



INTERNATIONAL CIVIL AVIATION ORGANIZATION

A United Nations Specialized Agency

Introduction and recent changes to ICAO provisions and guidance

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- What is ICAO
- What are ICAO SARPs
- What is the current main aeromedical risk to flight safety
- ICAO Manual of Civil Aviation Medicine
- Mental and physical conditions

International Civil Aviation Organization: ICAO

- UN specialized agency created in 1944. Sets international standards in:
 - Safety
 - Security
 - Environmental protection



International Civil Aviation Organization - HQ + seven Regional Offices



**ICAO HQ
Montreal**



Mexico

Lima

Paris

Dakar

Cairo

Nairobi

Bangkok

HQ – Montreal, Canada





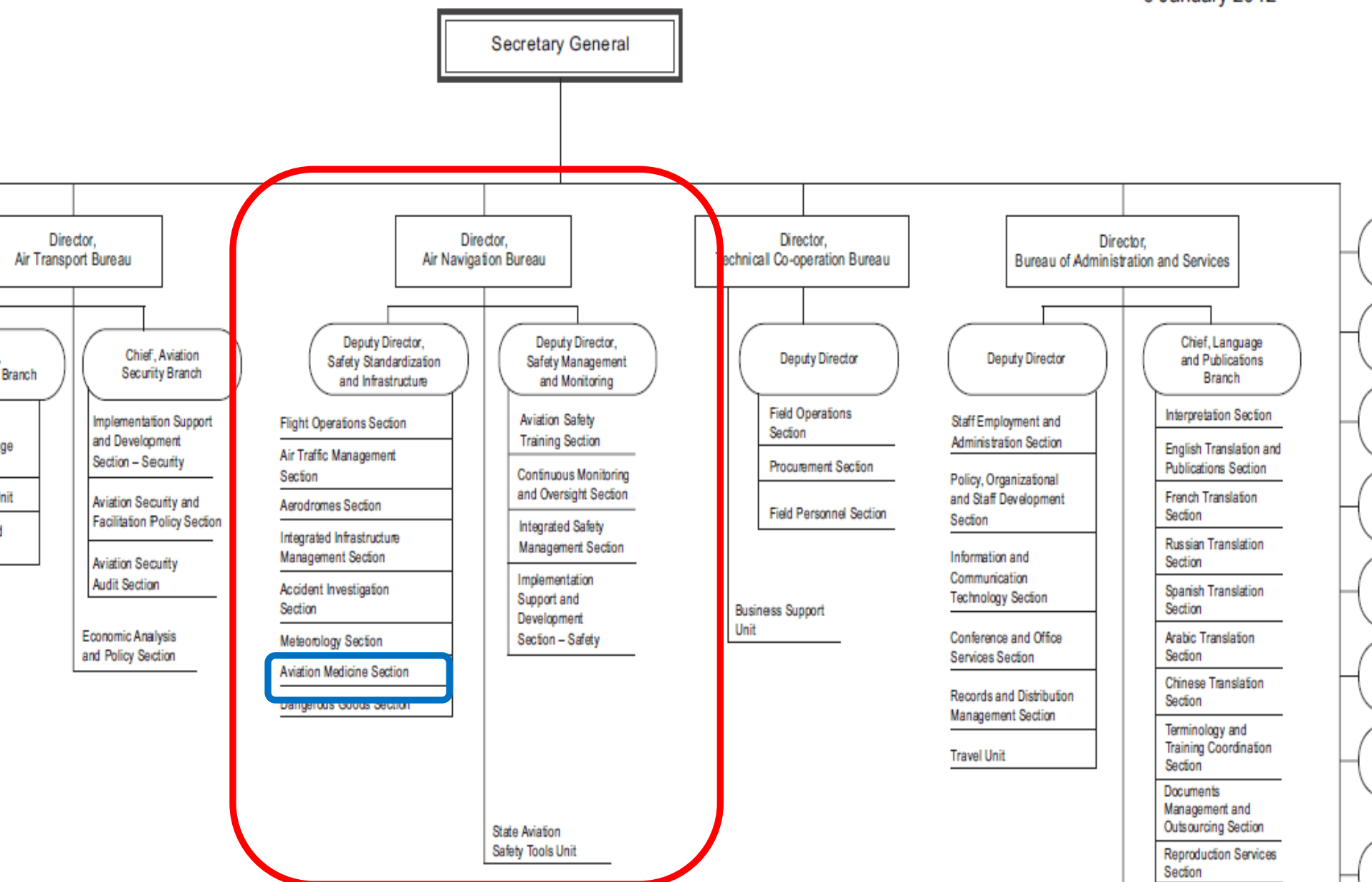
Air France also operated Concorde....
Solution?



AIR FRANCE

CONFERENCE

6 January 2012



ICAO – Medical Section



- Small section - one person!
 - Relies on support from outside ICAO e.g.
 - Dr Jarnail Singh (CAA Singapore)
 - Dr Ewan Hutchison (CAA UK)
 - Dr Silvio Finkelstein (past ICAO Chief Aviation Medicine)
 - Sets and develops international medical Standards & Recommended Practices (SARPs) for pilots air traffic controllers and other licence holders
 - Develops public health planning SARPS & guidance for aviation
 - Develops training requirements/guidelines for designated (authorized) medical examiners

'Chicago' Convention (1944) – 191 signatories



Doc 7300/9



96 Articles

**Convention on
International Civil Aviation**

**Convention relative à
l'aviation civile internationale**

**Convenio sobre
Aviación Civil Internacional**

**Конвенция о международной
гражданской авиации**

This document supersedes Doc 7300/8.
Le présent document annule et remplace le Doc 7300/8.
Este documento reemplaza el Doc 7300/8.
Настоящий документ заменяет Doc 7300/8.

Ninth Edition – Neuvième édition – Novena edición – Издание девятое — 2006

International Civil Aviation Organization
Organisation de l'aviation civile internationale
Organización de Aviación Civil Internacional
Международная организация гражданской авиации

**19 Annexes to the
Convention - 'Standards
and Recommended
Practices' SARPs**

•Governments

***Regulatory Aviation
Authorities***

e.g.

**•Romanian Civil Aviation
Authority**

**•Federal Aviation
Administration (US)**

•Transport Canada

•UK CAA

18 ICAO Annexes to the Convention - contain 'SARPs'



- **Annex 1 Personnel Licensing**
 - Annex 2 Rules of the Air
 - Annex 3 Meteorological Service for International Air Navigation
 - Annex 4 Aeronautical Charts
 - Annex 5 Units of Measurement to be Used in Air and Ground Operations
 - Annex 6 Operation of Aircraft
 - Annex 7 Aircraft Nationality and Registration Marks
 - Annex 8 Airworthiness of Aircraft
 - Annex 9 Facilitation
 - Annex 10 Aeronautical Telecommunications
 - Annex 11 Air Traffic Services
 - Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM)
 - Annex 12 Search and Rescue
 - Annex 13 Aircraft Accident and Incident Investigation
 - Annex 14 Aerodromes
 - Annex 15 Aeronautical Information Services
 - Annex 16 Environmental Protection
 - Annex 17 Security: Safeguarding International Civil Aviation Against Acts of Unlawful Interference
 - Annex 18 The Safe Transport of Dangerous Goods by Air
 - Annex 19 Safety Management



**Annex 1
to the Convention on
International Civil Aviation**

Personnel Licensing

This edition incorporates all amendments adopted by the Council prior to 5 March 2011 and supersedes, on 17 November 2011, all previous editions of Annex 1.

For information regarding the applicability of the Standards and Recommended Practices, see Foreword.

Eleventh Edition
July 2011

International Civil Aviation Organization



Standard - Definition



- *Standard*: Any specification for physical characteristics, configuration, matériel, performance, personnel or procedure, the uniform application of which is recognized as **necessary** for the safety or regularity of international air navigation and to which Contracting States **will** conform in accordance with the Convention; in the event of impossibility of compliance, **notification to the Council** is compulsory under Article 38.

Recommended Practice - Definition



- *Recommended Practice:* Any specification for physical characteristics, configuration, matériel, performance, personnel or procedure, the uniform application of which is recognized as **desirable** in the interest of safety, regularity or efficiency of international air navigation, and to which Contracting States will **endeavour** to conform in accordance with the Convention.

Example of ICAO Standard from ICAO Annex 1 (Personnel Licensing), Chapter 6

6.3.3.2 Distant visual acuity with or without correction shall be 6/9 or better in each eye separately, and binocular visual acuity shall be 6/6 or better.

Example of ICAO Recommended Practice



6.4.2.6.2 Recommendation.— Electrocardiography should form part of the heart examination for the first issue of a Medical Assessment. (Class 2)

Compare with:

6.3.2.6 Electrocardiography shall form part of the heart examination for the first issue of a Medical Assessment. (Class 1)

Flexibility Standard



1.2.4.9 If the medical Standards prescribed in **Chapter 6** for a particular licence are **not met**, the appropriate Medical Assessment shall not be issued or renewed unless the following conditions are fulfilled:

- a) **accredited medical conclusion** indicates that in special circumstances the applicant's failure to meet any requirement, whether numerical or otherwise, is such that exercise of the privileges of the licence applied for is not likely to jeopardize flight safety;
- b) **relevant ability, skill and experience** of the applicant and operational conditions have been given due consideration; and
- c) **the licence is endorsed** with any special limitation or limitations when the safe performance of the licence holder's duties is dependent on compliance with such limitation or limitations.

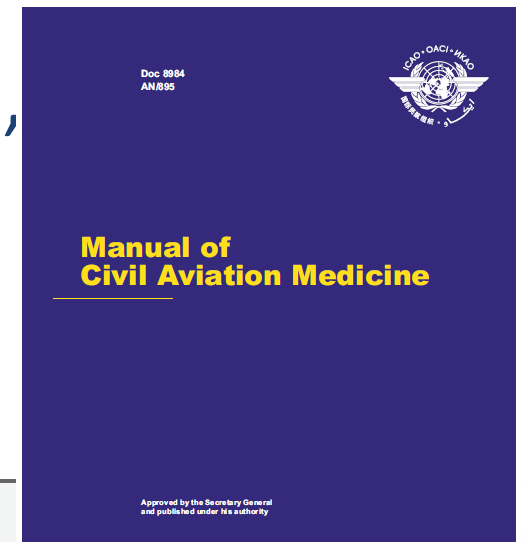
Guidance is available from the ICAO public website



Manual of Civil Aviation Medicine

— Third edition, 2012

- <http://www.icao.int/publications/pages/publication.aspx?docnum=8984>
- Google: “ICAO Medicine Manual”



Layout

- I. Licensing Practices
 - Chapter 2: Medical requirements
- II. Aviation Physiology
- III. Medical Assessment
- IV. Aviation Pathology
- V. Aviation Medical Training
- VI. Public Health Emergencies and Aviation

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Where do the most important aeromedical hazards lie - physical or mental conditions?



**Show me the
evidence....**

Medical cause fatal accidents 1980-2000

Global, 2-pilot aircraft, over 5700 kg



Year	Aircraft	Medical problem	Confidence
1982	DC 8	Schizophrenia *	High
1982	Citation	Alcoholic impairment *	High
1982	Metro	Vomiting (P2)	High
1983	Learjet	Use of marijuana (P1 & P2)*	High
1988	Metro	Use of cocaine	High
1989	FH 227	Alcohol (P2)	High
1990	Learjet	Slurred speech, ? cause *	Medium
1993	Learjet	Alcohol/cocaine (P1)	High (private)
1994	ATR 42	Suicide *	Low
1999	An 26	Alcohol (P1 & P2) *	Medium

- Primary Cause
- Excluding hypoxia, fumes, fatigue

What has ICAO done?



- ICAO provisions emphasise need to more fully address mental health issues in pilots
 - Guidance on how the routine examination can be adjusted is available (ICAO Manual of Civil Aviation Medicine)
 - Aim to promote a culture shift to increase emphasis on mental health fitness (including problematic use of psychoactive substances) issues and on preventative medicine
 - Focus more on physical conditions in the older age groups
-
- See ICAO Manual: http://www.icao.int/publications/Documents/8984_cons_en.pdf

Name and logo of
CIVIL AVIATION AUTHORITY

Adapted from Joint Aviation Authorities

MEDICAL IN CONFIDENCE



MEDICAL EXAMINATION REPORT
For use by designated medical examiners only

(4) National Identification number (if applicable)

(1) Examination Category Initial <input type="checkbox"/> Renewal <input type="checkbox"/> Special Referral <input type="checkbox"/>	(2) Height cm	(3) Weight kg	(4) Eye Colour	(5) Hair Colour	(6) Blood Pressure – seated mmHg Systolic Diastolic	(7) Pulse – resting Rate (bpm) Rhythm Reg <input type="checkbox"/> Irreg <input type="checkbox"/>	
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Clinical examination: Check each item		Normal	Abnormal	Normal	Abnormal
(8) Head, face, neck, scalp				(18) Abdomen, hernia, liver, spleen	
(9) Mouth, throat, teeth				(19) Anus, rectum (indicate if not examined)	
(10) Nose, sinuses				(20) Genito-urinary system (indicate if not examined)	
(11) Ears, especially eardrum appearance and motility				(21) Endocrine system	
(12) Eyes – orbit and adnexa, visual fields				(22) Upper and lower limbs, joints	
(13) Eyes – pupils and optic fundi				(23) Spine, other musculoskeletal	
(14) Eyes – ocular motility, <u>nystagmus</u> , eye muscle balance				(24) Neurologic – reflexes, etc.	
(15) Lungs, chest, breasts (indicate if breasts not examined)				(25) Psychiatric	
(16) Heart				(26) Skin and <u>lymphatics</u>	
(17) Vascular system				(27) General systemic	
(28) Notes: Describe every abnormal finding. Enter applicable item number before each comment.				(29) Identifying marks, tattoos, scars etc	

Visual acuity

(30) Distant vision at 6 m		Glasses	Contact lenses
Uncorrected			
Right eye	Corrected to		
Left eye	Corrected to		
Both eyes	Corrected to		
(31) Intermediate vision N14 at 100 cm		Uncorrected	Corrected
Right eye	Yes	No	Yes
Left eye			
Both eyes			
(32) Near vision		Uncorrected	Corrected

(60) Mental health aspects of fitness discussed Yes <input type="checkbox"/> No <input type="checkbox"/>
(61) Behavioural aspects of fitness discussed Yes <input type="checkbox"/> No <input type="checkbox"/>
(62) Physical aspects of fitness discussed Yes <input type="checkbox"/> No <input type="checkbox"/>
(63) Preventive health advice given Yes <input type="checkbox"/> No <input type="checkbox"/>
Accompanying Reports
(70) ECG

(60) Mental health aspects of fitness discussed

Yes ☐ No ☐

(61) Behavioural aspects of fitness discussed

Yes ☐ No ☐

(62) Physical aspects of fitness discussed

Yes ☐ No ☐

(63) Preventive health advice given:

Yes ☐ No ☐

Safety management



- 1.2.4.2 Recommendation.— States should apply, as part of their State safety programme, basic safety management principles to the medical assessment process of license 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.

Summary



- Described ICAO and ICAO SARPs
- Considered the current main aeromedical risk to flight safety
- Described ICAO Manual of Civil Aviation Medicine
- Considered the role of preventative medicine
- Considered the importance of mental/behavioural conditions
- Mentioned new SARP on aeromedical safety management



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What value do we get from aeromedical examinations?



**Show me the
evidence....**