



Toxicological testing

Post-mortem examination process

Presented by

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Topics

Involved parties

When to request toxicology

Roles of medical evidence

Types of medical evidence

Requesting reports



Involved parties

- Investigating medical-related factors should be a team-based activity that involves:
 - Investigator-in-charge
 - selected investigation team members
 - Manager Operations
 - relevant medical specialists (if required).



Involved parties

- For more complex investigations where medical factors are being actively considered:
 - a human factors specialist (or an investigator with medical expertise) if the focus of interest is on conditions influencing the performance of the operating crew
 - a survival factors specialist (or an investigator with medical expertise) if the focus of interest in medical aspects is on survivability factors

Involved parties

- General ATSB points about communications with Coroners and pathologists:
 - All communications regarding post-mortem examinations and toxicology testing (including results) must be through established communication channels.
 - Do not attempt to contact the pathologist directly unless explicitly approved by the Coroner

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When to request toxicology

- Collection of medical evidence should be conducted at same time as other evidence collection
- Medical evidence should be scoped, prioritised and planned early in the investigation
- ATSB will consider engaging medical specialist for flight crew examination, or provide specific advice to Coroner

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Roles of medical evidence

- Medical evidence can be important for many reasons during an investigation. It can assist with determining:
 - if an individual was incapacitated, unresponsive or deceased at the time of an accident impact (or another important time in the sequence)
 - if an individual's performance was influenced by a medical condition or illness
 - if an individual's performance was influenced by a medication

Roles of medical evidence

- Was a prescribed medication was being taken as required?
- Performance influenced by alcohol, drug or other substance?
- Performance influenced by exposure to an environmental or physiological condition?
- Were medical or physical aids being worn or used at the time of an accident (eg. spectacles, contact lenses, hearing aids)

Roles of medical evidence

- Providing a source of evidence (eg. pre-impact fire or smoke)
- Providing information (eg. were they operating the aircraft at the time of impact)
- Providing information for assessing operational factors (eg. individual's weight)
- Providing information regarding impact forces



Roles of medical evidence

- Evidence of any medical conditions or limitations that should have been declared or detected during flight crew medicals
- Determining if safety equipment was being correctly used (eg. restraints & helmets)
- Determining if additional safety equipment, if fitted, may have reduced the risk of injury or improved survivability
- Determining if delays in receiving medical attention increased the risk of injury or reduced survivability



Roles of medical evidence

- Determining if an individual's emergency evacuation or survivability was influenced by a medical condition, illness, medication or other substance
- Providing information important for assessing other survivability factors (eg. mobility, strength or other capacity relevant to emergency evacuation).



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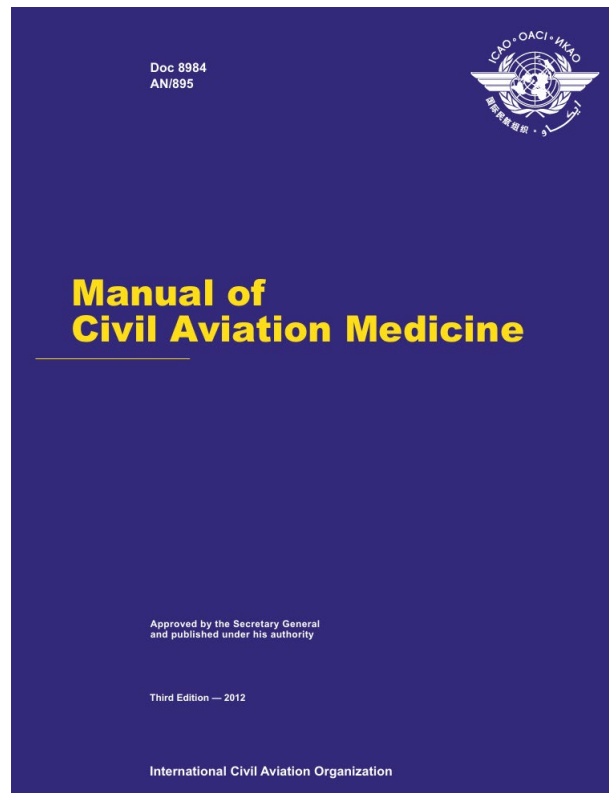
Types of medical evidence

Requesting reports



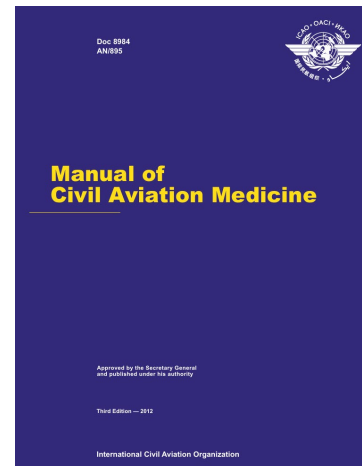
Types of medical evidence

- ICAO Doc 8984
 - Manual of Civil Aviation Medicine



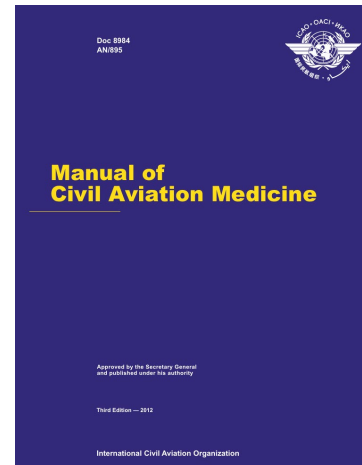
Types of medical evidence

- Part IV Aviation pathology includes the following guidance related to autopsies:
 - *d) minimal internal autopsy on all casualties to include:*
 - *establishment of the cause of death;*
 - *discovery of major disease likely to influence life expectancy; and*



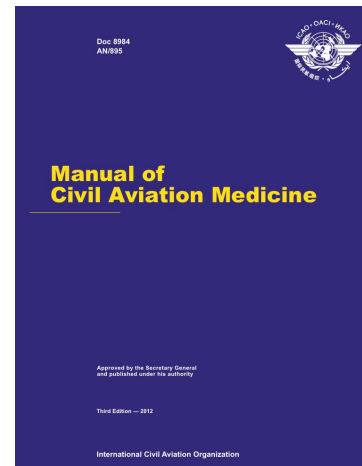
Types of medical evidence

- Part IV Aviation pathology includes the following guidance related to autopsies:
 - *d) minimal internal autopsy on all casualties to include: (cont.)*
 - *assessment of deceleration injury to: – cardiovascular system, liver and diaphragm; – head, sternum, spine and pelvis;*



Types of medical evidence

- Part IV Aviation pathology includes the following guidance related to autopsies:
 - *e) selection of blood specimens from all casualties for **carboxyhaemoglobin studies**;*
 - *f) collection of lung specimens from all casualties for estimation of the mode of death.*



Types of medical evidence

- The most common types of medical evidence used in safety investigations include:
 - post-mortem reports on deceased individuals
 - toxicology reports on deceased individuals
 - items found at accident site (eg. medical aids, medications and other personal effects)
 - aircraft wreckage (in terms of considering survivability aspects)



Types of medical evidence

- Drug and alcohol testing of individuals following an occurrence (as arranged by an operator, regulator or other organisation, or potentially conducted by police or at a hospital)
 - ATSB do not have powers to do D&A testing
- Other medical records
 - General practitioners and specialists
 - Hospital records
 - Government records



Types of medical evidence

- Testing of surviving individuals following an accident
eg:
 - carbon monoxide testing
 - eyesight examinations
- Workplace leave records (sick leave days)
- Interviews with the involved individual or next of kin of the deceased
- Advice from medical specialists
- Medical research literature and reference resources



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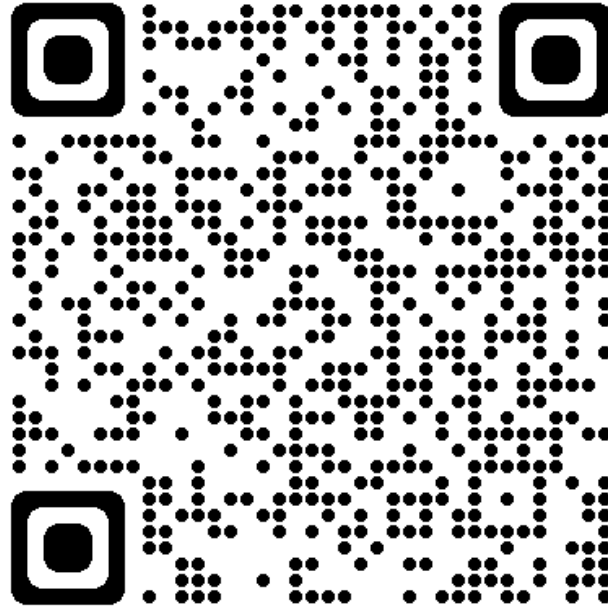


Requesting reports

- In Australia any medical records are well protected
- ATSB has a dedicated form for this request
- Requests to the Coroner can be denied at their discretion
 - We will pass to our Legal Services
 - It will be necessary to negotiate an agreed way forward



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