



Aircraft Owners and Pilots Association (New Zealand) Incorporated.

13th May 2013

Discussion paper for the CAA consultation group following the meeting 10th April 2013 looking at ways of reducing the costs of the CAA medical department.

CAA should urgently implement a computerised, web based medical application form similar to the system used by FAA. The FAA medxpress system is one where an applicant would use his/her CAA ID to enter the website, authenticating with his/her security password and access the form. The applicant then answers the standard questions on the form and sends it electronically to the department by using his/her password. (Pretty much as you would do with the IRD in filing your GST return). Then that form is available to any ME1 by them entering a number or code that is given to the applicant when he lodges the form. The ME1 completes the form and using their password sends it to CAA.

A web based processing system is not difficult and should be able to be implemented without much delay. There are several systems already available in the market place and consideration should be given to outsourcing this task. It would have to be integrated with the overall new CAA system but that is not difficult either. However waiting for CAA to decide on the new overall system may hold up the implementation of the medical application system which probably could be implemented within 6 months. Savings would be in staff numbers both professional and administration.

Assuming that the applicant meets the standards prescribed in the rules, the ME1 can issue the licence on the spot. This would happen in at least 90% of cases. Under the act the Director has 60 days to ask for more details or to revoke the medical certificate so checks and balances already exist in the system. Other than that the applicant has his Medical Certificate and CAA have the records. This is all subject to the random Audit process by CAA

If there is a problem with the medical standards of the client the ME1 may still issue a med certificate using flexibility, provided the ME1 considers that the reason for the non-compliance is not of aeromedical significance.

This can be for a variety of conditions and reasons, mostly specified in the Rules and Guidelines, but these will not need an AMC. (Guidance could be taken from the FAA manual which specifies the conditions that an ME1 can act on). It must be remembered that an ME1 is fully trained in aeromedical matters and is not just a normal GP. To be appointed an ME the Doctor must have undergone specialised training, present an exposition, undertake continued training and be approved by the Director. They must hold an Aviation Document as described in The Act. To issue a medical certificate, an ME1, must be delegated that authority by The Director which we believe is reviewed annually.

If an AMC has been done previously there could be a “Previously Recorded No Change” (PRNC) option available to the ME1. In this instance no further AMC is required but the use should raise a flag to CAA for audit purposes. This is in line with the FAA system.

If a new AMC is required the ME1 should be able to engage a qualified specialist of his choice to provide the AMC. They should not all have to go to the CAA central medical department for checking. Maybe CAA would have a list of specialists that they approve but not just restricted to ones that they choose all the time. A cardiac specialist should be able to provide a report that will be acceptable and unless the condition is something that involves significant Aeromedical environmental issues like high altitude, then any qualified cardiac specialist should be able to give a report on the likelihood of the sudden incapacitation of the applicant.

If an AMC is required it should be to the cost of the client who has the option of accepting the need for an AMC or not getting a medical. As it is now the applicant pays for his own specialists and the report is sent to the ME who sends it on to CAA. It is here that CAA want to engage their own specialist to check the work of the applicant’s specialist. This is in our view adding substantial cost to the process and indicates that only CAA specialists are capable of deciding if the applicant is indeed fit to fly. This does not preclude the CAA at times to decide they want further investigation but this is covered in the Act. The applicant will have made the choice for an AMC knowing what the cost may be. If this cost is amortised across all pilots then there is a cross subsidy factor involved and that is not acceptable.

There should be no need for a team of doctors in the department for the issue of medical certificates as this job is primarily for administering the well-developed rules Part 67 along with the guidelines.

There has been a great deal of time dedicated to research and promotion of ideals that do not form the core responsibility of the issuance of medical certificates. (See Appendix A). It is obvious that many resources of the department are used in this cause and if the Minister considers this to be an essential part of CAA then those costs should be isolated from the medical issuance role. That would come under the category of R&D. The Aviation Federation do not consider it to be a core part of CAA medical issuance. CAA is charged with promoting safety in New Zealand at a reasonable cost, not leading the world in supposed cutting edge research into issues that have very little, or no impact on safety in New Zealand and are covered in the Rules already.

From a risk management perspective the risks are well managed by the use of the The Act, The Rules Part 67 and the guidelines that have been already been promulgated in accordance with ICAO principles. From a cost-benefit point of view there is no record of medical issues, resulting in sudden pilot incapacitation, causing accidents to a level anywhere near the weather induced accident rate. In fact sudden pilot incapacitation is one of the lowest causes of accidents. The greatest cause of sudden pilot incapacitation is either food poisoning or toxic smoke inhalation. (See Appendix B).

If that is the case, and we know that it is, why does it cost 2.2 mill to run a medical department that is effectively administering the well established rules and conducting audits of our 47 ME1s who issue the medical certificates. It is possible to audit a single ME every week so would be unrealistic to think that it would require one staff member full time doing audits. CAA employs a decentralised system similar to that used by FAA. We should take guidance from that system.

Assumptions for when a web based system is implemented in say 6 months or Jan 1st 2014

- Let's assume there is a job for one medically qualified staff member at say \$190,000 pa.
- Plus the job of data administration. 7700 medicals a year of which 90% are pretty much automatic.
- With a web based system using 1 person who has approx. 1600 hours work time available means about 4.8 per hour.
- With 7000 getting passed automatically it is a simple process and that staff member will be spending most of their time handling the administration of the AMC cases.
- So let's say that there is the need for one professional Doctor and 2 admin staff.
- Say \$190k plus 2 at 70k would be a total salaries of 330k.
- Let's add a part time admin or doctor at \$40K total now \$370K

What else is needed?

- Some consultancy costs but not for AMCs because that will be charged to the applicant.
- No cost for the independent medical convenor who will be charged to the applicant.
- Outside consultants max say 200 hours Per Annum which at \$300.00 per hour is 60k. Any other consultancy must be charged to the user.
- Add some travel for audits say \$30k.
- Training etc. for MEs should be charged to the ME as they charge the applicant for their services. (We don't pay for their medical degrees, it is included in the charge out rate)

The attached budget (Appendix C) shows the last 3 years actual figures and a proposal for operating over next year and beyond. If the CAA consider they need a medical team doing research for new rules or policy advice to Government, then that should be funded from outside the medical department and maybe another research organisation altogether. Pilot medicals must be looked at on a cost / benefit basis for the pilot and the travelling public of New Zealand.

This discussion document does not consider the issue of who the user is when it comes to considering the Government policy of user pays. That is a separate issue to having a cost efficient medical department. Nor does it consider the overhead costs of the CAA which may be the subject of further discussion.

Ian D Andrews

President.

AOPA NZ

Representative for Aviation Federation on the Committee investigating cost reductions in the Medical Department of CAA.

Appendix A

Presentations, Lectures & Articles by the Medical team at CAA

In August 2004 Dr Watson presented a paper to the Aviation, Space and Environmental Medicine Assn titled **Aeromedical Decision-Making: An evidence-Based Risk Management Paradigm**. It was received for review and accepted for publication in October 2004. It was published in the AS&EM Journal Vol76 No1 in Jan 2005.

At the 53rd Congress of Aviation and Space Medicine held August 28th to September 2nd 2005 in Warsaw Poland, a lecture was prepared by Navathe, Drane, Preitner and Watson titled **Aeromedical Decision Making in Transient Global Amnesia**. I assume one or all attended to present the lecture.

Also in 2005 Dr Watson presented a lecture based on his AS&EM paper of January 2005 to the **Slovenian Aerospace Medicine Assn.**

In the March 2006 AS&EM Journal Vol77 No3 for presentation at the May conference another lecture presented by the team titled **Structured Assessment of Aircrew Cardiovascular Risk: Is this regulatory Tool superior to "Age 60" or other age based Exclusion Paradigms?**

At the 54th International Congress held in Bangalore, India on Sept 10-14 2006 A presentation for the Andre Allard Lectures was prepared by Watson, Peitner, Navathe, & Drane. Again presumably presented by one or many of them. This one was Titled **Civil Aviation Medical Certification: Structure Cardiovascular risk assessment is superior to Traditional Age-Based Exclusion Paradigms**.

In the March 2007 AS&EM Journal Vol78 No3 for presentation at the May conference in New Orleans There were 5 Lectures Prepared by the Team. One on **G-loc in General Aviation** which is a specialty of Dr Navathe. The others on **Cardiovascular issues**.

In the March 2008 AS&EM Journal Vol79 No3 for presentation at the May 2008 conference there were another series of lectures presented by the Team in various combinations. We only have the abstracts at this stage which involve **"Show Me the evidence"**. Referred to as a series.

The Team at CAA have been busy researching and preparing lectures, presumably presenting them on a regular basis since at least 2005. It is obvious the major project is the **"Show Me The Evidence"** series and is being promoted as **the new paradigm** for avmed risk assessment in world aviation circles.

Is this the core business of issuing medical certificates to Pilots when the data shows that pilot incapacitation is one of the least prevalent factors in aviation accidents?

Summary of presentations by CAA Medical team

1. 2003 article by Dr Watson.
2. **Aeromedical Decision-Making: An evidence-Based Risk Management Paradigm.** AS&EM Journal Vol76 No1 in Jan 2005
3. **Aeromedical Decision Making in Transient Global Amnesia.** 53rd Congress of Aviation and Space Medicine held August 28th to September 2nd 2005
4. **Slovenian Aerospace Medicine Assn. Lectures In 2005**
5. At the AS&EM conference in 2006 **STRUCTURED ASSESSMENT of AIRCREW CARDIOVASCULAR RISK: IS THIS REGULATORY TOOL SUPERIOR TO "AGE 60" OR OTHER AGE BASED EXCLUSION PARADIGMS**
6. **Civil Aviation Medical Certification: Structured Cardiovascular risk assessment is superior to Traditional Age-Based Exclusion Paradigms.** Presented at the 54th International Congress held in Bangalore, India on Sept 10-14 2006 Dr Dougal B Watson, Preitner CG, Navathe PD, & Drane AM
7. In the March 2007 AS&EM Journal Vol 78 No3. (59) **GLoc in General Aviation**
8. In the March 2007 AS&EM Journal Vol78 No3. (422) **Brugada Syndrome; Possible Familial cluster and cause of fatal aircraft accident.**
9. In the March 2007 AS&EM Journal Vol78 No3. (457) **Medical conditions of concern in regulatory medicine.** (refers to CAA system and CVS risk)
10. In the March 2007 AS&EM Journal Vol78 No3. (533) **Aeromedical Decision Making in Diabetes Mellitus.**
11. In the March 2007 AS&EM Journal Vol78 No3. (534) **Aeromedical Decision Making in Renal Calculi.** (refers to Evidence based decisions)
12. In the March 2008 AS&EM Journal Vol79 No3 (169) **Show Me the Evidence; Aeromedical certification Following Stroke.** (JD Hastings and D Watson)
13. In the March 2008 AS&EM Journal Vol79 No3 (172) **Best Evidence is Bad News: Aeromedical Disposition 15 years After a Stroke** (this lecture refers to my case)
14. In the March 2008 AS&EM Journal Vol79 No3 (227) **Show me the Evidence II: Regulatory Risk Management, Decision-Making and Philosophy.** (written by Watson and A D Evans who is the ICAO PMO)
15. In the March 2008 AS&EM Journal Vol79 No3 (233) **Good Evidence, Bad Decisions: The Use and Abuse of Evidence in Aeromedical Decisions and Debates.** (Watson and the Team)

16. In the March 2008 AS&EM Journal Vol79 No3 (266) **Show Me the Evidence III: New Evidence For Our Evidence-Based Aeromedical Decisions.** (By Watson and R U Bisson who is FAA based)
17. In the March 2008 AS&EM Journal Vol79 No3 (271) **An Oblique View of the First Diagonal.** (Preitner, Watson , Navathe. refers to coronary artery disease)
18. In the March 2008 AS&EM Journal Vol79 No3 (272) **Crigler-Najjar Syndrome. First example of Class 1 Medical certification.** (Maholanobish, Baral, Watson. Refers to Evidence based risk analysis and involves Bangalore and Nepal)
19. In the March 2008 AS&EM Journal Vol79 No3 (337) **Show Me The Evidence IV. A Potpurri of Interesting Clinical Cases.** (Watson, Pickard, Kruyer who are USA based.
20. In the March 2008 AS&EM Journal Vol79 No3 (338) **Aeromedical Disposition Following Spontaneous Coronary Artery Dissection.** (Preitner, Watson & Navathe)
21. In June 2009 AS & EM Journal Vol 80 No6 **Safety Management as a Foundation for Evidence – Based Aeromedical Standards and Reporting of Medical Events** Anthony Evans, Dougal Watson, Sally Evans, John Hastings, Jarnail Singh, Claude Thibeault.

Appendix B

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The incidence rate of sudden incapacitation due to cardiovascular disease for general aviation pilots is estimated to be 1.7 crashes per 100 000 pilots per year and increases with pilot age. However, less than 1% of general aviation crashes are attributable to sudden incapacitation resulting from medical emergencies.

From Australian Records.

ATSB TRANSPORT SAFETY REPORT

Aviation Research and Analysis Report - B2006/0170 Final

Pilot Incapacitation:

Analysis of Medical Conditions Affecting Pilots Involved in Accidents and Incidents

1 January 1975 to 31 March 2006

Dr David G. Newman

MB, BS, DAvMed, PhD, MRAeS, FAICD, AFAIM Consultant in Aviation Medicine

Flight Medicine Systems Pty Ltd

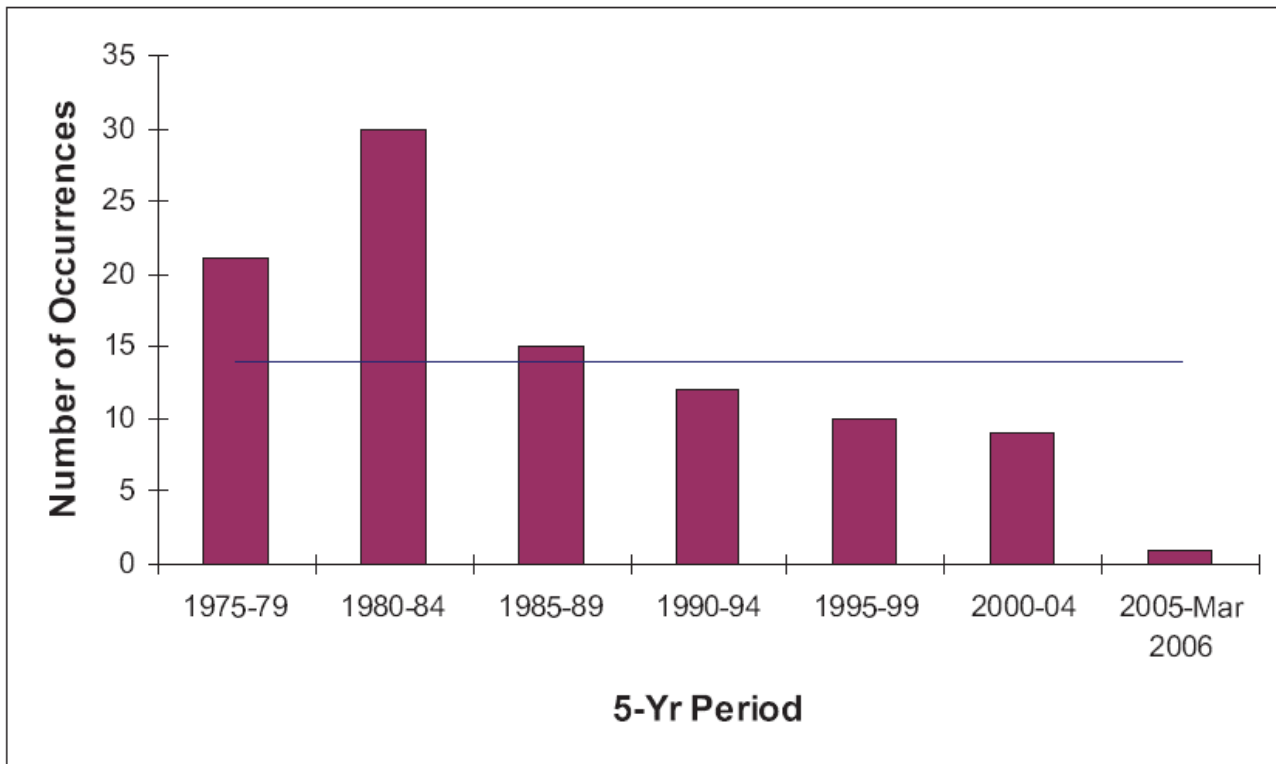
EXECUTIVE SUMMARY

Incapacitation of a pilot due to the effects of a medical condition or a physiological impairment represents a serious potential threat to flight safety. The purpose of this research project was to investigate the prevalence, type, nature and significance of in-flight medical conditions and incapacitation events occurring in civil aviation. A search of the Australian Transport Safety Bureau's accident and incident database was conducted for medical conditions and incapacitation events between 1 January 1975 and 31 March 2006. There were 98 occurrences in which the pilot of the aircraft was incapacitated for medical or physiological reasons (16 accidents, one serious incident and 81 incidents). Such events accounted for only 0.6 of a percentage point of all the occurrences listed in the Australian Transport Safety Bureau's database. The majority of the events occurred in airline operations, with private flying the next most common (22.4 per cent of events). In 10 occurrences (10.2 per cent), the outcome of the event was a fatal accident. All of these accidents involved single-pilot operations, and in the majority of cases, heart attack was the most common cause. The majority (21 per cent) of in-flight medical and incapacitation events in Australian civil pilots for the study period were due to acute gastrointestinal illness (usually food poisoning), a finding consistent with other published studies. The next most common cause was exposure to toxic smoke and fumes on board the aircraft, of which 25 per cent were due to carbon monoxide. The results of this study demonstrate that the risk of a pilot suffering from an in-flight medical condition or incapacitation event is low. However, if the pilot suffers a heart attack the risk of a fatal accident occurring increases. The aeromedical certification process must keep pace with the evolving nature of modern medical science to ensure that the risk of in-flight incapacitation remains low.

To summarise that article

- “Sudden Pilot Incapacitation” (SPI) statistics show the following.
- 98 occurrences in Australia in 30 years.
- 16 accidents, 1 serious incident, 81 incidents.
- 0.6 of 1% or 0.6% of all Occurrences
- Majority in airline operations
- 10 out of the 98 were fatal = 10.2% of 0.6% of all occurrences
- 21% of The SPI cases were due to food poisoning.
- 25% of the SPI cases were due to toxic fumes and smoke.

Figure 1: Medical events by 5-year periods



Furthermore as the above Graph Fig 1 shows, the incidents were greatest in 1984 and reducing ever since to a very low rate now. Which would be far lower than the quoted, averaged, figures.

Appendix C

For Year ending 30th June	2010	2011	2012	AOPA estimate of actual needs		
Personnel Expenses (salary recruitment, etc)	870,508.00	882,686.00	868,074.00	370,000.00	1	190,000.00 Doctor
					1	70,000.00 admin
Conferences and Training	25,843.00	43,789.00	3,450.00		1	70,000.00 admin
Domestic Travel for Conference and training in NZ			1,826.00		1	40,000.00 pt time
Overseas travel for Conferences & training			13,618.00			370,000.00
Other Conference and training expenses			1,947.00			
Sub Total Conference and training expenses	25,843.00	43,789.00	20,841.00			
Domestic travel	8,670.00	6,657.00	1,569.00			
Australia travel	4,958.00	4,871.00	2,619.00			
other travel exp	4,095.00	1,571.00	1,854.00			
Sub total travel exp	17,723.00	13,099.00	6,042.00			
Total of row 9 and row 14 ie conferences training & t	43,566.00	56,888.00	26,883.00	30,000.00		
<i>Variance of costs given and cost Non Employee consu</i>	<i>-7,620.00</i>	<i>-18,990.00</i>	<i>-21,225.00</i>			
<i>Consult and convener costs provided but vary from b</i>	<i>127,920.00</i>	<i>143,430.00</i>	<i>68,872.00</i>			
Consultants and other professionals	120,300.00	124,440.00	47,647.00			
Safety courses	0.00	908.00	57.00			
Other expenses Books etc	3,382.00	5,893.00	3,067.00			
Total for Consultants etc	123,682.00	131,241.00	50,771.00	60,000.00		
Total Operating costs	1,037,756.00	1,070,815.00	945,728.00	460,000.00		
General Allocations						
Depreciation and capital expenses or sevicees in first	84,952.00	45,796.00	71,054.00			
General Overheads	721,452.00	844,872.00	991,118.00			
Subtotal Overheads	806,404.00	890,668.00	1,062,172.00	516,638.10		112.31%
TOTAL OPERATING EXPENSES	1,844,160.00	1,961,483.00	2,007,900.00	976,638.10		
Overheads as % of Personnel expenses	92.64%	100.90%	122.36%			
Overheads as a % of total operating costs	77.71%	83.18%	112.31%			
Medicals issued						
Class 1	876	802	587	To		
Class 2	2212	2053	2224	Be		
class 3	74	45	42	confirmed		
TOTAL all medicals issued	7898	8293	7737	7737		
no of medicals sent for an AMC	901	977	767	767		
Percentage of total medicals sent for AMC	11.41%	11.78%	9.91%	9.91%		
Cost per medical issued row 30 / row 38	\$ 233.50	\$ 236.52	\$ 259.52	\$ 126.23		Excl GST
Note ! The total No of medicals issued is correct the classes were issued incorrectly and are being checked						