ATTENTION DEFICIT DISORDER; AEROMEDICAL CONSIDERATIONS

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I have no financial relationships to disclose.

I will not discuss off-label use and/or investigational use in my presentation.
ADHD

• The three core areas of impairment seen in ADHD are generally considered to be:
  • Hyperactivity
  • Impulsivity
  • Attention problems

• Severity of symptoms vary
ADHD

• Attention deficit disorder has been studied for over 40 years
• The prevalence rate of ADHD in the USA is usually estimated at 3%-5% in school-aged children (American Psychiatric Association, 1994) although recent systematic reviews report ADHD prevalence estimates as wide as 2-18% (Rowland et al. 2002).

• An estimated 6.4 million children ages 4 through 17 had received an A.D.H.D. diagnosis at some point in their lives, a 16 percent increase since 2007 and a 41 percent rise in the past decade. About two-thirds of those with a current diagnosis receive prescriptions for stimulants
ADHD

• Around 1% of school-aged children have severe combined type ADHD (DSM-IV)/ hyperkinetic disorder
• Taking all forms of ADHD into account, approximately 5% of school-aged children are affected - or 366,000 in England
• The ratio of boys to girls is 4:1, with no social, economic or ethnic group bias in the general child population.
ADHD

- ADHD is associated with: low birth weight (<1500g); environmental toxins; tobacco, alcohol and cocaine abuse during pregnancy (Milberger et al, 1996).
- Although in the past it was thought that ADHD did not continue beyond adolescence
- More than 70% of those diagnosed with ADHD as children continue to fulfill diagnostic criteria in adolescence, and up to 65% of adolescents with ADHD still present with the disorder as adults (Jadad et al. 1999).
- The number of prescriptions written for Methylphenidate in the UK increased from ~about 6000 in 1994 to ~ 345,000 children in 2003.
ADHD

• In the USA prescriptions of Ritalin have quadrupled in the last decade — from 158,000 in 1999 to 661,463 in 2010 — with children as young as three taking medication.
• Lifetime rates of diversion ranged from 16% to 29% of students with stimulant prescriptions asked to give, sell, or trade their medications.
• Recent work suggests that whites, members of fraternities and sororities, individuals with lower grade point averages, use of immediate-release compared to extended-release preparations, and individuals who report ADHD symptoms are at highest risk for misusing and diverting stimulants.
• Reported reasons for use, misuse, and diversion of stimulants include to concentrate, improve alertness, "get high," or to experiment.

AME Perspective

- AME Usually discovers condition on Student pilot Medical/Certificate-1st application on 8500-8
- My practice-defers approximately 14 cases/year (out of 4000 pilots/year)
- Amphetamine use is documented on medication-block 17A – (Adderall, Ritalin,Vyvanse or rarely Strattera)
- Childhood/Adolescent cases most common
- Adult ADD-less common-usually professional student
- Almost all cases diagnosed without formal testing
- Usually medication is prescribed by Pediatrician or Family Physician-rarely Psychiatrist involved
- Diagnosis not confirmed by neuropsychological testing in my practice so far in over 14 years
- All applicants on medication for ADHD-Denied by FAA initially
- All cases have ultimately been certified in my practice by FAA-(one case with second diagnosis of Bipolar disorder was not certified)
FAA (1 year)

• ADD/ADHD by path code

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158 112

270
FAA

• AME must defer to FAA with diagnosis of ADHD
• AME may facilitate certification by;
  • 1. having to pilot obtain prior treatment records from treating physician
  • 2. UA Drug test if pilot claims to be off medication
  • 3. Academic performance history
  • 4. letter from treating physician
• May need formal psych or neuropsychology testing
• Case by case disposition
Neuropsychological evaluation report:

- A review of all available records, including academic records, records of prior psychiatric hospitalizations, and records of periods of observation or treatment (e.g., psychiatrist, psychologist, or pediatric neuropsychiatrist treatment notes). Records must be in sufficient detail to permit a clear evaluation of the nature and extent of any previous mental disorders.
- A thorough clinical interview to include a detailed history regarding: psychosocial or developmental problems; academic and employment performance; legal issues; substance use/abuse (including treatment and quality of recovery); aviation background and experience; medical conditions, and all medication use; and behavioral observations during the interview and testing.
- A mental status examination.
- Interpretation of a full battery of neuropsychological and psychological tests including but not limited to the “core test battery” (specified below).
- An integrated summary of findings with an explicit diagnostic statement, and the neuropsychologist’s opinion(s) and recommendation(s) regarding clinically or aeromedically significant findings and the potential impact on aviation safety consistent with the Federal Aviation Regulations.
- The results of a urine drug screening test for ADD/ADHD medications, including psychostimulant medications. The sample must be collected at the conclusion of the neurocognitive testing or within 24 hours afterward.
EASA

Diagnosis requires neuropsychological testing
Medications are disqualifying
Severity of condition must be determined
AME must defer

UK CAA Guidance Material
New Zealand

• Pilot or applicant needs to be off medication
• Disposition Case by Case
• Severity must be determined- no formal neuropsychology evaluation needed for straight forward cases-example child treated with meds for ADHD, no longer requiring medication. Will need letter from treating physician.
Canada

- Case by Case basis

- Neuropsychology evaluation may be indicated in severe case or in Adult ADD diagnosis

- Generally a previous diagnosis of ADD/ADHD is not by itself a reason to refuse certification (since this label has been frequently applied to individuals who do not meet full diagnostic criteria)

- If someone truly meets DSM-IV criteria for ADHD then they would be considered unfit on the basis of their condition.

- Use of psychostimulant medication such as Ritalin/Concerta / Adderall etc is also not compatible with flying.
An assessment includes:

- routine Civil Aviation Medical Examination Report (MER)
- report from the treating physician including details of the symptoms, diagnosis medications (dates and dosages), response to treatment (including side effects) and (when applicable) withdrawal of medication
- History of condition with confirmation of the diagnosis with reference to DSM-IV criteria,
- Comorbidities, including drug and alcohol use,
- Response to treatment,
- Current clinical status with respect to DSM-IV criteria
- Current functional status, with reference to collateral information if available from school, family, workplace, etc.;
- Copies of academic records and employment history (if available);
Pilot's ADHD contributed to crash

• Patricia O'Keefe said her grandson Michael was diagnosed with attention deficit hyperactivity disorder (ADHD) when he was aged four. She described him as "a law unto himself" and "a handful" due to ADHD which he had been unmedicated for since he was six.
• "I do think that ADHD did contribute to Michael and Josef's death and my doctor does too," she said.
• "I do believe Michael and Josef died because of Michael's impulsive behaviour."
ADHD Blog

• Crash landing my first plane in the Long Island Sound because I forgot to check my fuel gauge was another ADHD ‘oops,' but I survived...my plane didn't!
Driving and ADHD


Results from observational studies indicate that:

- ADHD is likely associated with higher than normal rates of negative driving outcomes
- ADHD group received more driving citations than control groups

- Teen boys with ADHD at higher risk of car accidents

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Aeromedical implications of ADHD?