

## DEMENTIA

Many disease processes can cause dementia, most commonly Alzheimer's Dementia, stroke, and Parkinson's Disease. Less common causes include Lewy Body and fronto-temporal dementias, HIV and other chronic viral CNS infections, B12 deficiency, chronic alcohol damage, and multiple sclerosis. All dementias cause some mixture of permanent, often progressive, loss or impairment of cognitive skills like memory, visuo-spatial perception, language, abstraction, prosody and/or praxis impairments, and/or executive function (complex reasoning, planning and judgment).

Memory loss is usually the first to occur in Alzheimer's Dementia, but alone is insufficient to make that diagnosis without other cognitive deficits. Memory loss may be absent or at least occur later in several other types of dementia. Dementias must also be differentiated from other cognitive impairments like congenital mental retardation, transient impairments from delirium-producing conditions, or "mild cognitive impairment" (MCI) which entails mild memory or other cognitive deficits but no functional impairment. MCI carries no increased crash risk, nor may mild dementia. However, the potential for progression in both justifies more frequent physician re-evaluations.

The cognitive changes associated with dementia often affect drivers' ability to drive competently and increase crash risks. Those risks are elevated, especially in emergencies and in complicated traffic patterns, such as at intersections, with lane changes, while merging and making left-hand turns. Drivers with a screening Mini Mental Status Examination (MMSE) score of <24 fail road tests 70% of the time, but 30% pass; those with scores of <19 fail 95% of the time, and only 5% pass.<sup>A</sup>

Unfortunately, there are no tests of driving competence with 100% sensitivity/specificity. Current evidence does show several potentially useful clinical associations between specific cognitive test results and driving outcomes, although scoring cut-points for safe/unsafe driving often vary among studies. Nevertheless, office tests of attention, executive function, visuo-spatial skills, and memory are useful in assessments of drivers with dementia. These include Trails B, Useful Field of View, clock drawing, and several others.<sup>A B</sup>

The MMSE is commonly used clinically as a screening evaluation instrument and to classify the severity of Alzheimer's or mixed vascular dementias. Although MMSE copyrights have slowed its use, it still has the longest track record in driving/dementia research. An abnormal score alone is not sufficient to diagnose dementia without further clinical and functional evaluation because it has a 10-20% false positive rate.<sup>C</sup> A normal score alone is insufficient to clear a person suspected of having dementia to drive since it has a false negative rate as well, especially because it measures insight and executive functions poorly. The MMSE particularly may correlate poorly with driving competence in non-Alzheimer dementias like fronto-temporal types.

Though MMSE scores are used as partial guidelines for driving competence, other more available cognitive tests, especially the Clinical Dementia Rating (CDR) scale, the Montreal Cognitive Assessment Test (20-25 = mild), or the Short Blessed Test (8-15 = mild) may serve equally well.

Although not all experts agree, the Driver Fitness Working Group<sup>A</sup> states that the presence of two or more of the following factors may indicate the need for a cognitive assessment by a health care professional. Applicants with greater numbers of risk factors should be considered at greater risk, although the relative risks are not necessarily additive.

1. Age 80 years or older
2. History of a recent crash or moving violations
3. Applicant self-report or caregiver report of impaired skills
4. Use of psychoactive medications such as benzodiazepines, neuroleptics, antidepressants, or use of medications for Alzheimer's Disease
5. History of active alcohol abuse
6. History of falls
7. Inability to understand or hear instructions during interactions with the health professional
8. Scores with simple screening tools that indicate the possibility of a cognitive deficit

Online programs intended to assist older drivers self-evaluate driving skills may help them to an appropriate decision to retire from driving. Road tests with a driving rehabilitation instructor, occupational therapist or driver educator may also be useful. Family members may also provide useful information about an elder's ability to drive safely.

Online medical textbooks maintain useful reviews of all these issues.<sup>D</sup>

When BMV is notified that a licensed driver is diagnosed with dementia<sup>D</sup>, the driver will usually be required to submit a "Driver Medical Evaluation" (CR-24) form, completed by an appropriate clinician. Depending on the outcome of the Evaluation, the driver may also be required to take a road test, which must be administered by a BMV Driver's License Examiner.

*FOR REFERENCES, SEE BIBLIOGRAPHY AT END OF DOCUMENT.*

**FUNCTIONAL ABILITY PROFILE**  
**Diagnosed Dementia<sup>1</sup>**

<b>Profile Levels</b>	<b>Degree of Impairment<sup>2</sup>/ Potential for At Risk Driving</b>	<b>Condition Definition / Example</b>	<b>Interval for Review and Other Actions</b>
1.	No diagnosed condition	No known disorder	N/A
2.	Condition fully recovered	Cognitive impairment recovered. (Rare, usually within 6 months of identification. Example: recovery following a stroke.)	N/A
3.	Active impairment	Diagnosed progressive dementias with 2 or more functional impairments lasting >6 months, and other causes having been ruled out. For Lewy Body Dementia, see <sup>3</sup> .	
	a. Mild	Dementia without concern for unsafe driving in clinician's judgment. Supporting evidence should be submitted and could include documentation of MMSE 24-26+, CDR < 1, or MoCA ≥ 22, without evidence of executive dysfunction or visuo-spatial impairment.	2 years <sup>4</sup>
	b. Moderate	Dementia with risk factors for unsafe driving in clinician's judgment, but limited driving may be possible & safe. Supported by documentation i.e., MMSE 20-23, CDR 1-1.5, or MoCA 19-21, without evidence of executive dysfunction or visuo-spatial impairment.	Annually ROAD TEST
	c. Severe	Dementia with history of unsafe driving, or driving is not safe in judgment of clinician. Supporting evidence should be submitted and could include: MMSE ≤ 19, CDR 2 or greater, or MoCA ≤ 18, or deficits in visuo-spatial or executive function; or new cognitive impairment under investigation, with concern for potentially unsafe driving.	No driving

<sup>1</sup> For further discussion regarding DEMENTIA, please refer to NARRATIVE found at beginning of this section.

<sup>2</sup> For further explanation of degree of impairment, please refer to SECTION 3.

<sup>3</sup> Lewy Body Dementia exhibiting significant movement disorder manifestations should also be reviewed using the Parkinson's FAP.

<sup>4</sup> If clinician documentation supports stability over several years and they make a recommendation, the interval for review may be extended. If clinician documents progression of disease and recommends more frequent review and road testing, the interval may be shortened.