

Driving and Dementia

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Conflict of Interest Disclosure

I have no financial relationship or any real or apparent conflict(s) of interest that may have a direct bearing on my presentation

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Key Points

- Fix what you can, monitor the rest
- Begin discussions/planning early, come back to it often ('plant the seed')
- Enlist allies
- Be transparent re rationale, evidence; foster autonomy

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Most older drivers safe, adjust driving habits as they age

- Drive less often, fewer miles
- Avoid uncomfortable/threatening situations: night, rush hour, bad weather, highways, unfamiliar areas

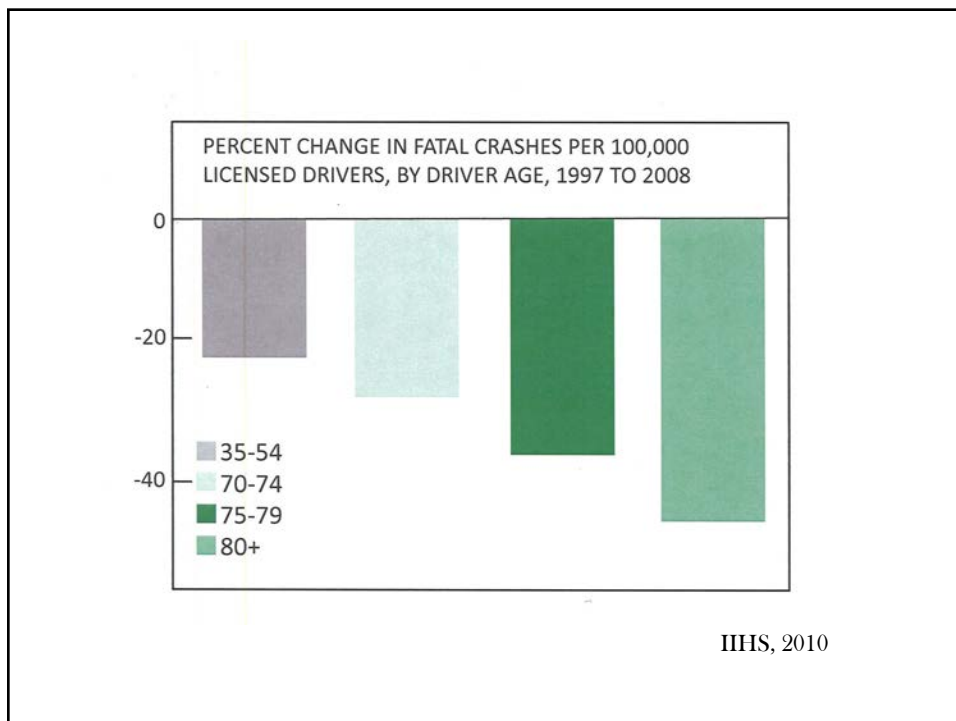
Is adjustment appropriate, excessive, inadequate?

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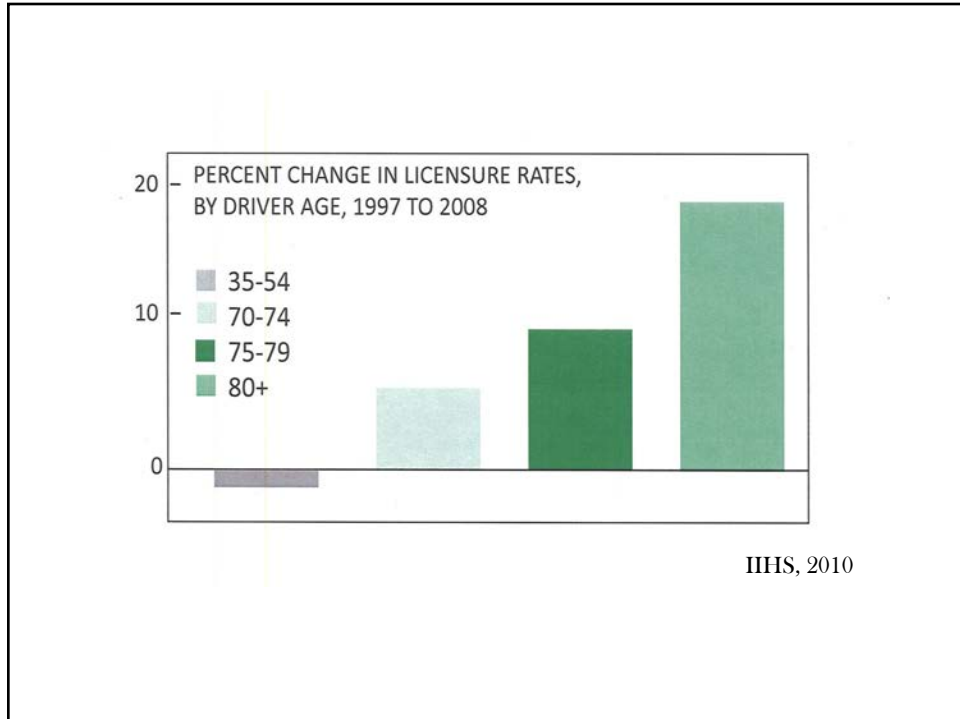
Decreased road fatalities in recent decades encouraging

- Fewer crashes, improved survival
- Possibly reflects improvements in vehicles, roads, health, medical care

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Mr. R.
74 year old gentleman with stage IV kidney disease, diabetes, hypertension, depression

- Initially able to recall conversation, meds, BPs, weights
- Progressive decline in memory with poor motivation, daytime somnolence

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Treatment initiated

- Antidepressant
- Erythropoietin for anemia

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Further cognitive decline

- Dependent in IADL
- Driving-ran red lights, wife afraid to ride with him
- Scored 18/30 on MMSE
- Advised to stop driving

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Dialysis started

- Initial cognitive improvement–MMSE 22/30
- Subsequent cognitive decline
- Started driving again

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Geriatric evaluation

- 19/30 MMSE
- Deficits in higher level cognition-attention, executive function, psychomotor speed, information processing speed.

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- Dementia diagnosed
- Discontinue driving reinforced
- Family present and will implement

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What to Evaluate

- Driving history
- Driver factors
 - Medications/alcohol use
 - Medical conditions
 - Functional impairments
 - Awareness
- Driving performance
- Other factors – vehicle, environment

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Driving History

- Does the patient drive?
- How often -- days/week or mileage
- What reasons --shop, Dr. appointment, bank, religious services, visit, trips, pleasure
- Circumstances – at night, bad weather, highway, rush hour/heavy traffic, unfamiliar areas
- Adverse Events - crashes, moving violations, near misses, lost in familiar areas
- Patient or family/friends concerned/uneasy about driving?
- Use/availability of alternative sources of transportation

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Medications/Alcohol Use

- Alcohol use less role in crashes c/w younger drivers
- More medications taken
- More sensitive to effects
- Central-acting agents of particular concern
- Analgesics, antidepressants, antihistamines, antipsychotics, anxiolytics, muscle relaxants, sedative-hypnotics

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3 Ds of Drugs/Driving

1. Dosing
 - Start at lowest possible dose
 - Time to least likely affect driving
2. Duration
 - Avoid driving initially (and at dose change) if possible
3. Documentation
 - Advise regarding above and potential SE
 - Document discussion in record

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MEDICAL FACTORS POTENTIALLY AFFECTING DRIVING SAFETY

Dementia

Neurological – Stroke/TIAs, Parkinson’s disease, seizures

Cardiac – Angina/MI, CHF, arrhythmias/defibrillators

Diabetes

Arthritis/Musculoskeletal

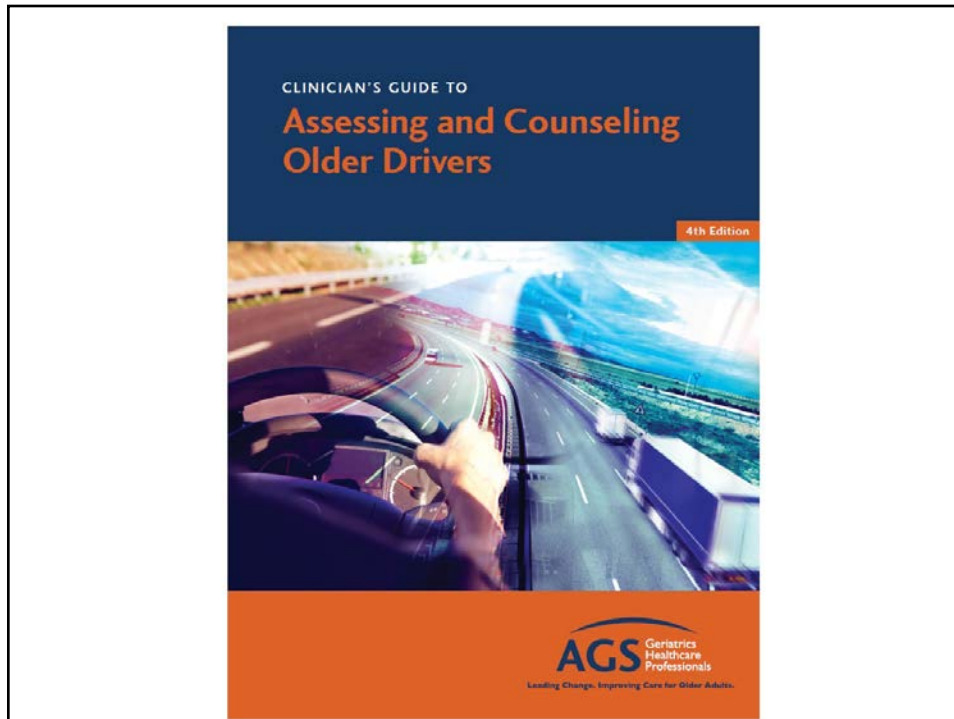
Ophthalmological – cataracts, glaucoma, macular degeneration, diabetic retinopathy

Other – Syncope, sleep apnea, psychiatric

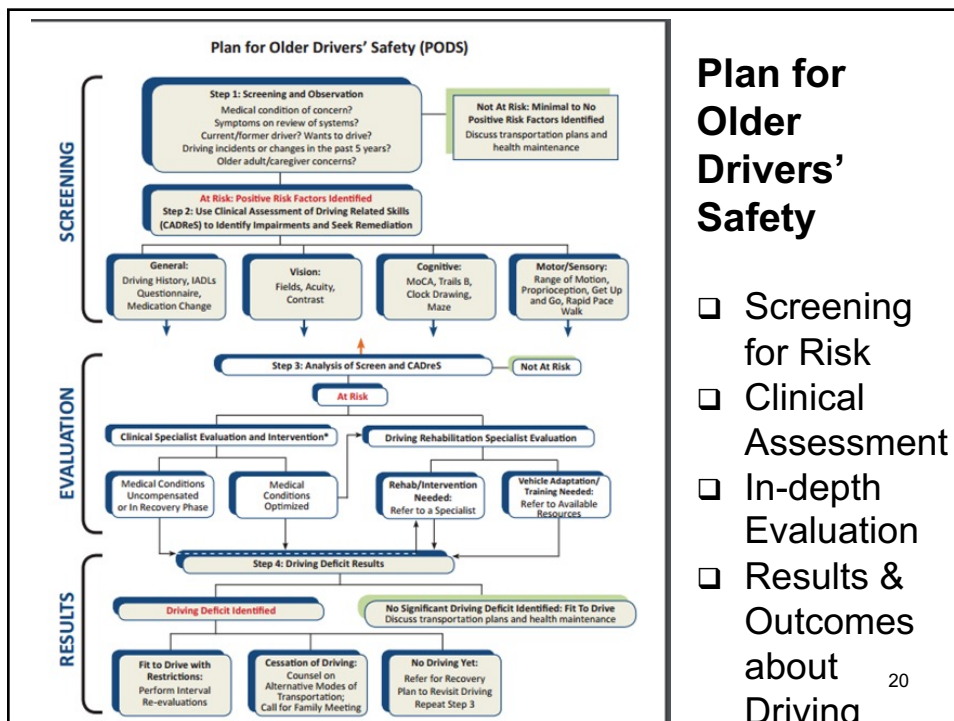
Combinations

- With other conditions
- With medications/alcohol use

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Plan for Older Drivers' Safety

- Screening for Risk
- Clinical Assessment
- In-depth Evaluation
- Results & Outcomes about Driving

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Functional Abilities

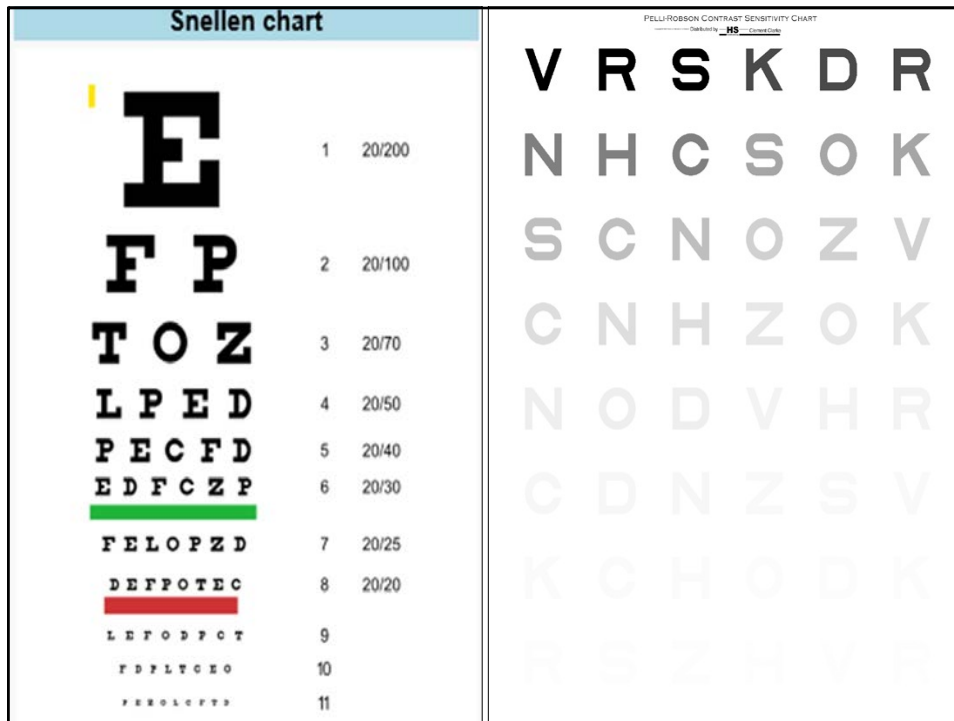
- Sensory
- Cognitive
- Physical

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Vision

- Acuity
- Fields
- Contrast sensitivity

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Physical

- ROM – neck, trunk, shoulder, hip
- Speed of movement – UE, gait

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Cognition

- Global
- Visuospatial ability
- Attention
- Executive function
- Information processing speed

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Number Cancellation Test

6	1	1	9	6	9	0	4	4	6	2	6	4	5	7	4	7	7	7	4	5	1	9	2	4	3	3	7	2	9
1	5	4	7	4	4	5	2	6	6	9	5	2	7	0	7	9	9	5	3	5	9	3	6	7	8	3	8	4	8
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0	0	5	4	9	9	7	6	5	4	6	4	0	5	1	8	8	1	5	9	9	6	1	1	9	6	3	8	9	6

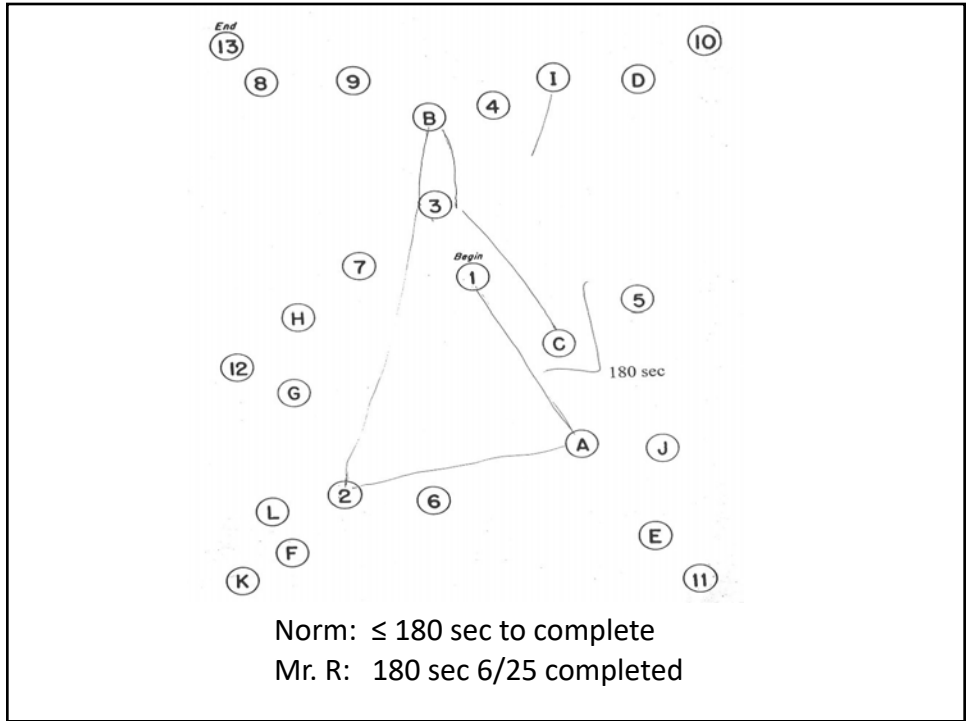
Norm: $\geq 25/60$ sec
 Mr. R: 9

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Trail Making Part B

The diagram shows a trail making task. A vertical line is drawn through the grid. The trail starts at circle 1, labeled "Begin", and proceeds through circles 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13 in order. The letters A through L are scattered around the trail.

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KEY

(-	Γ	-	>	+)	-	
1	2	3	4	5	6	7	8	9

Symbol Digit Modalities

(-	Γ	-	>	+)	-												
Γ	>	(-	-	>	Γ	(-	>	-	Γ	Γ)						
Γ	-	+)	(Γ	+	Γ)	-	-	Γ	+							
-	Γ	-	(>	Γ	(-	>	+	-)	Γ	>	Γ					
-	-)	Γ	>	+	Γ	-	-	Γ	+	-	-)	(
>	-	+	-	Γ	>	Γ	-	(+	-	-	>)	Γ					
-)	+	-	Γ	+)	-	(-	-	(Γ	Γ	>					
-	Γ	(>	Γ	-	(>	-	+	Γ	-	Γ)	-					

TOTAL SCORE =

30

C	H	÷	C	H	>	÷	Γ	C	>	÷	C	>	C	÷
	3	9	1	3		4	4			2	1	6	1	9

Γ	>	C	÷	H	>	H	Γ	C	÷	>	÷	Γ	H)
4	6													

5 correct, 90 sec

Norm: ≥ 33/90 sec
Mr. R: 5

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Dementia

- Limited number of studies, particularly on crash risk
- Small sample sizes, varying tests
- Data mostly for driving performance
- Worse cognition, worse driving performance
- No single test/battery consistently predictive
- Global cognition, memory, attention, executive function, visuo spatial ability

Am J Geri Psych 2017, 25:1376;
Curr Psych Rep 2018, 20(3) :16.

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Awareness

- Aware of functional deficits
- Acknowledge driving difficulties, adverse events
- Adjust exposure/driving patterns accordingly

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Driving Performance

- 1) Have family/friend ride with patient
 - Operation of controls
 - Interaction with traffic, pedestrians
 - Obey signals, rules of road
 - Level of attention
- 2) Professional evaluation
 - Specially trained therapist or evaluator
 - Off-road evaluation – simulator: best for very high risk
 - On-road: above parameters more formally assessed

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Potential Intervention targets

- Medical conditions/medications
- Functional impairments
 - Vision
 - Cognition
 - Physical ability
- Driving performance

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Intervention Studies

Medical conditions

- Cataract (Owsley, 2002)

Functional abilities

- Vision – cataract (Owsley, 2002)
- Cognition – processing speed (Roenker, 2003; Ball, 2007; Edwards, 2009; Ball, 2010)
- Physical ability – flexibility and speed of movement (Marottoli, 2007)

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Education

- Driving ability
 - Classroom and on-road training (Marottoli, 2007; Bedard, 2008)
- Self-awareness (Eby, 2003; Owsley, 2003)
- Raising the issue
 - Dementia Caregivers (Stern, 2008)
 - Health Professionals (Meuser, 2010)
- Community mobility after cessation (Liddle, 2014)

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Implications

- If know who's at risk, may be able to intervene
- Interventions may improve drivers' awareness of capabilities/limitations, driving performance, crash risk
- Availability of effective interventions may help to improve perception of the issue and involvement by drivers, families, and clinicians

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Caveats/Questions

- What is the ultimate effect on safety?
- What is the effect on exposure?
- Will more intense interventions or targeting higher risk populations result in greater or lesser benefit?
- How do we deal with multiple risk factors?

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What To Do With the Information

- Advise regarding continued driving, limitation, cessation
- Interventions to enhance/prolong driving
 - Fix remediable factors
 - Adapt to others – performance evaluation, special equipment, driving lessons
 - General knowledge – refresher course
- Reporting to your licensing agency

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- *VHA Information Access and Privacy Office*
VHA Privacy Office

Privacy Fact Sheet

February 2017

Reporting to State Department of Motor Vehicles

- **VHA Driving Safety for Veterans with Dementia**

Workgroup Report

December 2017

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Factors Contributing to Driving Cessation

Medical problems (neurological, visual disorders)

Anxiety

Less need

Increased cost

Advised to stop

Adverse event

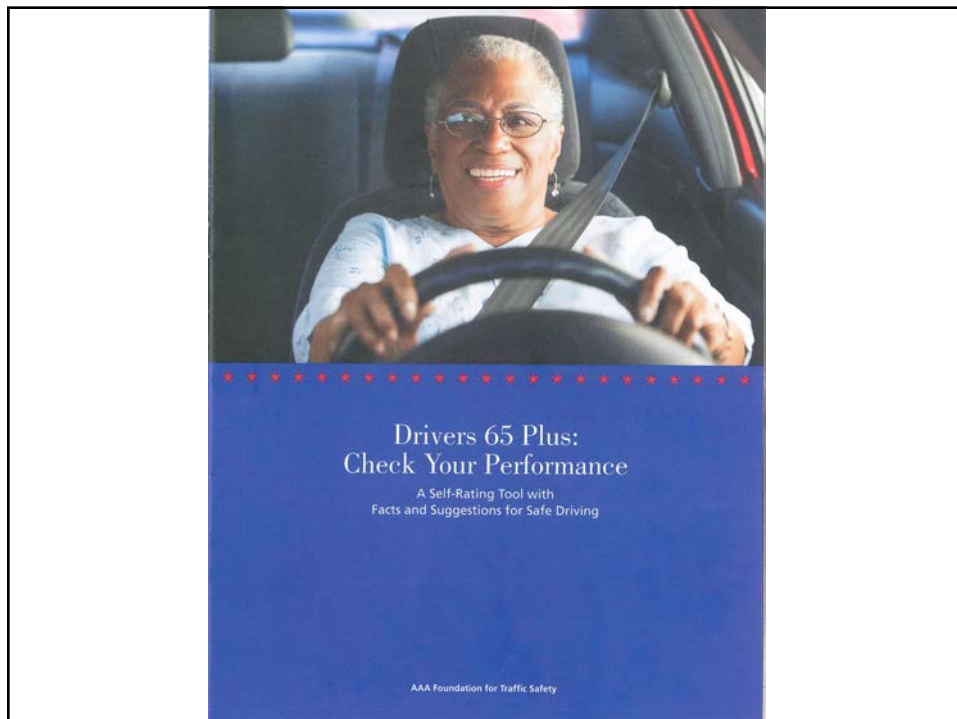
Availability of alternative transportation

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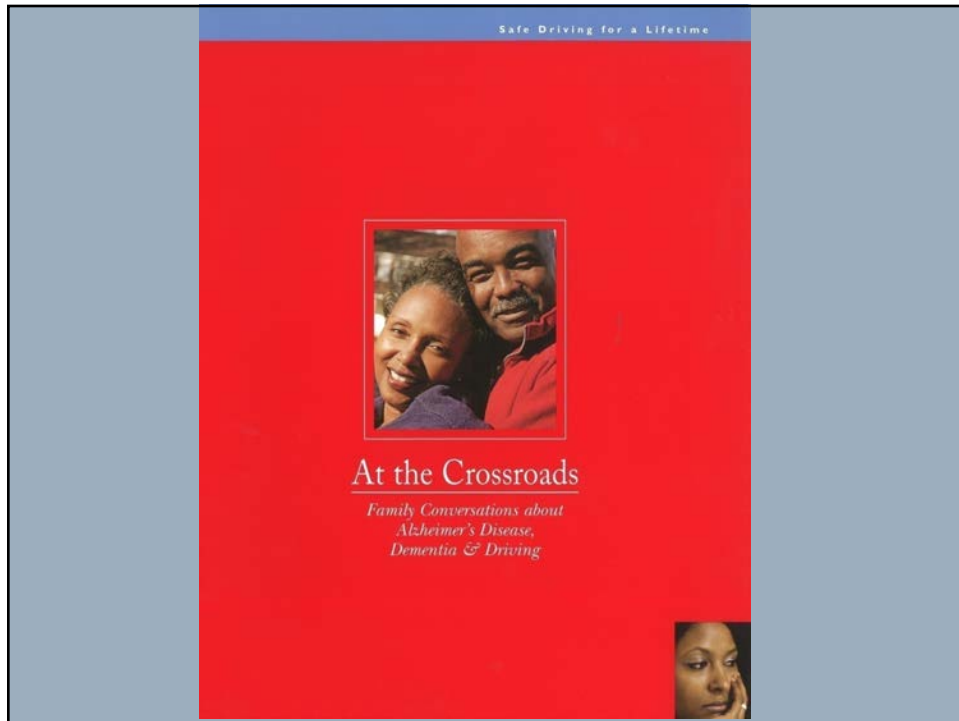
Consequences of Cessation

- ↑ depressive symptoms (Marottoli, 1997; Fonda, 2001; Ragland, 2005)
- ↓ activity participation (Marottoli, 2000)
- ↑ nursing home placement (Freeman, 2006)

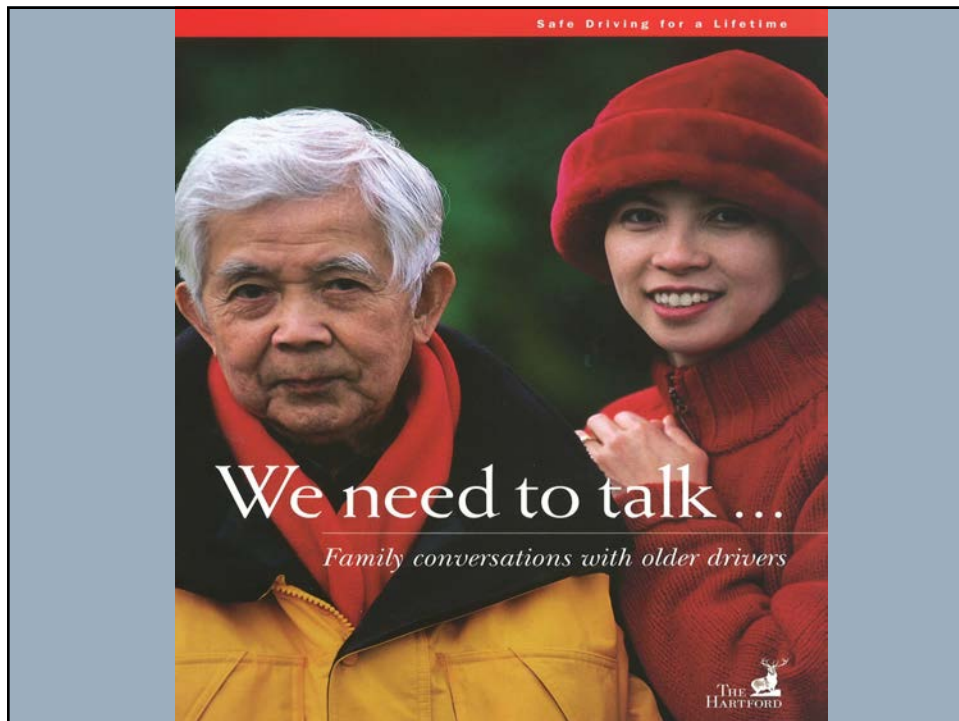
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Warning Signs for Older Drivers



1. Decrease in confidence while driving.
2. Difficulty turning to see when backing up
3. Riding the brake.
4. Easily distracted while driving.
5. Other drivers often honk horns.
6. Incorrect signaling.
7. Parking inappropriately.
8. Hitting curbs.
9. Scrapes or dents on the car, mailbox or garage.
10. Increased agitation or irritation when driving.
11. Failure to notice important activity on the side of the road.
12. Failure to notice traffic signs.
13. Trouble navigating turns.
14. Driving at inappropriate speeds.
15. Not anticipating potential dangerous situations
16. Uses a "copilot."
17. Bad judgment on making left hand turns.
18. Near misses.
19. Delayed response to unexpected situations.
20. Moving into wrong lane.
21. Difficulty maintaining lane position.
22. Confusion at exits.
23. Ticketed moving violations or warnings.
24. Getting lost in familiar places.
25. Car accident.
26. Failure to stop at stop sign or red light.
27. Confusing the gas and brake pedals.
28. Stopping in traffic for no apparent reason.
29. Other signs

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Additional Resources

National Highway Traffic Safety Administration

<http://www.nhtsa.gov/Driving+Safety/Older+Drivers>

GeriatricsCareOnline: <http://geriatricscareonline.org>

American Occupational Therapy Association

<http://www.aota.org/Practice/Productive-Aging/Driving.aspx>

NIH SeniorHealth

<http://nihseniorhealth.gov/olderdrivers/howagingaffectsdriving/01.html>

Administration for Community Living

http://www.acl.gov/Get_Help/Help_Older_Adults/Index.aspx

Association for Driver Rehabilitation Specialists

<http://aded.site-ym.com/?page=725>

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Summary Approach

- Ask about adverse events, difficulties
- Assess medical conditions, medications/alcohol use, functional impairments; intervene if possible
- Have family member ride with them
- Consider referral for formal evaluation of driving performance or geriatric assessment
- Discuss options/alternatives with patient, family

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- Discuss why recommendation made, why change needed
- Ideally, allow patient to make decision
- Enlist support/enforcement of family/friends
- Identify alternative sources of transportation
- Maintain mobility/activity as much as possible

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Thank you !

Questions/comments:
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