

Pathways

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DVLA referrals for on-road test

- 2012: 2721 £408,150
 - 2013: 2780 £417,000
 - 2014: 3367 £505,050
 - 2015: 2987 £448,050
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- Cost to DVLA: £150 each
 - Cost to DoT: £320 (? Additional)

Licences surrendered by age

Age Range	Year				
	2012	2013	2014	2015	2016
55-64	4,044	3,719	3,448	3,982	4,148
65-74	6,492	6,373	5,891	6,629	6,931
75-84	9,096	9,657	8,541	9,869	9,682
85-94	3,614	3,972	3,851	4,522	4,318
95+	90	97	76	117	147
Total	23,336	23,818	21,807	25,119	25,226

Driving licences revoked or applications refused due to cognitive impairment

	ODL					
	Calendar Year					
AGE	2011	2012	2013	2014	2015	2016
55-64	83	57	66	73	92	85
65-74	173	154	167	174	176	190
75-84	370	343	336	381	400	438
85-94	167	158	217	220	232	237
95+	3	5	2	3	9	14
Total	796	717	788	851	909	964

Options

- Do nothing
- Eye test and increase age of self certification (proposed by Task Force)
- Promote self regulation
- Beef up licensing requirements

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Promote self regulation

- Education – throughout life
 - Includes impact of ageing on driving
 - Should involve health professionals (receipt and delivery)
- Beef up self certification
 - ‘I have sought advice from my GP’
 - (N=100,000 received warning; NEJM Redelmeier 2012)
 - 45% reduction in crash rate (driver went to A&E)
 - From 0.47% per driver per year to 0.27%
- Widely distribute self assessment tools
 - Direct or via families
 - What would these be? Telematics? Tablet-based cognitive assessment

Self-regulation & behavioural economics

- Over or under-regulation
 - Only age once – no prior experience
- Losses valued more than gains
 - Loss aversion: don't take risk, even if better alternative is offered
- Hyperbolic discounting
 - Mobility now over safety in the future
- Representative heuristic
 - I've never had an accident so I'm a good driver
- Herd mentality
 - Most carry on, so I should too

Options

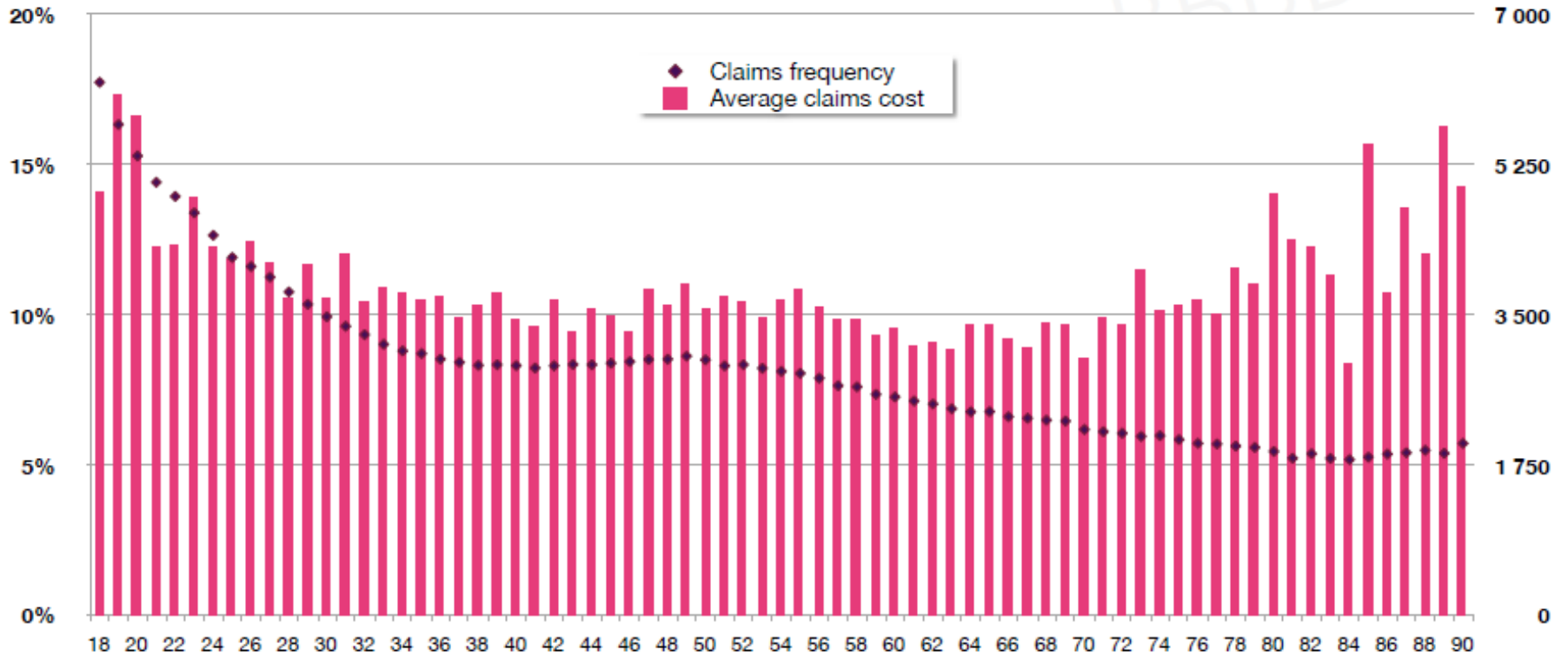
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Beef up pathway requirements

- Medical evaluation
 - Age related
 - Would this include a cognitive test?
- Introduce licensing 'restrictions'
 - Geographical / time of day
 - Telematics
- Involve insurance industry
 - Reduce premiums if take cognitive test
 - Telematics

Claims frequency

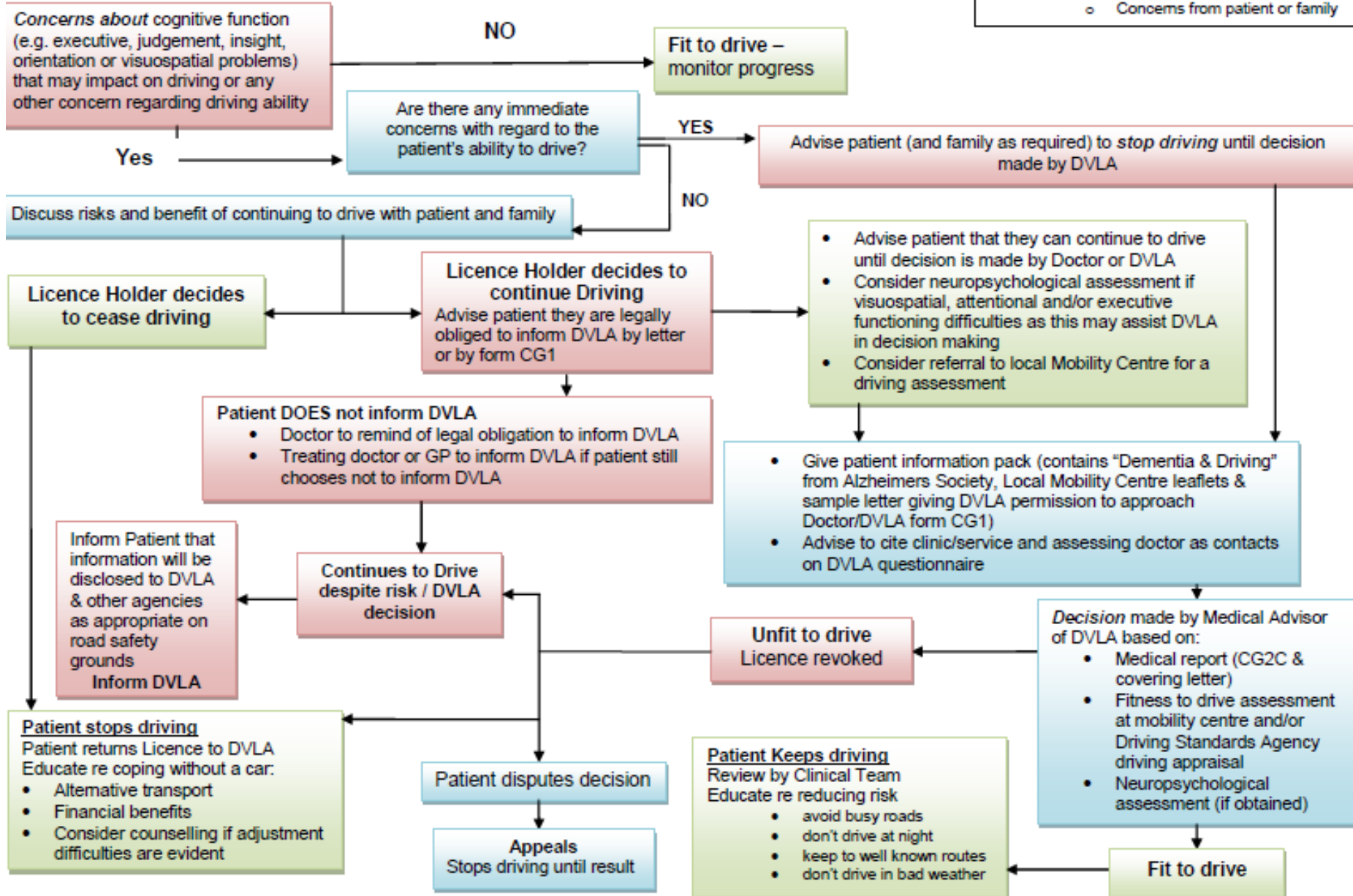
Average claim cost



Driving Pathway for Cognitive Impairment but no dementia©

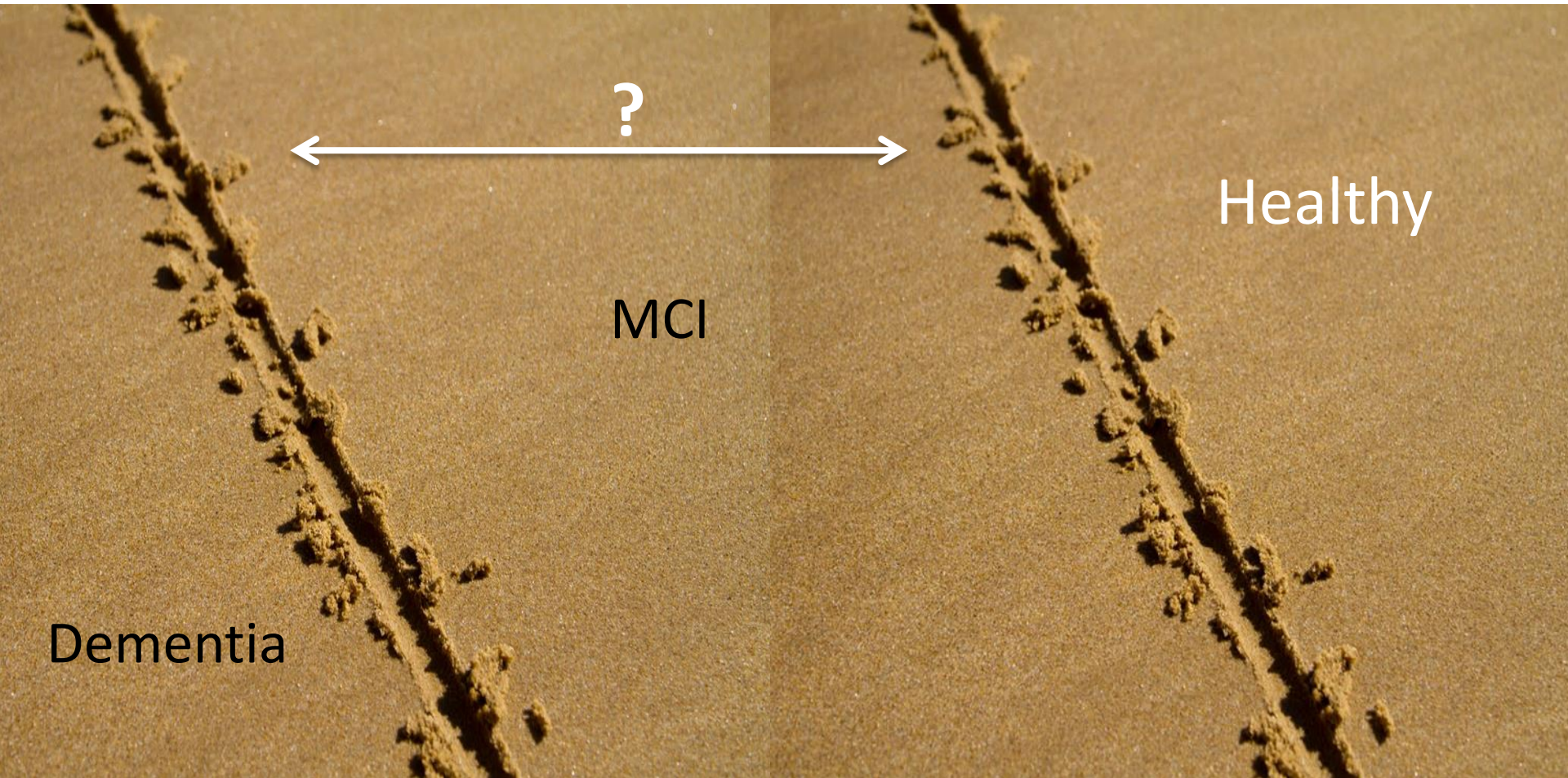
Document in clinical notes / computerised records:

- o Car driving status
- o Discussions pre-assessment
- o Concerns from patient or family



Mild cognitive impairment

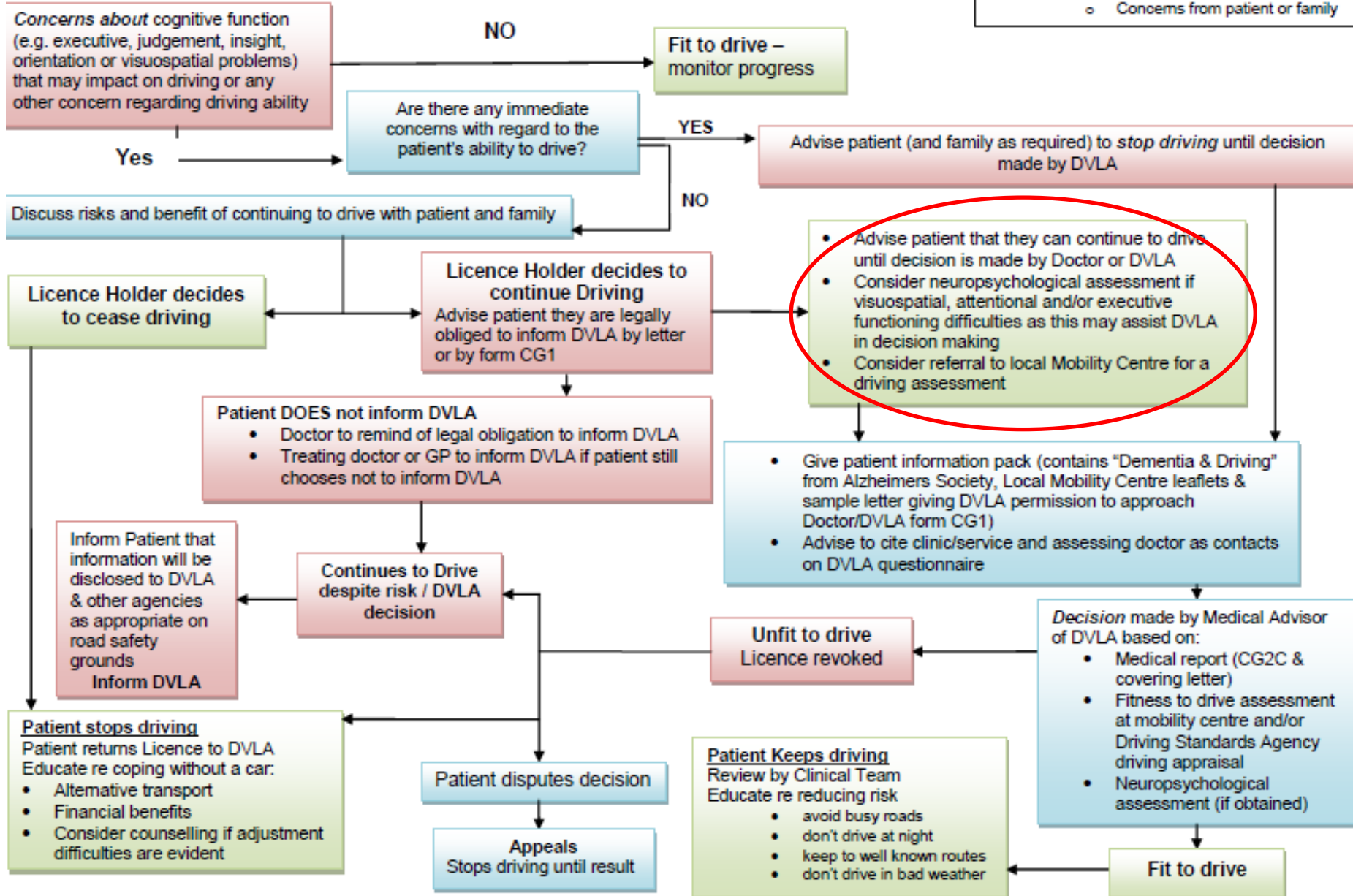
How useful as basis for distinctions in pathway?



Driving Pathway for Cognitive Impairment but no dementia©

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Global Screens

Montreal Cognitive Assessment (MOCA)

Esser P, Dent S, Jones C, et al. J Neurol Neurosurg Psychiatry 2016;87:567–568.

135 people with neurological conditions , five groups (Brain injury, dementia, stroke, PD, MS), referred from various settings and assessed on the road.


81 passed on road (MOCA 23.8 range 12-30); 54 failed (MOCA 17.4 range 4-28)


Sensitivity 44%, specificity 94% - using ≥ 26 MOCA = normal

- MOCA <12 accurate (100%) in picking up fails but not specific to picking up passes (16.7%) and
- MOCA >27 not accurate (4.9%) in picking up fails, but specific to picking up passes (100%).
- **More detailed screening on those scoring between 12-27 or refer for on road assessment!**

MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version: 7.3 (Original) 9/18/10

Education: _____ Sex: _____ Date of birth: _____ DATE: _____

SPATIAL / EXECUTIVE  Copy cube _____ Draw CLOCK (ten past eleven) (3 points) _____

NAMING  _____

MEMORY Read list of words, subject must repeat them. Do 2 trials, read for backwards order. Do a recall after 5 minutes.

1st trial	FACE	VELVET	CHURCH	DAISY	RED	No points
2nd trial						

ATTENTION Read list of digits (1 digit) each. Subject has to repeat them in the forward order. [] 2 1 8 5 4
Subject has to repeat them in the backward order. [] 7 4 2

Read list of letters. The subject must tap with his hand at each letter A. No points if 2 jumps.
[] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B _____/1

Serial 7 subtraction starting at 100. [] 93 [] 86 [] 79 [] 72 [] 65 _____/3

LANGUAGE Repeat: I only know that John is the one to help today. []
The cat always hid under the couch when dogs were in the room. []
Fluency / Name maximum number of words in one minute that begin with the letter F. [] _____ (N \geq 11 words) _____/1

ABSTRACTION Similarity between e.g. banana - orange = fruit. [] train - bicycle [] watch - ruler _____/2

DELAYED RECALL He to recall words: FACE VELVET CHURCH DAISY RED _____/5
Category cue: _____
Multiple choice cue: _____

ORIENTATION [] Date [] Month [] Year [] Day [] Place [] City _____/6

© 2010 Redcliffe MD www.mocatest.org Normal $\geq 26 / 30$ TOTAL: [] _____/30
Administered by: _____ Add 1 point if ≤ 12 yr old

DriveABLE



	On road Pass	On road borderline	On road fail	Computer Test TOTAL
Computer test pass	344 (68.1)	99 (19.6)	62 (12.3)	505 (13.7)
Computer test indeterminate	604 (36.0)	402 (23.9)	673 (40.1)	1679 (46.0)
Computer test fail	205 (13.9)	172 (11.7)	1099 (74.5)	1476 (40.3)
On Road TOTAL	1153 (31.5)	673 (18.4)	1834 (50.1)	3660 (3662)

Leaving out indeterminate / borderline:

Sensitivity = $344 / (344 + 205) = 63\%$

Specificity = $1099 / (1099 + 62) = 95\%$

Positive predictive value = $344 / (344 + 62) = 85\%$

Negative predictive value = $1099 / (1099 + 205) = 84\%$

Accuracy = $1443 / 1710 = 84\%$

Telematics?

- Assesses real world driving
- Long term monitoring possible
- Self-regulation



Thank you

Question Time