

# Attention Deficit/Hyperactivity Disorder Assessment and Aviation Safety Using Major Depression as a Reference

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**BACKGROUND:** Attention deficit/hyperactivity disorder (ADHD) in pilots is considered a threat to flight safety. The U.S. Federal Aviation Administration has recently revised assessment pathways for applicants with attentional problems because of an increasing recognition that ADHD is a clinical condition with a broad symptom spectrum; some individuals may have a historical diagnosis which has been in remission for several years, while others may be using psychostimulants to enhance mental focus. This commentary compares major depression as a reference and its Federal Aviation Administration certification/clearance policy with those policies associated with ADHD. Major depression can be considered a model example of a mental disorder where appropriate treatment strategies such as medication have been demonstrated not to have adverse effects upon aviation safety. We wish to highlight that when reviewing certification and assessment practice guidelines for the assessment of pilots with ADHD, decisions must be based upon robust scientific evidence that has been obtained in aviation.

**KEYWORDS:** attention deficit/hyperactivity disorder, major depression, aircraft accidents, assessment.

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Attention deficit/hyperactivity disorder (ADHD) in pilots is considered a threat to flight safety.<sup>1</sup> Issues with attention and executive functioning adversely affect performance, concentration, problem-solving, and reflective capacity while negatively impacting communication and crew function.<sup>2</sup> In some, reductions of insight, alongside increases in stress, can impact reactions in demanding emergency situations.<sup>3</sup> The treatment effects of prescribed stimulants and related psychoactive medications may be time-limited, but failure to take daily medication may lead to a relapsing-remitting presentation.<sup>4</sup> Attentional problems may also be a cofactor, comorbidity, or symptom of other mental health conditions.<sup>4</sup> It is, therefore, unsurprising that aviation regulators worldwide have been reluctant to grant medical certification to pilots with ADHD.<sup>1</sup>

The U.S. Federal Aviation Administration (FAA) has recently revised assessment pathways for applicants with attentional problems.<sup>5</sup> This has been because of an increasing recognition that ADHD is a clinical condition with a broad symptom spectrum; some individuals may have a historical diagnosis which has been in remission for several years, while

others may be using psychostimulants to enhance mental focus.<sup>6</sup>

Media coverage has reported that the FAA are investigating approximately 5000 pilots suspected of falsifying medical records and failing to disclose mental health disorders that could deem them unfit to fly.<sup>7</sup> Several incidents related to mental health problems highlight the importance of the FAA's Aviation Rulemaking Committee messages about the barriers to pilots seeking mental health support, alongside reviewing aviation safety issues relating to conditions such as major depression (MD) and ADHD.<sup>6</sup> In this above-mentioned report, recommendations were made regarding the revision of

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certification and clearance policies for conditions such as ADHD, with a re-examination needed to determine the potential aeromedical effects of ADHD and take into account contemporary treatment options. Without such revisions, it is possible that a significant number of pilots will continue to hide their diagnosis.

This commentary compares MD as a reference and its FAA certification/clearance policy with those policies associated with ADHD. MD can be considered a model example of a mental disorder where appropriate treatment strategies, such as medication, have been demonstrated to have no adverse effects upon aviation safety.<sup>8</sup>

Both MD and ADHD are not rare (**Table I**). Epidemiological data from the United States (US) indicates a twofold increase in the diagnosis of ADHD in adults compared with youth when comparing 2008–2009 and 2012–2013.<sup>9</sup> Symptoms associated with ADHD such as risk-taking, emotional variability, impulsivity, sleep disorders, and social skills issues are challenging in terms of flight safety, and it is not uncommon for a treated person with ADHD to have residual symptoms despite remission.<sup>10</sup> Given that the clinical symptomatology of ADHD and MD share common patterns, revising assessment and treatment options for ADHD would bring the management of ADHD into line with MD, where treatment with antidepressants is widely accepted and not associated with an increased risk in fatal aviation accidents, but similar research of ADHD is notably absent.<sup>1,8</sup>

The 2024 FAA's Aviation Rulemaking Committee report recommends that the FAA take account of contemporary treatment options, including medication, to mitigate symptoms of ADHD.<sup>6</sup> To this end, the FAA's Aviation Rulemaking Committee report identifies a need to identify in the future appropriate research data that could underpin such recommendations through the evaluation of operational performance criteria.

**Table II** summarizes currently used ADHD acceptance protocols in both the US and Australia.<sup>4,11</sup> The table compares the protocol for MD requiring antidepressant treatment, illustrating a possible future approach that could provide an appropriate treatment framework for ADHD in aviation.

It should be noted that both the US and Australian protocols require decisions concerning MD to be made by the regulatory authority, although recent changes made in the US mean that a Fast Track protocol, where the aviation medical examiner leads on decision-making for cases without ADHD symptoms or medication within the preceding 4 yr, is also an available option. It is also interesting to note that in the US, the clinical assessment of ADHD is primarily carried out by neuropsychologists, while in Australia it is primarily undertaken by psychiatrists. Because ADHD is a neurodevelopmental disorder associated with deficits across neurocognition, this disorder can be individually assessed.<sup>12</sup> To this end, the FAA has trained Human Intervention Motivational Study neuropsychologists, who know the aviation environment and the assessment protocol, to carry out assessment in the most demanding ADHD cases.

The approval of antidepressants for the treatment of mild/moderate MD in working pilots represents significant progress. Data showing that the use of antidepressants was not related to accidents leading to death formed the basis of this decision.<sup>13</sup> Additionally, regulatory authorities needed to address the suspicion that antidepressant use was being concealed. The treatment of ADHD through the prescription of medication is clearly behind that of MD, but the assessment of ADHD is progressing toward a more liberal and inclusive approach for pilots.

There are similarities when comparing ADHD with MD. However, ADHD assessments are more complex because ADHD is a lifelong disorder, and currently, there is little published data to indicate what risk the condition poses to functioning in safety-critical environments. Additionally, we have a poor understanding of the potential effects of ADHD in relation to functioning in safety-critical environments under stressful operational circumstances. When medication effects are added, the waters are further muddied as there is little data reporting upon the effects of ADHD medication and ability to fly. While it is acknowledged that ADHD medication may improve cognitive functions,<sup>14</sup> our knowledge about the effect of ADHD medication on traffic safety is based on studies related to road traffic accidents, and those

**Table I.** Comparison of MD and ADHD from the Aviation Safety Point of View.<sup>2,4</sup>

| FEATURE                                      | MD   | ADHD   |
|--|--|--|
| Lifetime prevalence                          | About 7%   | About 5%   |
| Signs  | Episodic   | Life-long  |
| Diagnostic                                   | Diagnosis relatively straightforward and based on current clinical assessment                      | A diagnostic assessment requires comprehensive information on the occurrence of symptoms and developmental history. Misdiagnoses are a relevant problem. |
| Severity                                     | The severity of depression is assessed according to basic scales such as mild, moderate and severe | Three forms of ADHD can be identified, depending on whether both inattention and/or hyperactivity-impulsivity criteria are met                           |
| Concentration                                | Worsens with increasing severity   | Most evident in situations that require prolonged effort   |
| Activity                                     | Decreased activity   | Eventually hyperactivity   |
| Social skills                                | Deteriorate during depressive episodes   | Common issue due to impulsivity  |
| Suicidality                                  | Increased risk   | Increased risk when comorbidities and especially with substance disorders  |
| Fatal accidents in aviation under medication | Not elevated during antidepressant treatment in epidemiological studies                            | Insufficient data  |

MD: major depression; ADHD: attention deficit/hyperactivity disorder.

**Table II.** Current FAA and CASA Australia Protocols for ADHD and MD Certification/Clearance.<sup>4,11</sup>

| AUTHORITY/DISORDER                    | FAA FAST TRACK   | FAA STANDARD TRACK  | CASA AUSTRALIA  |
|---------------------------------------|--|---|---|
| ADHD                                  | No ADHD medication or symptoms for 4 yr<br>Neuropsychological assessment | ADHD medication or symptoms within 4 yr<br>FAA HIMS assessment ADHD medication discontinued at least 90 d prior | No ADHD medication or symptoms in less than 6 mo<br>Psychiatric examination, ADHD evaluation forms filled by psychiatry and flight instructor         |
|                                       | <b>AME REVIEW</b>  | <b>FAA REVIEW</b>   | <b>CASA REVIEW</b>  |
| MD requiring antidepressant treatment | N/A  | Accepted antidepressant at least 6 mo<br>HIMS AME evaluation of diagnosis and records<br>FAA review             | Acceptable, stable, and effective treatment without side-effects<br>Psychiatrist report<br>AME review in low-risk cases<br>CASA review in other cases |

ADHD = attention deficit/hyperactivity disorder; MD = major depression; AME = Aviation Medical Examiner; FAA = Federal Aviation Administration; CASA = Civil Aviation Safety Authority; HIMS = Human Intervention Motivational Study.

results are contradictory. We would like to highlight two relatively recent studies. In the first, a teenage driver population study of 2049 individuals, authors found no evidence that ADHD medication could reduce the risk of crashes and related situations.<sup>15</sup> In the second, a case-control registry study of 130,000 drivers' use of ADHD stimulant treatment showed a significant increase in traffic crashes.<sup>16</sup> It is therefore vital that when reviewing certification and assessment practice guidelines for the assessment of pilots with ADHD, decisions are based upon robust scientific evidence that has been obtained in aviation. The special challenge is that these scientific studies must not compromise flight safety.

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