migraines requiring	Y	N	20.02	Day surgery	Y	N
0.29	medication? Dizziness or fainting spell	Y	N	20.65	Any other illness, disability, debility, infirmity, treatment or surgery	Y	N
0.20	Unconsciousness for any reason	Y	N		Females only		
0.31	Head injury	Y	N	20.64	Any troubling menstrual problems	Y	N
0.32	Seizures/fits	Y	N	20.65	Other gynaecological problem	Y.	N
0.35	Stroke	Y	N	20.06	Any obstetric problem	Y	N
0.34	Paralysis	Y	N	20.67	Breast lump or other breast problem	Y	N
35.0	Any other neurological disorder	Y	N	20.66	PREGNANCY: Are you pregnant?	Υ	N
0.36	Diagnosed depression	Y	N	61. T	CH (COCK BOOK, PERCENCIPAL PROPERTY PROFESSION)		
0.37	Arxiety disorder/panic Disorder	Y	N				

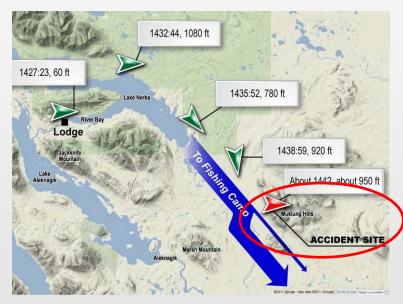
- Application left blank for:
  - Have you experienced [a] neurological disorder?
  - Admission to hospital...or inpatient facility?
- Pilot circled "N" for other questions
  - Have you experienced...[a] vascular problem?
  - A stroke?

### **NTSB Probable Cause**

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

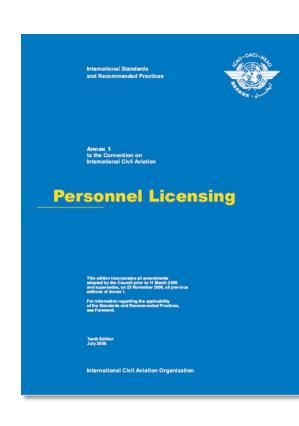
#### **Medical Recommendation**

- 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.



### **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.



### 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"

### **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





### 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:

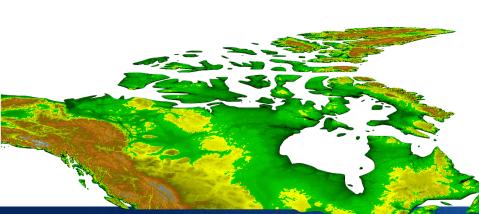
- After surgical operation or procedure
- When starting regular medication use
- After significant personal injury
- With significant illness
- With pregnancy
- With hospital or clinic admission
- With first use of corrective lenses

### Enforcement still a challenge

### 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

### 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)



### **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**

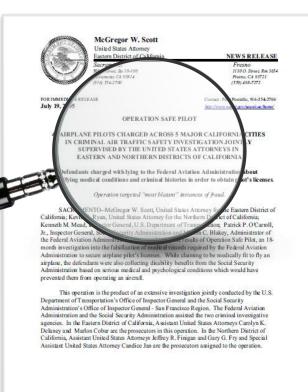
 Disqualification in one locale does not necessarily mean disqualification in another.

#### **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



### Acknowledgments

Pooshan Navathe

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Medical Advisor, International Air Transport Association

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Civil Air Surgeon, Civil Aviation Authority, Israel

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Aviation attorney, LeClairRyan

Douglas McQueen

Aviation attorney, LeClairRyan; Commercial pilot, United Airlines

# Discussion

