

associated with it (such as time pressures and fatigue). Currently, three such studies being undertaken by members of the task force evaluate driving performance as correlated with psychological testing. Dr. Linda Hunt has performed one such study, Dr. Penelope Keyl has conducted another one, and Dr. Linda Teri is in the process of directing a third study. Data from these studies are referenced in this report as much as possible.

Because the effects of all the conditions vary greatly in different individuals, the task force members recommend that each person be evaluated individually rather than being ruled out categorically based on diagnosis alone. If the general physician notes any of the preceding symptoms during the physical exam or if the driver's work companions have reported these symptoms, the task force recommends the following three-stage process of evaluation:

1. A qualified psychiatrist, neurologist, or neuropsychologist should evaluate the patient to document that a viable diagnostic condition is present. In other words, a diagnosis should be made, preferably one that meets the criteria established in the American Psychiatric Association's Revised Third Edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III-R).
2. The evaluation should include neuropsychologic or psychometric examination to assess at least three important parameters of behavior: sustained attention, the ability to change cognitive set; and visual-spatial functioning, including motor response latency. Tests such as the Trail Making Test (Part B), the Category Test, or the Stroop Test fulfill each of these criteria. They also provide very good psychometric data that relate to age and educational norms. Other useful tests include symbol interpretation and other nonverbal tests such as logical and visual memory assessment tests. Due to the lack of extensive empirical data, findings from these tests must be interpreted cautiously, with clinical skill. They have not yet been clearly correlated to the task of driving, although good theoretical and clinical reasoning (and preliminary empirical data) suggest that they will be. However, this evaluation is concerned mainly with CNS functioning, and these measures are well validated for this type of assessment. If the patient's pattern of performance on these tests is deemed to be either borderline or slightly abnormal and if it is consistent with neurologic impairment, the third part of the evaluation should be performed.
3. The person should demonstrate driving skills in an actual road test. This test should span at least 1 hour to determine the effects of fatigue and a wide enough array of potential problems, such as maintaining and shifting attention and retaining cognitive flexibility. Each of these factors can greatly affect the abilities of people with CNS damage to drive.

The on-the-road test may show deficits in the following capacities:

- Awareness of the traffic environment and the effect that the individual's driving has on that environment; e.g., is the individual's driving causing other drivers to respond in a dangerous way?

- The ability to coordinate multiple sensory inputs, as in recognizing and responding to traffic signs and lights, discriminating between left and right, and responding to other vehicles and pedestrians.
- Ability to attend to the driving task; e.g., can the individual maintain the vehicle in the assigned driving lane without drifting into other lanes?
- Ability to follow directions. This ability reflects short-term memory recall; e.g., does the driver require repeated directions or miss turns that the examiner requested to make?

In the future, interactive computer measures conceivably could be developed to test these performance variables, making an actual driving test unnecessary. Regardless of the method of testing (whether by neuropsychologic tests, actual driving performance, or driving simulation), if CNS damage is suspected, the driver's performance must be tested. Furthermore, once a question of brain damage is raised, the driver should be evaluated at least annually to determine if he/she is still medically qualified to be licensed as a commercial vehicle driver.

Finally, because knowledge of the correlation of performance test factors with driving skills is so limited, the task force recommends that a registry including the data be developed and reviewed and updated annually so that the utility of these recommendations can be evaluated.

TASK FORCE II REPORT-PSYCHOTROPIC MEDICATIONS AND ELECTROCONVULSIVE THERAPY

Markku Linnoila, M.D., Ph.D. (Chairperson)
Steven L. Dubovsky, M.D.
Herbert Moskowitz, Ph.D.
Thomas Roth, Ph.D.
Vernon McDougall

To evaluate the effects of psychotropic drugs on driving performance, this task force used the amount of impairment produced by a blood alcohol concentration (BAC) of 0.04% as a bench mark. This standard was chosen based on the Office of Motor Carriers (OMC) exclusionary rule for alcohol. The task force members recommend that users of medications known to cause equal or more severe impairment be excluded from commercial vehicle driving or, as a minimum, be evaluated by an expert medical panel.

PSYCHOTROPIC DRUGS: ANXIOLYTICS AND SEDATIVE HYPNOTICS

Introduction

Anxiolytic drugs are used for the treatment of anxiety disorders, and sedative hypnotics are drugs used to treat insomnia. These drugs are similar to the drug ethanol, whose relation to automobile accidents is the most firmly established, as to their effects on skilled performance in laboratory studies. This similarity raises questions regarding the increased potential for anxiolytics and sedative hypnotics to produce automobile accidents.

Before 1960, barbiturates and barbiturate-like compounds (e.g., glutethimide and methyprylon) were the most commonly used drugs for anxiety disorders and insomnia. However, since chlordiazepoxide was introduced in 1960, benzodiazepines have been the most commonly used anxiolytics and sedative hypnotics. In fact, benzodiazepines are among the most widely used classes of drugs today in the practice of medicine. Therefore, this report focuses on benzodiazepines because they are so widely used and because their effects on skilled performance are generalizable to virtually all non-benzodiazepine sedative hypnotics, although those effects are generally less profound.

Benzodiazepines are general central nervous system (CNS) depressants that act through the **GABA** receptor. Their pharmacological activity depends on dose; as the dose is increased, the clinical effect progresses from anxiolysis to sleep induction. Other reported pharmacological effects of benzodiazepines include muscle relaxation, anticonvulsant activity, and anesthesia. Although the selectivity of certain benzodiazepines to produce certain effects is debatable, the general consensus is that, with an adequate dose, any benzodiazepine can produce any of these effects.

Risks to Commercial Vehicle Drivers

The effect of benzodiazepines on performance has been widely studied using a variety of measures. These studies show that benzodiazepines in pharmacologically active doses impair skills and performance. Such decrements have been demonstrated in psychomotor skills, memory function, attention, motor activity, performance in driving simulators, and driving performance per se. Also, epidemiological studies (including case control studies) indicate that benzodiazepine use is associated with increased risk of automobile accidents. (However, not all studies show an increased risk of traffic accidents, and this risk, when found, is not comparable to the risk associated with alcohol abuse.) Moreover, the impairing effects of benzodiazepines are exacerbated by the ingestion of ethanol or other sedative drugs (e.g., H1 antihistamines) and, most significant to commercial drivers, by sleep loss.

The duration of the performance-impairing effects of benzodiazepines is somewhat controversial. Some individuals reportedly develop tolerance to these effects within days to weeks of the drug's administration. However, the data indicate that tolerance does not develop, and if it does, it is behavioral rather than pharmacological tolerance.

Recommendations

Therefore, based on scientific studies of anxiolytics and sedative hypnotics, the task force members recommend the following actions concerning their use by commercial vehicle drivers:

- The biennial physical examination for commercial vehicle drivers should include benzodiazepines and barbiturates in the urine drug screening.
- Patients who require anxiolytic medications should be excluded from commercial driving. The only exceptions to this recommendation are those patients who are treated effectively with non-sedative anxiolytics such as buspirone.
- Individuals who require hypnotics should use only short-acting drugs (i.e., with half lives of less than 5 hours) and only at the lowest effective dose. The use of hypnotics should be under medical supervision and restricted to short terms (i.e., less than 2 weeks).

Finally, the task force members noted that available data on the interaction of drugs and the disorder for which they are being prescribed are insufficient to determine the effect on driving performance. For example, sedative hypnotics are prescribed for insomnia, which is associated with sleep loss. Although a large body of data demonstrates that sleep loss is a significant risk factor for automobile accidents, some data suggest that short-acting benzodiazepines reverse the sleep loss associated with transient insomnia, and hence, maintain performance at the premorbid level.

ANTIDEPRESSANT DRUGS

Antidepressant drugs vary widely in the degree to which they produce impairment of skills performance. Also, patients appear to develop a tolerance to their effects that mitigates their impairment with chronic use. Because the level of impairment varies and tolerance to their effects is possible, a commercial vehicle driver who uses antidepressants should receive individual consideration when his/her medical qualification for licensure is evaluated. The evaluation should consider the specific medicine used and the patient's characteristics.

Conclusions from existing literature must be constrained by limitations in the studies. Most performance studies of antidepressant drugs have used single doses with normal subjects. These studies have consistently demonstrated that single doses of the tertiary amine/antidepressants (e.g., amitriptyline and imipramine) produce performance impairment. Although the response variables examined in these studies have generally been simple motor skills such as reaction time, some studies have also reported impairment of complex behaviors such as critical tracking, divided attention, visual search, memory, vigilance, and vehicle handling. More ambiguous results have been reported in studies using trazodone, doxepin, and nortriptyline. On the other hand, a second generation of antidepressant drugs (including fluoxetine, nomifensine, and bupropion) has typically shown less or none of the deficits associated with the more sedative tricyclics. However, only a few studies have examined these new drugs, and the range of behaviors studied has been narrow. Because the majority of motor vehicle accidents tend to involve deficits in alertness, attention, information processing, and other cognitive skills, studies should be encouraged that use response variables more relevant to safety in man-machine interaction situations instead of in simple psychomotor tasks. Similar findings of lessened impairment for complex tasks would reinforce the encouraging evidence that these drugs cause less impairment of simpler tasks.

Unfortunately, considerably fewer studies have been conducted of chronic administration of antidepressant drugs. Dr. Linnoila, the task force chairperson, reported that his work with a colleague, Dr. Seppala, suggests that chronic use of even the older tricyclics is frequently associated with a growing adaptation and reduced performance deficit. Moreover, because these few studies of chronic drug therapy have typically been performed in a patient population of depressives, generalizations of the findings are less ambiguous than the results of studies performed with normal subjects. However, the evidence of reduced impairment may be due not only to the development of tolerance but also to improvement in the patient's condition. Because none of these studies had both depressed and normal subjects, extricating the sources of the improvement with chronic use is not possible. On the other hand, several of the studies were performed with older depressives, who may suffer a greater degree of impairment and whose age range is not likely to represent that of commercial motor vehicle drivers. None of the studies appeared to analyze the results by subgroups of depressed patients.

Studies of chronic administration of lithium have indicated a small but significant increase in reaction time. Recent work also indicates that lithium impairs adaptation to the dark, but the significance of that impairment for traffic safety is unclear. In general, asymptomatic patients who use lithium appear to exhibit little evidence of impaired skill

performance when their plasma lithium concentration is within the established therapeutic range and when they maintain regular follow-up.

Although the existing studies are limited, they clearly show that some antidepressants do produce impairment, which can be mitigated over time although it can not be completely removed during chronic use. Also, drugs are available that have not been shown to cause skills impairment; however, this conclusion is constrained by lack of breadth of behavioral testing. Additional studies are needed that examine clinical populations over extended periods with behavioral tests representative of the demands of driving. Nevertheless, use of some of the newer antidepressants appears most likely to allow the driver to avoid many of the skills performance impairments associated with treatment of depression.

The task force members recommend that the biennial medical examination for commercial vehicle driver's license renewal include a urine drug screening to examine for the presence of tricyclic antidepressants. If these drugs are detected, the patient should be referred to an expert panel for further evaluation of the specific antidepressant, its dose and plasma concentration, the duration of its use, and the severity of the mental disorder. Only under exceptional circumstances would continuous use of amitriptyline be acceptable.

ANTIPSYCHOTIC DRUGS, CENTRAL NERVOUS SYSTEM STIMULANTS, ANTICONVULSANTS, AND ELECTROCONVULSIVE THERAPY

Introduction

Several general considerations apply to the development of proposed regulations to govern the use of antipsychotic drugs, stimulants, anticonvulsants, and electroconvulsive therapy (ECT) by professional commercial vehicle drivers. First, most studies of the effects of these treatments on psychomotor functions involve acute administration, often to normal subjects. The studies have not thoroughly investigated the possibility that patients develop tolerance to sedation and other potentially harmful side effects after a few weeks. Second, these treatments reduce psychomotor impairment associated with illnesses such as depression, schizophrenia, and attention-deficit hyperactive disorder (ADHD). The balance between the benefits and harmful side effects of these treatments has not been adequately studied in clinical populations.

On the other hand, although the psychomotor effects of neuroleptics, stimulants, anticonvulsants, and ECT have been assessed in isolated tests that have been shown to be correlated with impaired driving skills, few studies involve the entire driving process and none consider commercial vehicle driving. These limitations increase the risk of false findings because the ability to carry out a specific function does not guarantee that the capacity to integrate the numerous functions necessary for safe driving is unimpaired. Commercial vehicle driving is more complex and more physically and mentally demanding than automobile driving, and its practice may involve exceeding speed limits and ignoring requirements for rest.

The ability of specific psychomotor and driving tests to predict accident proneness is questionable. Therefore, if the danger of chronic use of a drug or other treatment is not established, a driver on a stable dose of medication should have some recourse for licensing, with appropriate certification of a lack of impairment by a national board of experts (expert panel). Conversely, when scientific data do not clearly define a treatment's likelihood of impairing vehicle handling, the most conservative recommendation should be made to maximize safety for the driver and other motorists.

Antipsychotic Drugs

Antipsychotic drugs (mainly typical and atypical neuroleptics) are used to treat schizophrenia, psychotic mood disorders, some personality disorders, and some cases of nausea and chronic pain. Many of these conditions are associated with impulsiveness, impaired reality testing, and other commercial driving risk factors that are addressed by the appropriate task force. In addition, schizophrenia is associated with impairment of visual searching, psychomotor function, cognition, and ability to sustain attention; these conditions are only partially corrected by neuroleptics. (See references 22 through 26.) Furthermore, neuroleptics have been shown to impair performance in tests correlated with poor driving and accident proneness.

A variety of neuroleptic side effects can cause impaired driving. Motor dysfunction due to parkinsonism, akathisia, dystonia, and tardive dyskinesia (all of which may be persistent) can impair coordination and response time. (These side effects are rare with clozapine.) Sedation, which is common with low potency preparations, slows response time and reduces attentiveness.^(27,30) Reduction of visual accommodation and pupillary reactivity, which are usually anticholinergic side effects, could impair driving, especially at night if the effect is large. Impairment of cognition, attention, information processing, and frontal lobe function may occur independently of sedation or anticholinergic effects.

Some evidence indicates that very low single doses of high potency neuroleptics (e.g., 0.5 mg of haloperidol) may not impair coordination or reaction time, and evidence **actually** linking chronic neuroleptic use to impaired driving has not been published. However, this evidence is lacking probably because the question has not been studied. Given the strong evidence of impaired psychomotor performance associated with the use of all antipsychotic drugs, the most reasonable recommendation is that individuals taking any of these drugs be licensed for commercial driving only after an expert panel has reviewed the effects of the illness and the neuroleptic. Antipsychotic drugs should be added to the current mine screens so that commercial drivers taking these drugs may be identified.

Central Nervous System Stimulants

Psychiatric uses of CNS stimulants (dextroamphetamine, methylphenidate, and pemoline) include the following treatment methods: (1) as the primary treatment of narcolepsy and ADHD, both of which are associated with psychomotor deficits related to sleepiness or hyperactivity, and (2) as adjuncts to antidepressants in the treatment of depression, which is associated with cognitive deficits and right-hemisphere dysfunction that remit with successful treatment. (See references 24, 34, 35, and 36.) Small doses of stimulants increase inherently

low rates of response, such as socially appropriate behavior in ADHD, and decrease behaviors with inherently high frequencies such as motor hyperactivity in ADHD. Blood screening for CNS stimulants is now part of the routine battery.

Low doses of stimulants enhance human vigilance, attention, and performance, especially in individuals who have been impaired by fatigue or lack of sleep or who have brain damage or ADHD. Studies using animals also suggest positive effects of stimulants on psychomotor performance in brain-damaged subjects. However, stimulants improve performance only on simple tasks, not on those requiring complex intellectual functions. Furthermore, increasing the amount of work does not reduce the number of errors, and tolerance develops to any beneficial effects with continued use.

To put these limited positive effects into perspective, one researcher notes that "CNS stimulants do not improve and very often impair performance on tasks involving recent memory."⁽⁴³⁾ This statement is even more likely to be true with higher doses. In animal studies, even low doses of stimulants can impair memory and psychomotor performance and increase impulsive, "stereotyped, aggressive, perseverative, and hyperactive behavior."⁽³⁷⁾ These effects disrupt efficient patterns of responding. In humans, stimulants can produce confusion with complex tasks, hypomanic judgment, irritability, and compulsive and stereotyped behavior in brain-damaged and normal individuals. Toxicity, which impairs judgment and perception and produces psychosis, usually appears at higher doses but may result from doses as low as 1 to 30 mg. Furthermore, toxicity persists after the drug is withdrawn. In therapeutic doses, all of the stimulants have been found to impair driving through one or more of these mechanisms. Amphetamine derivatives have been found in the bloodstreams of several drivers who appeared intoxicated but had no other drugs or alcohol in their blood.

Considering the risk of impairment that regular use of CNS stimulants presents, individuals using these drugs should be considered medically unqualified for a commercial vehicle driver's license. For a patient who takes stimulants for legitimate medical reasons (e.g., ADHD, narcolepsy, or prevention of relapse of depression) exceptions might be granted after expert review provided that the patient has demonstrated no impairment and no tendency to escalate the dose.

Anticonvulsants

Anticonvulsants such as clonazepam, carbamazepine, and valproic acid are used as antimanic and mood stabilizing drugs as well as for their neurological indications. Clonazepam has antipanic properties. Carbamazepine may be a useful adjunct in the treatment of depression, post-traumatic stress disorder (PTSD), borderline personality disorder, cocaine abuse, and multiple personality disorder. Some of these illnesses would be expected to impair commercial vehicle driving, but fully remitted PTSD, panic disorder, hypomania, or depression might not. Clonazepam is a sedative benzodiazepine, and recommendations concerning its use are found in the discussion of that class of drugs.

Carbamazepine by itself in therapeutic doses usually does not impair and may improve psychomotor, intellectual, and cognitive performance. (See references 52 through 55.)

Sedation is a common acute side effect that would be expected to interfere with driving, but tolerance often develops to this side effect. On the other hand, neurotoxicity may develop at any concentration of carbamazepine.⁽⁵⁶⁾ Also, the incidence of psychomotor impairment increases substantially when carbamazepine is combined with other drugs.⁽⁵⁷⁾ However, use of carbamazepine in a stable chronic dose and plasma level should be permissible for commercial vehicle drivers if lack of sedation or neurotoxicity can be documented.

Data about the psychomotor effects of valproate are more contradictory. With chronic treatment, lack of impairment with acute dosage and subclinical impairment of attention, visuospatial integration, and psychomotor function have been reported.⁽⁵⁸⁾ Until this drug has been studied in sufficient depth, its use should be permitted only after expert review and certification that it has not caused sedation and neurotoxicity in the driver. Because valproate inhibits metabolism of carbamazepine, raising its level in the patient's blood and increasing the risk of neurotoxicity, use of the combination should require expert review.

Electroconvulsive Therapy

ECT produces an acute organic mental syndrome characterized by confusion, disorientation, and loss of short-term memory even with low dose, brief pulse, unilateral treatment. This fact is well established. Anesthetics and anticholinergics administered during the treatment can also contribute to acute cognitive impairment. However, experts generally agree that ECT does not cause long-term deficits of memory, cognition, or psychomotor function when it is properly administered. In fact, ECT ultimately improves cognitive dysfunction caused by depression.^(34,59) Clinical experience has shown that acute side effects usually resolve rapidly and almost invariably within a few months. A patient generally should not be permitted to drive a commercial vehicle within 6 months of a course of ECT. A return to commercial driving between 3 and 6 months after the patient receives ECT should require expert review. Finally, commercial driving can be permitted after 6 months following a course of ECT if medications prescribed subsequently do not contraindicate a return to work. Commercial driving during maintenance ECT should be prohibited.

TASK FORCE HI REPORT-MENTAL DISORDERS ASSOCIATED WITH PSYCHOTIC FEATURES AND OTHER SELECTED DISORDERS

Donald W. Black, M.D. (Chairperson)
Nancy Andreasen, M.D., Ph.D.,
Sally L. Godard, M.D.
William Meller, M.D.
Neill Darmstadter

SCHIZOPHRENIA AND RELATED PSYCHOTIC DISORDERS

These disorders represent a heterogeneous set of conditions that produce a variable degree of impairment and chronicity. Because of this variability, no single set of recommendations can be made for these disorders. Furthermore, because some of these disorders are difficult to diagnose in their early stages, the physician must **use caution in the** diagnosis.

Descriptions

Schizophrenia

Schizophrenia, the most severe condition within this spectrum, is typically characterized by the following symptoms: psychosis (e.g., hearing voices or experiencing delusional thoughts) and negative or deficit symptoms (e.g., loss of motivation, apathy, or reduced emotional expression). The onset of the illness usually occurs when the patient is in the late teens or early twenties, although it may come later in life. During the early stages of illness, distinguishing schizophrenia from related illnesses or from the various mood disorders and making the diagnosis may be difficult. Chronic schizophrenia is usually a clear-cut condition, and patients with this disorder tend to be severely incapacitated and are unable to work. Although no cure is known for chronic schizophrenia, medication is helpful in alleviating its symptoms.

Schizophreniform Disorder

Although patients with schizophreniform disorder exhibit many of the same symptoms as those with schizophrenia, the duration of this illness is usually only 6 months. However, some of these patients who eventually develop schizophrenia have a relatively poor prognosis. Others who remit in less than 6 months have a much better prognosis.

Brief Reactive Psychosis

This illness is characterized by psychotic symptoms, such as delusions and hallucinations, but is self-limited and remits fully within a 1-month period. It tends to occur in reaction to some stressor, such as moving to a new environment, and its prognosis is considered good.

Schizoaffective Disorder

Because this condition combines features of schizophrenia with those of mood disorder, making generalizations about it is difficult. Furthermore, definitions of schizoaffective disorder have varied considerably over the past decades. The prognosis for this condition is clearly better than that for classic chronic schizophrenia, but it is somewhat worse than that for classic mood disorders.

Delusional Disorder

Delusional disorder occurs in the context of an apparently normal personality and cognitive function and is characterized by prominent delusional thinking that does not seem strikingly bizarre (e.g., the delusion that one's spouse is unfaithful as compared to the bizarre delusion that little green men from Mars are invading the Earth). Patients with this condition tend to function relatively well apart from the domains of their lives that are affected directly by the delusions.

Risks for Commercial Driving

Although no studies specifically address the implications of psychotic disorders in commercial vehicle drivers, clinical experience shows that a person who is actively psychotic may behave unpredictably in a variety of ways. For example, a person who is hearing voices may receive a command to do something harmful or dangerous, such as to mutilate himself. However, although delusions or hallucinations may lead to violent behavior, the overall rate of violence among patients with schizophrenia is probably no higher than in the general population. Nevertheless, a person whose judgment may be impaired by active psychosis should not be placed in a position that affects the lives and safety of others. Furthermore, other symptoms of schizophrenia are more problematic because they affect behavior and judgment in more subtle ways. The chronically schizophrenic patient frequently lacks the cognitive skills necessary for steady employment, may have impaired judgment and poor attention, and has a high risk for suicide. A predominance of negative symptoms (e.g., amotivation or apathy) may also cause a patient to become a threat to others.

Moreover, medication used to treat schizophrenia and related disorders may cause sedation and motor abnormalities (e.g., muscular rigidity or tremors) and impair coordination, particularly as the medication is being initiated and doses are adjusted.

Recommendations and Guidelines

The task force members recommend that patients with active psychosis or prominent negative symptoms be restricted from commercial driving. Otherwise, no blanket recommendation can be made because the symptoms vary greatly among the psychotic disorders, accurate predictions about long-term outcomes are difficult to make, and definition and diagnostic practices continually change over time. Given these uncertainties, the members propose the following guidelines for evaluating such individuals for commercial driving. They acknowledge that certain recommendations are arbitrary and based on clinical judgment, not data.

The medical examiner should refer any person with a history of a psychotic disorder to an appropriate specialist (an PHWA-designated psychiatrist trained specifically for this purpose) for an independent psychiatric assessment. The specialist should conduct a personal interview and evaluate all records, considering the following factors: the disorder's history (e.g., the patient's age at onset, number of hospitalizations, description of psychotic and other symptoms, coexisting disorders, and history of suicidality); treatments received, including current medication; response to medication; side effects; and treatment compliance. In the mental status examination, emphasis should be placed on determining whether or not the patient currently has active symptoms of psychosis, such as delusions or hallucinations, or other prominent symptoms (e.g., poor attention, impaired judgment, or suicidal behavior).

- Persons with active psychosis (or seriously impaired judgment, attentional impairment, or suicidal behavior resulting from a psychotic disorder) should be considered not medically qualified to drive commercially.
- Drivers with a psychotic disorder should be free of symptoms for 1 year before reevaluation. However, persons with a brief reactive psychosis or schizophreniform disorder may be reevaluated sooner if they are free of symptoms for 6 months. At the reevaluation, the PHWA-designated psychiatrist should consider the person's traffic record, past psychiatric history, and history of traffic offenses or accidents while impaired.
- The task force members recommend that an PI-WA-designated psychiatrist reevaluate a driver with a history of mental illness with psychotic features every 2 years.
- All drivers with psychotic disorders who currently are medically qualified should be required to report any psychotic symptoms within 30 days of their onset.

MOOD DISORDERS

Although mood changes are common in every day experience, when a mood disturbance is pervasive and causes impairment in social or occupational functioning, a mood disorder is diagnosed. Mood disorders include a variety of conditions that may lead to severe impairment and psychiatric disability. The two major groups of mood disorders are the bipolar and the depressive disorders.

Descriptions

Bipolar Disorders (Including Cyclothymia)

Bipolar disorder is characterized by one or more manic episodes and is usually accompanied by one or more depressive episodes. Its onset typically occurs when the patient is in the late teens or early twenties; however, the course of illness varies considerably among individuals.

The onset of a manic episode, which may be sudden or gradual, is characterized by an elevated expansive or irritable mood. A person with mania may experience racing thoughts, may have difficulty maintaining logical conversation, and may develop grandiose beliefs or true delusions (e.g., that he has great wealth or is a world leader). Other symptoms include distractibility, restlessness, and increased motor activity. The manic patient may develop overt hostility and unpredictable behavior. Manic episodes impair judgment, often leading the patient to become involved in activities that are likely to have painful consequences (e.g., making bad business decisions or engaging in extramarital affairs).

A depressive episode of bipolar disorder is the same as an episode of major depression, which is described in the next section. Briefly, a depressed mood is accompanied by loss of interest and motivation, poor sleep, appetite disturbance, fatigue, poor concentration, and indecisiveness. Depressed patients may also develop delusions and hallucinations and may become suicidal.

Factors that precipitate manic or depressive episodes are not well understood. Although bipolar disorder has no known cure, medication is helpful in curtailing its symptoms and decreasing risk of recurrence.

Cyclothymia is a mild form of bipolar disorder that causes brief episodes of depression or elevated mood but typically does not cause marked impairment. Treatment may include medication.

Depressive Disorders (Including Dysthymia)

Major depression consists of one or more depressive episodes that may alter one's mood, cognitive functioning, behavior, and physiology. Symptoms may include a depressed or irritable mood, loss of interest or pleasure, social withdrawal, appetite and sleep disturbance that lead to weight loss and fatigue, restlessness and agitation (or the opposite), impaired concentration and memory functioning, poor judgment, and suicide thoughts or attempts. Hallucinations and delusions may also develop, but they are less common in depression than in manic episodes.

Most patients with major depression will recover. However, some will relapse within 5 years. A significant percentage of persons with major depression will commit suicide; the risk is the greatest within the first few years following the disorder's onset.

Although precipitating factors for depression are not clear, many patients experience stressful events in the 6 months preceding the episode's onset. Treatment of a depressive episode generally includes the use of medications or electroconvulsive therapy (ECT). The medications are usually antidepressants but others such as anxiolytics, antipsychotics, or mood stabilizers are often used. Prophylactic treatment may prevent or shorten future episodes.

Dysthymia is a chronic depressive disorder that consists of continual or frequent periods of mild depressive symptoms. Its treatment may also include medication.

Risks for Commercial Driving

No current or past studies specifically address the implications of mood disorders for commercial driving. However, clinical experience suggests that, during a manic episode, the individual's symptoms of grandiosity, impulsiveness, irritability, or aggressiveness create a high risk of danger. Also, many manic patients have delusions or hallucinations, which can affect their actions while they are driving. Furthermore, concurrent use of alcohol and drugs, which commonly occurs during a manic episode, may also affect driving ability. Similarly, a severe depressive episode causes potential risks for driving. Reflexes and reaction time may be slowed and judgment may be impaired. Depressed patients may lack the drive and motivation necessary for task completion. Of even greater concern is the likelihood that a depressed driver may develop suicidal thoughts. Reports indicate that persons with suicidal tendencies have greater vehicle accident rates. Depressed patients may also develop hallucinations and delusions that could affect driving ability.

Additionally, medication used to treat mood disorders may cause sedation or impair coordination, particularly as the medication is being initiated and doses are adjusted.

Other psychiatric disorders frequently coexist with mood disorders. For example, substance abuse is commonly associated with bipolar disorder, and dysthymia is commonly associated with major depression. A decision to license such a patient for commercial driving must not be made until all the disorders present are considered.

Recommendations and Guidelines

The task force members recommend that examining physicians use the following guidelines when evaluating individuals with mood disorders for commercial driver's licensing:

- The medical examiner should refer any persons with a history of mania, major depression, dysthymia, or cyclothymia to an appropriate specialist (an FHWA-designated psychiatrist trained specifically for this purpose) for an independent psychiatric assessment. The evaluation should consider the disorder's history (e.g., patient's age at onset, number of hospitalizations, descriptions of depressive or manic episodes, history of suicide thoughts or attempts, coexisting disorders); treatments received, including current medication; response to medication; side effects; and treatment compliance. A mental status examination should be conducted, stressing the evaluation of

thought processes and content, mood, cognitive functioning, judgment, and suicidality.

- Persons who suffer from mania or severe major depression or who are suicidal at the time of evaluation should not be considered medically qualified to drive commercially. A severe depression is characterized by psychosis, severe psychomotor retardation or agitation, significant cognitive impairment (especially poor concentration and attention), and suicidal thoughts or behavior; it may require hospitalization.
- A person who has experienced a severe depressive episode, a suicide attempt, or a manic episode should be free of symptoms for 1 year before reevaluation. A person who has experienced a nonpsychotic major depression unaccompanied by suicidal behavior should be free of symptoms for 6 months before reexamination. At the reexamination, the PHWA-designated psychiatrist should consider the person's traffic record, past psychiatric history, and history of traffic offenses or accidents while impaired.
- The task force members recommend that an PHWA-designated psychiatrist reevaluate a driver with a history of mania, major depression, or mood disturbance every 2 years.
- All commercial drivers with a major mood disorder who currently are medically qualified should be required to report any manic or severe major depressive episode within 30 days of its onset.

SELECTED PSYCHIATRIC DISORDERS

Eating Disorders

Eating disorders include anorexia nervosa, bulimia nervosa, pica, and rumination disorder of infancy. Because the latter two disorders occur during infancy and childhood, they are irrelevant to the issue of commercial driving. The onset of anorexia and bulimia typically occurs when the patient is in the teens or twenties. Complications of these disorders may be severe and can potentially limit a person's ability to drive safely.

Descriptions

Anorexia. Anorexia nervosa is relatively common in adolescent and young adult women but is uncommon in men. It is characterized by refusal to maintain normal body weight, intense fear of gaining weight, a distorted body image, and amenorrhea (in women). In addition to weight loss and disturbance of body image, anorexia nervosa is associated with a variety of physiologic and metabolic disturbances that can lead to significant physical illness or death. These physiologic and metabolic disturbances could interfere with a person's ability to operate a commercial vehicle.

Gross malnutrition can occur in severe cases of anorexia nervosa. This condition can cause cognitive impairment that leads to poor concentration, shortened attention span, impaired judgment, and increased reaction time. Other disturbances that may occur include hypothermia, bradycardia, hypotension, edema, and fluid and electrolyte disturbance. These complications may also affect cognitive functioning and, in some cases, may lead to the development of an organic mental disorder, such as delirium. Furthermore, physical weakness and fatigue that usually results from anorexia can impair a Person's ability to drive safely.

The course of anorexia nervosa varies greatly among individuals. Commonly, anorexia nervosa occurs as a single episode with return to normal body weight. In many patients, however, anorexia nervosa may be recurrent or chronic, in some cases leading to malignant weight loss and death.

Bulimia Nervosa Bulimia nervosa is characterized by episodes of bingeing and purging but is not typically associated with low body weight. It is also less likely than anorexia to be associated with severe physiologic abnormalities, although dehydration and electrolyte disturbance may occur (e.g., from recurrent vomiting, laxative abuse, or diuretic use). These metabolic abnormalities can lead to cardiac arrhythmias or cognitive disturbance that could impair safe driving.

Recommendations and Guidelines

Although no studies specifically address the implications of eating disorders for commercial driving, clinical experience suggests that driving may be impaired in patients who are severely underweight or have severe metabolic or electrolyte disturbance. Because the symptoms and complications of eating disorders vary widely, making blanket recommendations is difficult. Therefore, the task force members recommend the following guidelines for evaluating individuals with eating disorders for commercial driving:

- An FHWA-designated psychiatrist should independently assess any person with a history of anorexia nervosa or bulimia nervosa by conducting a personal interview and evaluating all past records. The assessment consideration should stress the disorder's history, noting the dates of onset, episodes of recurrence, episodes of bingeing and purging, and **fluctuations** in body weight. Hospitalizations, physiologic complications, and associated psychopathology (e.g., substance abuse or depression) must also be recorded.
- Patients with an active eating disorder at the time of evaluation should be considered medically not qualified if they have significant malnutrition or fluid or electrolyte disturbance.
- A person who has had significant malnutrition or fluid or electrolyte disturbance secondary to an eating disorder should be free of symptoms for 1 year before reevaluation.
- All commercial drivers with an eating disorder who are medically qualified should report any recurrence of symptoms within 30 days of their onset.

- The task force members recommend that an FHWA-designated psychiatrist reevaluate the driver with eating disorders every 2 years.

Other Conditions

Gender Identity Disorders

Gender identity disorders include childhood gender identity disorder, adolescent or adult gender identity disorder (nontranssexual type), and transsexualism. The essential feature of these disorders is an “incongruence between assigned sex and gender identity.” The disorders are uncommon and the degree of impairment tends to relate to the severity of coexisting psychopathology (e.g., borderline personality disorder), not to the gender identity disorder per se. Therefore, any impairment would be related to coexisting psychiatric conditions that are covered in other sections of this report.

Elimination Disorders

Elimination disorders consist of the repeated passage of feces (encopresis) or urine (enuresis) in situations that are not appropriate for elimination. They are common in children and may persist into young adulthood. These disorders would probably not impair driving ability in adult patients. Coexisting pathologic conditions that could impair driving ability (e.g., major depression or attention deficit disorders) are covered in other areas of this report.

Speech Disorders Not Classified Elsewhere

These speech disorders include stuttering and cluttering. Eighty percent of those who stutter (i.e., frequently repeat or prolong sounds) recover by age 16. Cluttering, on the other hand, is an unusual, little-known disorder that may result in impaired speech intelligibility. Although these disorders can interfere with expressive language ability, they do not by themselves interfere with a person’s receptive abilities. However, cluttering may be associated with auditory-perceptual or visual-motor impairments that could alter a person’s ability to drive safely. This associated pathology is covered in other areas of the report.

Other Disorders of Infancy, Childhood, or Adolescence

These disorders include elective mutism, identity disorder, reactive attachment disorder of infancy or early childhood and stereotype/habit disorder. Because these conditions are all disorders of infancy, childhood, or adolescence, they are unlikely to have any relevance to commercial driving. Again, associated psychopathology (e.g., psychosis or mental retardation) may lead to impairment, but these conditions are considered in other areas of the report.

TASK FORCE IV REPORT-PERSONALITY DISORDERS, ANXIETY DISORDERS, AND OTHER SELECTED DIAGNOSTIC DISORDERS

Alan R. Felthous, M.D. (Chairperson)
Michael H. Gendel, M.D.
Jon A. Bell, M.D.
Kathleen M. Quinn, M.D.
Jacob Stone
John D. Armstrong, M.D. (Canadian Representative)

INTRODUCTION

This task force reviewed the following diagnostic categories to make recommendations pertaining to assessment for commercial driver safety: personality disorders; impulse control disorders not elsewhere classified; selected diagnostic conditions, including psychological factors affecting physical conditions; disruptive disorders of childhood or adolescence; anxiety disorders of childhood or adolescence; anxiety disorders; somatoform disorders; dissociative disorders; and adjustment disorders. Additionally, under selected diagnostic conditions, the task force members examined the interaction between personality disorders and substance abuse and made recommendations for assessment of driver safety when such disorders coexist. To evaluate the scientific literature regarding the capacity to operate a motor vehicle safely, the task force members developed the following list of qualities associated with safe driving:

- Knowledge of driving.
- Adequate motor skills.
- Perceptual proficiency.
- Judgment.
- Ability to maintain attention.
- Ability to remember.
- Ability to recognize, evaluate, and respond to stress.
- Caution.
- Consideration for other drivers.

Although some of the disorders and traits considered in this task force report are commonly reported in studies of psychiatric disorders and vehicular accidents, empirical data does not permit percentage probability predictions based upon diagnosis. Much more research is needed in this area before firm and accurate decisions can be made about the relationship between specific disorders and driving performance. Even if accurate long-range predictions

based upon psychiatric diagnosis could be made regarding driving performance generally, such predictions may not extend with equal accuracy to commercial driving. Commercial driving may be technically more difficult and stressful, overtaxing the individual who lacks skill and confidence. Conversely, the driver may perform at a consistently higher level on the job when the stakes are high and occupational success depends on safe driving.

Despite the relative dearth of empirical data upon which to make decisions, mental disorders must be considered in assessing commercial driver safety and in balancing the drivers' needs and privileges against public safety. However, the task force members faced a dilemma in applying common sense to formulating the ideal approach. Decisions based on simple rules or categories (e.g., specific disorders) seem to establish arbitrary thresholds that may unfairly exclude some truly safe drivers. However, a multifaceted approach that permits maximal individualization runs the risk of inconsistency. Decisions that are left to the judgment of one or more evaluators, or even a committee, can themselves become arbitrary, and the reliability of the evaluations is therefore lowered. Thus, the ideal approach is a balanced one with clear guidelines and the opportunity for valid judgment to prevail in individual cases. What constitutes a balanced approach is, to a considerable degree, a matter of perspective.

During the conference, some participants questioned whether recommended procedures, beyond clinical interview, would provide useful information for risk assessment. For example, psychological testing, criminal histories, and school records have not been tried and well tested as sources of information that will permit accurate prediction of unsafe driving behavior. The justification is that the literature suggests a relationship between unsafe driving and character traits including impulsiveness and aggressiveness. Also, such traits can be better assessed by several probes and sources of information rather than relying solely on the diagnostic interview. However, because these sources will not be uniformly available and adequately revealing and because risk assessment based on mental disorder is essentially untried, establishment of a Medical Advisory Group is of critical importance. Nevertheless, regardless of the assessment's limitations, a recommendation should be made as to whether the individual passes the risk assessment component for competency as a commercial driver.

Recommendations in this section can be compared to the Federal Aviation Administration regulations. A person is medically unqualified if the person has a personality disorder that is severe enough to have repeatedly manifested itself by overt acts. The diagnosis of a disorder may raise the question about traits, inherent in the disorder, reasonably presumed to be associated with unsafe driving. Further risk assessment then is used to establish whether such traits are serious enough to adversely affect behavior in a manner that reduces driving safety. The initial examining physician is not expected to identify all applicants with personality disorders. The primary evaluator should, however, use the screening guidelines in appendix C and clinical judgment in identifying those individuals who warrant further psychiatric evaluation.

All applicants for a commercial vehicle driver's license should be screened initially for mental disorders as well as for signs of safe driving. A series of screening questions are suggested (appendix C) to help identify those individuals in need of psychiatric assessment.

Inquiry should be made regarding a history of past suicide thoughts or attempts within the past 6 months.

For this report, the task force developed a two-step approach for the evaluator. In phase 1, the evaluator conducts a clinical assessment and, where appropriate, arrives at a diagnosis. This report describes the disorder's central features and features that may cause concern for driving safety to aid in this assessment. The task force members made every effort to avoid suggesting exclusion based on the diagnosis alone.

Phase 2 consists of a functional assessment of driving safety. Driving records should be obtained on all applicants for a commercial license. Some drivers with no mental disorder could conceivably have terrible driving records with many offenses and accidents. Others with a mental disorder and traits commonly associated with accidents may have excellent records. In extreme cases, the driving record may be far more indicative of the driver's capability than the diagnosis of any mental disorder. Where the mental disorder does not entail risk factors, only the driving record may be needed and no further risk assessment warranted.

However, reliance on a driving record alone would be inadequate if a diagnosed disorder often has features that cause concern about driving safety. For instance, a young adult probably has not developed a record, good or bad. On the other hand, older adults with excellent records may only recently have become mentally disabled with compromised driving safety. Therefore, phase 2 offers specific procedures for a more complete risk assessment. A practical driving test may be very useful for individuals who have disabilities of perception or cognition or who suffer from acute distress. However, the ability of patients with other disorders (e.g., most personality disorders) to perform superbly during a practical test may not reflect the care and attention that they give to driving when on their own. Therefore, phase 2 is essentially an attempt to gather all material information (historical, clinical, and corroborative) to help assess the seriousness of risk factors.

This report contains some redundancy because the measures necessary to assess driving risks are much the same from one disorder to the next. Nonetheless, the measures recommended are tailored to each disorder and listed separately. Thus, after diagnosing a disorder in phase 1, the evaluator can see precisely which procedures are expected.

With few exceptions, recommendations for psychological testing address particular parameters rather than specific psychological tests to be administered. Psychologists often recommend different tests even to address the same question. The task force members also did not develop interview schedules because they considered identifying the important themes that should be investigated more important.

Persons with a history in adolescence or childhood or past symptoms of conduct disorder, oppositional defiant disorder, ADHD, separation anxiety disorder, avoidant disorder, and overanxious disorder should also receive psychiatric evaluations due to the potential increased risk involved with commercial driving. The examining physician is not expected to make a definitive diagnosis of these disorders. However, the screening questions, history of

past treatment, and physician's clinical judgment should determine who is referred for further psychiatric assessment. In complex cases, the general psychiatrist may consult with a child psychiatrist (e.g., regarding an adult with persistent ADHD symptoms).

Finally, the task force members generally avoided establishing a firm rule for exclusion even after the evaluator reviews all data. Such a rule may be even more arbitrary than a rule based on diagnosis alone. The clinician, who has the benefit of data from various sources, can more thoroughly assess parameters such as aggressive tendencies, poor impulse control, and careless behaviors including reckless driving.

PERSONALITY DISORDERS

Paranoid Personality Disorder

The essential feature of paranoid personality disorder (PPD) is pervasive and extreme distrust of others indicated by the individual's hostility toward and/or fear of others. The patient may also experience the following symptoms: unreasonable expectation of harm or exploitation by others; unreasonable questioning of the loyalty of friends and acquaintances; tendency to falsely perceive the remarks and behavior of others as threatening, provocative, or insulting; tendency to hold grudges and to be unforgiving of insults or slights by others; reluctance to confide in others; unreasonable questioning of the fidelity of one's spouse or sexual partner; and tendency to feel slighted and to react quickly with aggression.

No past or present scientific data relate PPD per se to driving performance. However, the tendency to misperceive the intentions of other drivers as hostile or provocative and to react quickly with attacking or counterattacking measures can reasonably be expected to increase the risk of a driver on the highway. Furthermore, overuse of projection and paranoid ideation(64/67) has been associated with accident-causing drivers.

For an individual who has been diagnosed with PPD using criteria established in the American Psychiatric Association's Revised Third Edition of the **Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R)**, the task force members recommend that a risk assessment for personality disorders be performed to further assess the risks' validity. Because of their tremendous distrust, people with PPD may be guarded and may fail to provide important information about themselves. Therefore, collateral interviews are especially important for risk assessment of this disorder.

Schizoid Personality Disorder

The individual with schizoid personality disorder (SPD) shows an extreme pattern of indifference to social relationships and withdrawal into exclusively solitary pursuits, often including fantasy. The individual shows the following related symptoms: little or no experience of strong emotions and constricted emotional expression; indifference to praise and criticism of others; little expressed desire for sexual experiences with another person; exclusive pursuit of solitary, nonsocial activities; and no enjoyment of close relationships, resulting in a limited number of close friends.

No scientific data relate SPD to driving performance, and its essential features and common symptoms should not interfere with driving performance. However, some individuals with SPD have a tendency to become lost in fantasy that could distract and compromise concentration on driving.

For an individual who has been diagnosed with SPD using established DSM-III-R criteria, the task force members recommend that a risk assessment for personality disorders be performed to further assess the presence and validity of the risk associated with fantasizing and lapse in concentration. Collateral interviews are especially important and should aim to further assess the individual's reality adherence, ability to sustain task-related concentration, and driving history. Psychological testing by a clinical psychologist should focus on reality adherence and ability to sustain task-focused concentration.

Schizotypal Personality Disorder

The essential features of schizotypal personality disorder (STPD) are perceptual and cognitive deviations that are not severe enough to meet criteria for schizophrenia or a psychotic condition. These individuals show pervasive deficits in how they relate to others and have peculiarities of speech, thought, and manner that may cause others to think of them as quite odd. The following symptoms have diagnostic significance: ideas of reference; extreme social anxiety; behavior influenced by odd beliefs or magical ~~thinking~~ that is inconsistent with social norms; unusual perceptual experiences; odd or eccentric behavior, speech, or appearance; few, if any, close friends; inappropriate or constricted emotional expression; and suspiciousness or paranoid thoughts.

Scientific data do not exist to demonstrate the driving performance of individuals with this disorder. Their marginal adherence to reality, possible perceptual distortions, and cognitive deviations may compromise the mental abilities and sound judgment needed for safe driving.

For an individual who has been diagnosed with STPD using established by DSM III-R criteria, the task force members recommend that a risk assessment for personality disorders be performed to further assess the possible risks' validity. Collateral interviews should further assess, in particular, the individual's reality adherence, perception, cognitive functioning, and driving history. Psychological testing by a clinical psychologist should focus on reality adherence, perception, thought processes, comprehension, and judgment. A practical driving assessment may be helpful where perceptual and cognitive distortions affect functioning abilities. The advisability of this last measure is left to the evaluator's discretion.

Antisocial Personality Disorder

The essential feature of antisocial personality disorder (APD) is a **chronic** failure to follow rules and satisfy the obligations needed to function as a member of a social system (family, school, place of employment). The individual behaves in a self-serving manner and is insensitive to others' rights, needs, or desires when they conflict with his/her **own** desires. Impulsive, aggressive, and risk-taking behaviors are typical. Although not diagnosable until an individual is 18 years of age, the disorder begins in childhood and is longstanding. The