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Mental Fitness Evaluation of airline pilots and aeromedical examiners training

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Disclaimer

The final report of the Germanwings accident has not yet been released. Any safety recommendations addressed to ICAO will be processed according to the official ICAO procedure for reviewing and taking action on safety recommendations addressed to ICAO.

Comments provided in this presentation will also be subject to a similar process.





EASA recommendations

- 2(a): “All airline pilots should **undergo psychological evaluation** as part of training or before entering service. The airline shall verify that a satisfactory evaluation has been carried out.”
- 2 (b): “The **psychological part** of the initial and recurrent aeromedical assessment and the related **training for aero-medical examiners should be strengthened.**”



Mental Requirements

Standard 6.3.2.2 The applicant shall have **no established medical history or clinical diagnosis** of:

- an organic mental disorder;
- a mental or behavioural disorder due to use of psychoactive substances; this includes dependence syndrome induced by alcohol or other psychoactive substances;
- schizophrenia or a schizotypal or delusional disorder;
- a mood (affective) disorder;
- a neurotic, stress-related or somatoform disorder;
- a behavioural syndrome associated with physiological disturbances or physical factors;
- a disorder of adult personality or behaviour, particularly if manifested by repeated overt acts;
- mental retardation;
- a disorder of psychological development;
- a behavioural or emotional disorder, with onset in childhood or adolescence; or
- a mental disorder not otherwise specified



Mental requirements

- **Recommendation 6.3.2.2.1** ... *depression, being treated with antidepressant medication, ... unfit unless the medical assessor, ..., considers ... unlikely to interfere with the safe exercise of the applicant's licence and rating privileges.*
- *Note 1.— Guidance ... treated with **antidepressant medication** ... in the Manual of Civil Aviation Medicine (Doc 8984)*
- *Note 2.— Mental and behavioural disorders are defined ... World Health Organization as given in the **ICD-10***



Psychiatric evaluation (ICD-10)

- **Disorder** - imply the existence of a clinically recognizable set of symptoms or behaviour associated in most cases with distress and with interference with personal functions
- **Psychogenic** - has not been used in the titles of categories of ICD-10, in view of its different meanings in different languages and psychiatric traditions
- **Psychosomatic** - not used for similar reasons
- **Mood disorders** – “seems likely that psychiatrists will continue to disagree about the classification of disorders of mood until methods of dividing the clinical syndromes are developed that rely at least in part upon physiological or biochemical measurement, rather than being limited as at present to clinical descriptions of emotions and behaviour”



Medical Examiners

- **Standard 1.2.4.5.1** – ...received **training** in aviation medicine and shall receive **refresher training** at regular intervals. Before designation, ... demonstrate adequate **competency in aviation medicine**
- **Standard 1.2.4.5.2** – ... **practical knowledge and experience** of the conditions in which the holders of licences and ratings carry out their duties
- **Recommendation. 1.2.4.5.3** – **competence** of a medical examiner should *be evaluated periodically by the medical assessor*



Medical Assessment Audits

- **Standard 1.2.4.8.1** The medical examiner shall ... **submit sufficient information** to the Licensing Authority **to enable** that Authority to undertake Medical Assessment **audits**.
 - *The purpose of such auditing is to ensure that medical examiners **meet applicable standards** for good medical practice and aeromedical risk assessment*



Amendments Annex 1

- ***Recommendation 6.3.1.2.1** – *In alternate years, for Class 1 applicants under 40 years of age, the Licensing Authority should, at its discretion, allow medical examiners to omit certain routine examination items related to the assessment of physical fitness, whilst increasing the emphasis on health education and prevention of ill health*



Amendments Annex 1

Standard 1.2.4.2 – States should apply, as part of their State safety programme, **basic safety management principles to the medical assessment process, that as a minimum include*

- **routine analysis** of in-flight incapacitation events and medical findings during medical assessments to identify areas of increased medical risk; and*
- Continuous re-evaluation of the medical assessment process to concentrate on identified **areas of increased medical risk.***



Amendments Annex 1

***Standard 1.2.4.3** The Licensing Authority shall implement appropriate aviation-related health promotion for licence holders subject to a Medical Assessment to reduce future medical risks to flight safety.

- *Note 1.— Standard 1.2.4.2 indicates how appropriate topics for health promotion activities may be determined.*
- *Note 2.— Guidance on the subject is contained in the Manual of Civil Aviation Medicine (Doc 8984).*
- *Note 3.— Guidance on the relationship between the Licensing Authority and the implementation of Medical Assessment for licence holders is contained in the Manual of Procedures for Establishment and Management of a State's Personnel Licensing System (Doc 9379).*



EASA recommendations & ICAO Requirements

EASA

Airline pilots should undergo **psychological evaluation** as part of training or before entering service. Airline to verify satisfactory evaluation

Psychological part of the initial and recurrent aeromedical assessment should be **strengthened**

Related training for aero-medical examiners should be **strengthened**

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Medical Assessment includes **general** mental assessment. **Referral** if necessary. **Guidance** provided in Manual of Civil Aviation Medicine. Examination **records evaluated** by medical assessors. **Accredited medical conclusion** and **restrictions/ limitations** can be applied for complicated cases

Guidance material provided

Receive **training, practical knowledge, competence evaluation** recommendation.



Psychological Evaluation

Item	EASA	Considerations
Initial evaluation	Essential all airline pilots Part of training Before entering service ? Retro-active	Other professional pilots? Clinical indications – refer If requested by crew
Added value	Yes	Validity and reliability of tests? Supported by evidence as screening tool?
Type of test	Aptitude Cognitive Psychometric Personality	Diagnostic (select-in vs. select-out) Screening for referral Baseline test



Psychological Evaluation

Question	EASA	Considerations
Who will do evaluation?	Someone with aviation psychological expertise, verified by State Explore formal recognition	AME vs. psychologist Requirements for designation? Psychology/ psychiatry panels? Standardisation across States?
Recurrent evaluation	Periodic after period of mental illness	If indicated e.g. behaviour change Collateral information Frequency? AME recurrent evaluation different from initial?



AME assessment and training

EASA	Consider
<p>System puts emphasis on AME to detect disorders</p> <p>Issues potentially affecting flight safety to be reported by AME to LA</p>	<ul style="list-style-type: none">*Current submission to ICAO Council on upgrading of application of safety management principles in medical assessment process (from a Recommendation to a Standard)*Implementation of “health promotion” Standard for States<ul style="list-style-type: none">- Medical audits of AMEs by States can identify & mitigate some obvious mistakes- Additional training for AME could mitigate, but will not eliminate



AME assessment and training

EASA	Consider
Role of AME to give aeromedical advice between examinations not emphasized/well understood	Important to create a culture of trust Different systems in different countries
Strengthen psychological part of recurrent assessment and related training	Additional guidance material Referral criteria Related time & cost implications Separate training module for aviation psychology



AME assessment and training

EASA	Consider
Non-disclosure of aircrew	Culture of trust Confidentiality Peer support programmes Confidential hazard reporting Company policies, etc.



Psychological part of the assessment by the AME

- Occupational tests - match interests with careers
- Aptitude tests - measure *achieved* knowledge and capacity to do a job
- **Neuropsychological** tests - measure deficits in cognitive functioning
- **Personality tests** - clinical diagnoses e.g. MMPI, revised MMPI-2, Rorschach “inkblot test”
- Specific **clinical** tests e.g. current level of anxiety or depression



Validity and reliability of assessment by AME

- Validity
 - ability of a test to measure the psychological construct that it was designed to measure
 - E.g. MMPI was designed to measure pathological personality traits
 - Now often used as screening tool (“select in” *good* traits vs. “select out” obvious *negative* qualities)
- Reliability
 - Ability of a test to give consistent results
 - E.g. how well results from one administration of the test relate to results from another administration of the same test at a later time
 - Or how well the results from one administrator relate to the results of a different administrator



Value of screening psychological assessment

- Without reliability, there can be no validity
- No psychological test can ever be *completely* valid or reliable
- Accuracy depends on how the questions are answered
- Deception
 - Deliberate
 - Ignorance - information not provided/ omitted (not being aware of its importance)
- Can be useful under specific circumstances & when the limitations of psychological testing are clearly understood and accepted



The big picture

http://www.cdc.gov/pcd/issues/2012/11_0324.htm



Comments

- Psychological assessment to form part of Medical Assessment. However, type of assessment to be defined
- Need to be based on risk assessment, when clinically indicated or for comparison purposes (post-incident testing in comparison to baseline test – if baseline test was done)
- Supports provision of additional guidance material to aero-medical examiners and updating the Manual of Civil Aviation Medicine
- Supports strengthening of related training for aero-medical examiners



Comments

- Recommends implementing a “stepped approach’ in terms of health promotion and managing health issues in aviation, involving all industry stakeholders e.g. health promotion activities, peer support systems, confidential reporting, sharing of information etc.
- **Analysis, reporting and sharing of best practices essential in terms of health and safety promotion and for determination of medical requirements for aviation licenses**
- Review of guidance material and medical provisions study group



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