

# Cognitive Conditions

## Driving-Related Fact Sheet

### For Medical Professionals



July 2023

Cognitive Impairments	Effects on Driving
<p><b>Attention</b></p> <ul style="list-style-type: none"> <li>■ Decreased awareness</li> <li>■ Reduction in the ability to efficiently switch attention between multiple objects</li> <li>■ Reduced processing speed</li> </ul>	<ul style="list-style-type: none"> <li>■ Distraction or disorientation while driving</li> <li>■ Difficulty maintaining center position in the driving lane</li> <li>■ Difficulty maintaining control of a vehicle for prolonged distances</li> <li>■ Delay in timely response to traffic control devices or directives</li> <li>■ Delay in timely response to changes in traffic conditions, traffic hazards, and emergencies</li> <li>■ Difficulty recognizing and responding to the presence of pedestrians and bicyclists</li> <li>■ Delay in observing and responding to the position of other vehicles that are changing lanes, are in the oncoming lane of traffic, or entering the roadway</li> <li>■ Inability to simultaneously manipulate vehicle controls and watch the roadway</li> </ul>
<p><b>Judgment and Problem-Solving</b></p> <ul style="list-style-type: none"> <li>■ Reduced processing speed</li> <li>■ Difficulty anticipating impending or potential events</li> <li>■ A deficit in decision-making ability</li> </ul>	<ul style="list-style-type: none"> <li>■ Delay in timely response to changes in traffic conditions, hazards, and emergencies</li> <li>■ Delay in observing and reacting to hazards, vehicles changing lanes, or vehicles, pedestrians entering the roadway</li> <li>■ Delay in timely response to traffic control devices or directives</li> <li>■ Improper or delayed signal to other drivers that the vehicle is turning, changing lanes, or stopping</li> </ul>
<p><b>Reaction Time</b></p> <ul style="list-style-type: none"> <li>■ Reduced processing speed</li> <li>■ Difficulty anticipating impending or potential events</li> <li>■ A deficit in decision-making ability</li> </ul>	<ul style="list-style-type: none"> <li>■ Delay in timely response to changes in traffic conditions, traffic hazards, and emergencies</li> <li>■ Delay in observing and reacting to road hazards, vehicles changing lanes, or vehicles, pedestrians/bicycles entering the roadway</li> </ul>
<p><b>Planning and Sequencing</b></p> <ul style="list-style-type: none"> <li>■ A deficit in the ability to anticipate and/or react to changes in the environment</li> <li>■ Problems with sequencing activities</li> <li>■ Inability to problem-solve quickly</li> <li>■ Deficit in decision-making ability</li> </ul>	<ul style="list-style-type: none"> <li>■ Delay in timely response to changes in traffic conditions, and traffic hazards, and emergencies</li> <li>■ Delay in observing and reacting to road hazards, vehicles changing lanes, or vehicles, pedestrians or bicycles in the roadway</li> <li>■ Difficulty planning and safely maneuvering a driving route</li> <li>■ Frequently becoming lost, confused and unable to find the way from one location to another while driving, resulting in panic and sudden, irrational changes in direction or loss of control of the vehicle</li> </ul>
<p><b>Impulsivity</b></p> <ul style="list-style-type: none"> <li>■ Lack of emotional control</li> <li>■ Lack of decision-making skills</li> </ul>	<ul style="list-style-type: none"> <li>■ Road rage and aggressive driving behaviors such as speeding, following too closely, not checking the intersection before entering on a green light, and cutting in and out of traffic</li> <li>■ Delay in timely response to traffic control devices or directives</li> <li>■ Difficulty planning driving routes resulting in rapid lane changes, or unsignaled or dangerous turns</li> <li>■ Delay in observing and reacting to road hazards; vehicles changing lanes; or vehicles, pedestrians, or bicycles in the roadway</li> </ul>





Cognitive Impairments	Effects on Driving
<b>Visuospatial</b> <ul style="list-style-type: none"><li>Problems determining spatial relationships</li></ul>	<ul style="list-style-type: none"><li>Difficulty maintaining lane position, merging with traffic, or changing lanes</li><li>Difficulty observing and delay in responding to the position of other vehicles, roadway curbs, and parked vehicles</li><li>Difficulty positioning a vehicle while turning, maneuvering curves, or parking</li></ul>
<b>Memory</b> <ul style="list-style-type: none"><li>Confusion or memory loss</li><li>Decreased working memory capacity</li></ul>	<ul style="list-style-type: none"><li>Frequently becoming lost, confused, and unable to find the way from one location to another while driving resulting in panic and sudden, irrational changes in direction or loss of control of the vehicle</li><li>Failure or delay in observing and responding to traffic control devices and directives</li><li>The inability to consistently perform safe driving techniques</li><li>A lack of attention to other traffic</li><li>Abrupt lane changes without looking for other traffic</li><li>Turning in front of an oncoming vehicle or drifting in and out of traffic lane</li><li>Decreased working memory capacity resulting in frustration and confusion that can cause abrupt, unplanned, or unsignaled turning, lane changes, or stopping</li><li>Passengers must provide instruction on proper driving techniques</li></ul>
<b>Loss of Consciousness or Control</b>	<ul style="list-style-type: none"><li>Loss of consciousness for any reason</li><li>Loss of vehicle control</li></ul>

### The Clinician's Role

- Conduct or refer a patient for a functional evaluation of the person's fitness to drive if there is evidence of cognitive impairment.
- The following indicators can help determine if the person needs an evaluation:
  - There is a history of recent crash(es) or moving violation(s).
  - The patient uses psychoactive medications such as benzodiazepines, neuroleptics, antidepressants, or medications for Alzheimer's disease.
  - There is a history of falls; or scores from simple screening tools indicate the possibility of a cognitive deficit.
- If the diagnosis involves dementia, take the following action:
  - Address the issue of driving safety with the patients and their families.
  - Encourage patients to develop a transportation plan that includes alternative transportation options, driving restrictions and a time when driving is no longer an option for safety reasons. Coordinate the plan with family members and caregivers. If necessary, refer the patient to the local area agency on aging.
  - Perform a focused medical assessment (and serial assessments when needed) that includes information on any new impaired-driving behaviors (e.g., motor vehicle crashes) and an evaluation of cognitive abilities, including memory, attention, judgment, and visuospatial abilities.

Sources:

AAMVA Driver Fitness Working Group. (2009, September). Driver fitness medical guidelines (Report No. DOT HS 811 210). [www.nhtsa.gov/sites/nhtsa.gov/files/811210.pdf](http://www.nhtsa.gov/sites/nhtsa.gov/files/811210.pdf)

Pomidor, A., ed. (2019). Clinician's guide to assessing and counseling older drivers, 4th edition. The American Geriatrics Society. [https://geriatricscareonline.org/application/content/products/B047/pdf/Clinicians\\_Guide\\_to\\_Assessing\\_and\\_Counseling\\_Older\\_Drivers\\_Nov\\_2019.pdf](https://geriatricscareonline.org/application/content/products/B047/pdf/Clinicians_Guide_to_Assessing_and_Counseling_Older_Drivers_Nov_2019.pdf)

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