The Use of Anti-Depressant Drugs in Aviators  
(the majority of this text was taken from a presentation by Dr. Adams to the Airline Pilots’ Association International Pilot Assistance Forum, Denver, 2007)

The issue of psychiatric disease, and pilots, has always been a controversial one. Attitudes concerning this range from one extreme to the other. Some believe that no pilot who suffers from psychiatric disease which is not completely in remission should be permitted to fly, others feel that it is entirely appropriate that individuals whose symptoms are adequately controlled on non-impairing medication can, and should, be permitted to fly. This paper concerns the single most common psychiatric problem facing civil aviation medicine today, and that is mood disorders and antidepressant medication. The reason this issue has come to the fore of late is the fact that we now have an entirely new family of psychiatric drugs to treat mood disorders, selective serotonin reuptake inhibitors (and various permutations of same). Prior to the discovery of the first SSRI - Prozac, in 1986, the standard of treatment was tricyclic antidepressant drugs. Tricyclics were (and remain) fairly good antidepressants. The problem was their side effect profile. Firstly they cause sedation in the majority of people who take them, as well as a whole series of other side effects characterized by physicians as “anticholinergic”. In plain English this means dry mouth, feeling faint when you stand up quickly, some difficulties with urinary retention or digestion, and sexual side effects. They also interacted with other medications, and were hideously dangerous in overdose, causing serious heart rhythm disturbances, which often proved to be resistant to treatment and ultimately fatal. Any one of these problems was sufficient to preclude their use in aviation personnel, and so there was no issue around relicensure.

With the dawning of modern drug treatment for mood disorders, we were suddenly faced with a group of people who felt entirely normal, whose psychiatric symptoms were substantially improved or nonexistent, and were maintained on a drug without significant side effects deleterious to alertness and safety critical job performance. The problem has never been what to do with the pilot who is treated for a mood disorder by whatever means, recovers, and presents with six months or more of symptom-free history. Generally, with appropriate monitoring, these people were deemed fit to return to aviation duties. With more and more individuals being treated with these new selective serotonin reuptake inhibitors (SSRIs) the standard of care for certain mood disorders changed. It became increasingly apparent that, although initially successful in treatment, many individuals relapsed with a return of their symptoms. Initially it was recommended to treat these individuals for six months, then twelve months became the norm, and currently many psychiatrists are advocating periods longer than this, from two years to indefinitely. What to do, then, with the aviator who is maintained successfully on long-term antidepressant medication, side effect free, but who is told they cannot return to their chosen occupation because of the nature of the treatment?

In order to examine this question in more detail, we have to go back to basics. Firstly, what do we mean by mood disorders? Here, we run into one of the great dilemmas of the late 20th century, and that is “the pathologization of everyday life”. Let’s look at mood disorders in greater detail. Mood disorders exist along a spectrum from mania, wherein one’s thought processes become chaotic, and one’s mood is excessively “high” - evidenced by irritability or frantic purposeless activities. This is called a manic episode, and typically is linked to episodes of sadness or depression, in a disease called bipolar disorder. Bipolar disorder, type 2, consists of less dramatic swings of mood. Cyclothymia is less dramatic again, and dysthymia refers to individuals who are
chronically low or sad, but not severely so. Major depression or a major depressive episode, is described as a collection of symptoms being present for at least two weeks, characterized by a depressed or sad mood, loss of interest or pleasure in formerly pleasurable activities as well as disturbances in energy, sleep, appetite, concentration and excessive guilt. A problem arises when individuals who lack sufficient psychiatric expertise do not apply the appropriate diagnostic criteria to someone who is currently upset or sad. Some physicians, psychologists and counselors are too quick to apply the label "major depression" to someone who is going through a period of life in which they are experiencing difficulties or sorrow. Sorrow is, unfortunately, a normal component of the human condition, and does not need to be treated as a disease in most cases. As we find more and more individuals who have been misdiagnosed, and consequently mistreated with antidepressants, the entire area of mood disorders becomes muddied. It behooves us, therefore, to be exceedingly careful about diagnostic labels, and treatment plans, ensuring that a depressed individual indeed has met the appropriate DSMIV criteria for that diagnosis.

What is DSM-IV? This stands for the Diagnostic and Statistical Manual, version 4, of the American Psychiatric Association. In it, the specific diagnostic criteria for all psychiatric disorders are described in great detail. As I've stated, too often, these are either not applied at all, or misapplied by individuals who lack the training. Space does not permit me to go into the details concerning the diagnosis of major depression, but this can be easily obtained by the interested reader by Google searching DSM-IV and depression. However, some important background information on depression which might be of use to the reader are as follows:

Depression affects ~10% North American males, ~20% North American females over their lifetimes
Depression is the most prevalent cause of suicide
Suicide is the 4th leading cause of death in ages 25-44, 7th overall in North America
Depression is present in 70% of all adult suicides
Antidepressant medication is the most commonly prescribed medication class in America – 227.3 million scripts in 2006, third in dollars of all drugs in America ($13.5 billion in 2006)
Rising 10% per year
Recurrence rates of depression are 30% < 2 yr after single episode, 50-75% after two, effectively 100% after three.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>Depressed mood</td>
<td>100%</td>
</tr>
<tr>
<td>Reduced energy</td>
<td>97%</td>
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<tr>
<td>Impaired concentration</td>
<td>84%</td>
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<tr>
<td>Anorexia</td>
<td>80%</td>
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<tr>
<td>Insomnia</td>
<td>77%</td>
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<tr>
<td>Loss of Interest</td>
<td>77%</td>
</tr>
<tr>
<td>Agitation</td>
<td>67%</td>
</tr>
<tr>
<td>Indecision</td>
<td>67%</td>
</tr>
<tr>
<td>Suicidal Ideas</td>
<td>63%</td>
</tr>
</tbody>
</table>
So, looking at the data above, one can immediately see why most psychiatrists advise treating for six or twelve months following symptom resolution for the first episode of depression, two or three years for the second, and indefinitely for the third. This is a disease that tends to come back. Each time it does come back, it is typically more difficult to get people well again. This is why we are now seeing pilots who have been advised to stay on the medication for several years, or the rest of their lives. This raises the next question, and that is just how safe is this medication? What kind of side effects are we seeing?

It is a bit of a myth that SSRI agents, and related compounds, do not have much in the way of side effects. In point of fact, some of them have very significant side effects which can impact on their use in the aviation environment. Some, such as fluvoxamine (Luvox) have significant sedation concerns. Others such as paroxetine (Paxil) are proving to have a troublesome discontinuation syndrome, which occurs when people stop the drug, or miss several doses. For this reason, Transport Canada researchers led by psychiatrist Dr. Marvin Lange, studied many different antidepressants and selected three for further investigation. These are fluoxetine (Prozac), bupropion (Wellbutrin) and sertraline (Zoloft). Further studies have just been done on citalopram (Celexa) and escitalopram (Cipralex) and look promising. The first three drugs were selected for a research project involving the careful relicensure of pilots on these agents.

The second concern, of great practical significance, is despite the fact that individuals often feel substantially improved on these drugs, they are not, in fact, back to their normal selves. Careful investigation has to be done to determine whether any residual mood disorder exists, particularly in light of the fact that suicide is a significant concern with major depression. Secondly, cognitive testing must be done to ensure that the pilot’s alertness, and ability to multitask and use advanced skills such as working memory are not impaired. Lastly, a significant amount of information has to be gathered about how this disease first arose, whether outstanding psychological concerns exist, and how compliant the pilot is with ongoing therapeutic measures as well as other forms of treatment. Provided that the pilot passes all of the substantial requirements for entry into the study, Transport Canada is currently relicensing certain individuals maintained on one of the three antidepressants already mentioned. Currently, this is only being done for category one (commercial or airline transport) pilots in a multi-crew environment ("as or with first officer"). If the outcome data look promising, it is entirely conceivable that this will be extended to category three (private) pilots.

To give the reader an idea of how restrictive these criteria are, we currently only have six airline transport rated pilots flying on antidepressant medication in Canada. In a parallel study, typically 35 Department of Transport military pilots in the multi-crew environment apply for relicensure on antidepressants each year, but less than half a dozen are accepted. It would be a grave disservice to imply that Transport Canada was relicensing pilots on antidepressants on a routine basis, because they are not.

Elsewhere in the world, Australia has pretty much an "open door" approach to antidepressant use and is relicensing pilots on a routine basis using this medication. Most other jurisdictions are starting to examine the issue, and there is some indication that the FAA in the United States will consider a special waiver along the lines of the Canadian criteria in the future. So, in summary – if a pilot is suffering from major depression – there is hope. Provided that they response to the medication, should one
be deemed necessary, gone are the days when they must come to terms with never being able to fly again. This paper focuses only on depression. There are many disorders currently being treated with SSRIs and SSRI cousins. Things like obsessive-compulsive disorder, social phobia, anxiety etc. In the future, I believe each of these will be studied in turn, and relicensure will become the rule rather than the exception.

This is a massive topic, and much has been written about it. The following references are supplied for those readers who wish to delve into the topic in more depth. ASEM = Aviation, Space and Environmental Medicine, link: www.asma.org

1. SSRIs in Pilot Fatalities of Civil Aviation Accidents, 1990-2001; Akin et al; ASEM 74:11, Nov. 2003 1169-76

2. Aeromedical Regulation of Aviators Using SSRIs for Depressive Disorders; Jones and Ireland, ASEM v75:5, May 2004, 461-470; 
   “AsMA urges all certificatory and regulatory authorities to consider immediately instituting a policy of using study groups to manage depressed aviators who require SSRI antidepressants. Protocols…may enable the safe use of SSRIs in formerly depressed aviators who suffer no aeromedically significant side effects. In these closely managed cases, special issuances or waivers for SSRI use are justified”

3. Pharmacologic Considerations for Serotonin Reuptake Inhibitor Use by Aviators; Ireland, ASEM 2002;73:5, 421-9

4. Serotonin Reuptake Inhibitors and the depressed pilot; Lange et al; ASEM 2000;71:290 (abstract)

5. Maintenance SSRI use in professional pilots: the Canadian Experience; Lange; ASEM 2002;73:24

6. Maintenance SSRI use in Professional Pilots (Panel) ASM Meeting, May 9, 2002

7. The Impact of Sertraline on Psychomotor Performance; Paul et al, ASEM 2002; 73:10, 964-70

8. SSRI in Civil Aviation, O’Neill et al, ASEM March 2006, 77:3, 247-8 (abstract)

9. Antidepressant Use for Military Aviators, Lange, ASEM 77:3, 297