Theme: “How to Prepare Tomorrow’s Workforce with Today’s Training Tools”

Competency Based Training of Designated Medical Examiners
Training of Medical Doctors:

Traditionally Knowledge Based

Competency based approach is something fairly new to medical education and training
**DEFINITIONS: ICAO Annex 1**

**Medical Examiner**: A physician with training in Aviation Medicine and practical knowledge and experience of the aviation environment, who is designated by the Licensing Authority to conduct medical examinations of fitness of applicants for licences or ratings for which medical requirements are prescribed.

*Medical Examiners* **must be trained** and **shall also receive refresher training in Aviation Medicine**; **Must demonstrate competency** before designation. **Must have practical knowledge and experience** of the conditions in which licence holders carry out their duties.
Why can't any medical doctor out there do a certificatory medical examination for Pilots and ATCOs??
ICAO Survey

Current practices of States with regard to training of Medical Examiners:

Wide Variation

- Differing systems
- Responsibilities
- Entry requirements
- Training processes
- Assessments / reviews

Decision to convene Medical Provisions Study Group (MPSG) to develop:
“Competency Based Training for Designated Medical Examiners”
3rd Medical Provisions Study Group

27 April - 1 May 2009

Competencies of Medical Examiners
MPSG 3

USA
Canada
Egypt
United Kingdom
France
China
Japan
Australia
New Zealand
Singapore

ICAO: Dr. Anthony Evans
Ms. Nicole Sabourin
Dr. David Powell (consultant to the project)

Chaired by Singapore
Questions before the MPSG?

Why the need to Designate Medical Examiners to do a certificatory medical examination for Pilots and ATCOs??

What is the “delta” that the DMEs have to be trained in compared to the doctor out there??
Output of MPSG has been incorporated into the Manual of Civil Aviation Medicine

Manual of Civil Aviation Medicine

Approved by the Secretary General and published under his authority

Third Edition — 2012
International Civil Aviation Organization
# PART V
AVIATION MEDICAL TRAINING

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter 1. AEROMEDICAL TRAINING FOR MEDICAL EXAMINERS</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>.................................................................</td>
<td>V-1-1</td>
</tr>
<tr>
<td>1.1 Introduction ..................................................</td>
<td>V-1-1</td>
</tr>
<tr>
<td>1.2 Competency-based training for medical examiners</td>
<td>V-1-2</td>
</tr>
<tr>
<td>Scope ...................................................................</td>
<td>V-1-3</td>
</tr>
<tr>
<td>Development of the guidance material .......................</td>
<td>V-1-3</td>
</tr>
<tr>
<td>1.3 Explanatory notes on the competency framework ......</td>
<td>V-1-8</td>
</tr>
<tr>
<td>Appendix A. Suggested minimum foundation knowledge required for a medical examiner</td>
<td>V-1-22</td>
</tr>
<tr>
<td>Appendix B. Competency framework ............................</td>
<td>V-1-24</td>
</tr>
<tr>
<td>References ................................................................</td>
<td>V-1-32</td>
</tr>
</tbody>
</table>
Training of Medical Examiners

Competency based approach

Core Competencies of Medical Examiners

Course Curriculum with Performance Criteria

Evidence / Assessment based Checklist
Cascade for the competency based approach:

Key concepts of licensing medical examination

Task Analysis (of “Deltas”)

Performance criteria

Evidence & Assessment Guide
Potential examiners are fully registered medical practitioners who already have core clinical skills.

Potential examiners maintain currency in medical knowledge and practice.

Additional training in specific areas ... competencies.
1. The Medical Examiner’s goal is to optimise flight safety through the management of aeromedical risk.

2. The licensing medical examination format should incorporate a risk-based approach.

3. Competency-based training for Medical Examiners should contribute to achieving that goal.
Agenda of Licensing Medical Examination

I. DETERMINATION OF INCAPACITATION RISK

II. ASSESSMENT OF RELEVANT FUNCTIONAL CAPACITIES

III. ASSESSMENT OF CONDITIONS WHICH MAY DETERIORATE DUE TO FLIGHT ENVIRONMENT

IV. ASSESSMENT OF CONDITIONS WHICH MAY BE AGGRAVATED BY WORK ENVIRONMENT IN LONG TERM

V. PROVISION OF HEALTH AND PREVENTIVE MEDICINE ADVICE

VI. ASSESSMENT OF CONDITIONS THAT MAY CAUSE UNSAFE BEHAVIOUR
• DETERMINATION OF INCAPACITATION RISK

- Detect and assess conditions which could cause incapacitation in flight
  - “Medically predisposed” vs Random (eg GI upset)
  - Rapid onset or slow onset
  - Obvious vs subtle impairment
  - Risk of involuntary control inputs (eg seizures)

Besides doing physical examination, the Medical Examiner needs to understand aeromedical risk analysis and apply to clues and issues he picks up during the examination.
• ASSESSMENT OF RELEVANT FUNCTIONAL CAPACITIES

➢ Detect and assess any impairment of physical functions that can affect conduct of aviation duties eg. Vision, Hearing, Functional Mobility, etc.

• ASSESSMENT OF CONDITIONS WHICH MAY DETERIORATE DUE TO FLIGHT ENVIRONMENT

➢ Detect any conditions that is susceptible to aggravation (sinus or middle ear pathology) or triggered (sickle cell crisis) in the flight environment.
• ASSESSMENT OF CONDITIONS WHICH MAY BE AGGRAVATED BY WORK ENVIRONMENT IN LONG TERM

- Detect and assess any occupational safety and health issues that would preclude continued engagement in aviation workplace, eg noise induced hearing loss

• PROVISION OF HEALTH AND PREVENTIVE MEDICINE ADVICE

- Identify and discuss lifestyle factors in the light of possible threat to future fitness
• ASSESSMENT OF CONDITIONS THAT MAY CAUSE UNSAFE BEHAVIOUR

- Identify and further evaluate any of the following:
  - Alcohol and substance abuse/dependence likelihood (Require good clinical acumen as self-declaration not usual mode of detection).
  - Behavioural traits of concern, eg attention deficit disorders, personality disorders, etc
  - Mental states of concern, eg life events (potential to cause preoccupation and distraction while on duty), mood disorders (including depression), sleep loss and fatigue, dementia, etc.
Encourage accurate declaration...

- Many conditions need to rely on information provided by the applicant (e.g. seizures, fainting, depression, stress, etc).
  - Non-declaration is common (Canfield et al 2006).

Barriers to open declaration may include:

- Not understanding the requirement to declare;
- Fear of losing medical certificate temporarily or permanently;
- Mistrust of the examiner or of the aviation regulatory system (perception that declaration of a problem will inevitably or unreasonably lead to stopping flying);
- Guilt, shame or embarrassment (e.g. substance dependence, psychiatric illness, or eating disorder);
- Denial of illness (e.g. terminal illness, HIV);
Foundation Knowledge

• In addition to the competency-based framework, foundation knowledge is essential for Medical Examiner

• Up to the State (or training provider) to decide whether
  – Integrate as part of the competency-based course programme
  – Separate course programme

Singapore’s approach
Competency Training Framework

- Competency Unit
- Competency Element
- Performance Criteria
- Evidence and Assessment Guide

A1 - Introduction and Aim

The objective of ICAO in launching this work in 2008 was to provide guidance to States to assist with implementing competency-based training for new medical examiners entering the system. It was anticipated that this material would guide both providers of training, and States assessing such training for acceptability. The aim is to encourage States to harmonise the approach taken to train medical examiners and to ensure that medical examiners demonstrate appropriate levels of expertise.

Since the 1st Edition of ICAO Annex 1, States have been required to designate medical examiners for this role. Annex 1 now (since November 2005) requires that "medical examiners shall have received training in aviation medicine, and shall receive refresher training at regular intervals." It is further required that "before designation, medical examiners demonstrate adequate competency in aviation medicine." This competency-based framework for training is intended to provide a pathway towards meeting these requirements.

A2 - Scope

This document relates primarily to examiners of professional pilots (ICAO Class 1 medical assessment). Accordingly, the discussion which follows will refer mostly to this group and their work environment. However, most of the principles are also applicable to the other categories of aviation applicant.

Private pilots (ICAO Class 2) - Most of the same principles apply, although there is likely to be greater variation in the level of rigor applied to medical assessments. In some States, the process for medical certification for Class 2 applicants differs from
Competency Elements

1. Initiate the interaction and agree on the terms.
2. Establish rapport and create an open reporting environment
3. Elicit and evaluate a medical history
4. Perform systematic physical examination
   • Evaluate psychiatric and psychosocial factors
   • Identify abnormal cognitive function
   • Assess for potential substance use disorders
5. Conduct routine investigations required by the regulatory authority and interpret results
6. Request additional investigations and reports, as indicated, and interpret results
7. Provide a risk-based aeromedical opinion (if required by licensing authority)
8. Conduct administrative processes
9. Communicate with the pilot and the authority, and others as required
Performance Criteria

1. Facilitate Communication

1.1 Initiate the interaction and agree the terms

1.1.1 Identify applicant

1.1.1.1 Explain the importance of positive identification
1.1.1.2 List the licensing authority’s requirements for …
1.1.1.3

1.1.2 Have appropriate forms completed (including any….)

1.1.2.1 Describe how to access the current versions of…
1.1.2.2
Performance Criteria

1. Facilitate Communication
   1.2 Establish rapport and encourage an open reporting environment.
      1.2.1 Initiate interaction and discussion about general issues in such a way as to promote a non-threatening environment.
         1.2.1.1 Explain the importance of the initial moments of interaction.
         1.2.1.2 ...
      1.2.2 Enquire about work and home situations and challenges.
         1.2.2.1 Explain the importance of domestic and professional stressors on aviation performance and safety.
         1.2.2.2 List areas of home and work life which may be appropriate to discuss.
         1.2.2.3 ...
<table>
<thead>
<tr>
<th>PERFORMANCE CRITERIA</th>
<th>EVIDENCE AND ASSESSMENT GUIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarify administrative details</td>
<td>Explain the regulator’s requirements for checking background details (eg licence, current/previous certificate, existing limitations) and the reasons for checking these</td>
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<tr>
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<td>Explain the regulator’s other administrative requirements (e.g. collecting a fee)</td>
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<td>Verify that the regulatory context of the process has been addressed</td>
<td>Explain the DME-applicant relationship (including how to establish boundaries)</td>
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<td>Describe any potential/actual conflicts of interest (e.g. personal relationship, airline examiner) and how they would be managed</td>
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<td>Provide applicant with information about privacy / confidentiality</td>
<td>Explain who owns and who has access to the medical and other information provided by the applicant</td>
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<td>Outline how this is explained to the applicant</td>
</tr>
</tbody>
</table>

....etc
Aim:

- Institute ICAO’s competency based approach
- Harmonization of Designated Medical Examiners (DMEs) Training
- Ability for Medical Assessors to train and audit DMEs based on performance criteria.