



Government of Western Australia
North Metropolitan Health Service
Sir Charles Gairdner Osborne Park Health Care Group



Clinical Effectiveness of the TUG in a Memory Clinic

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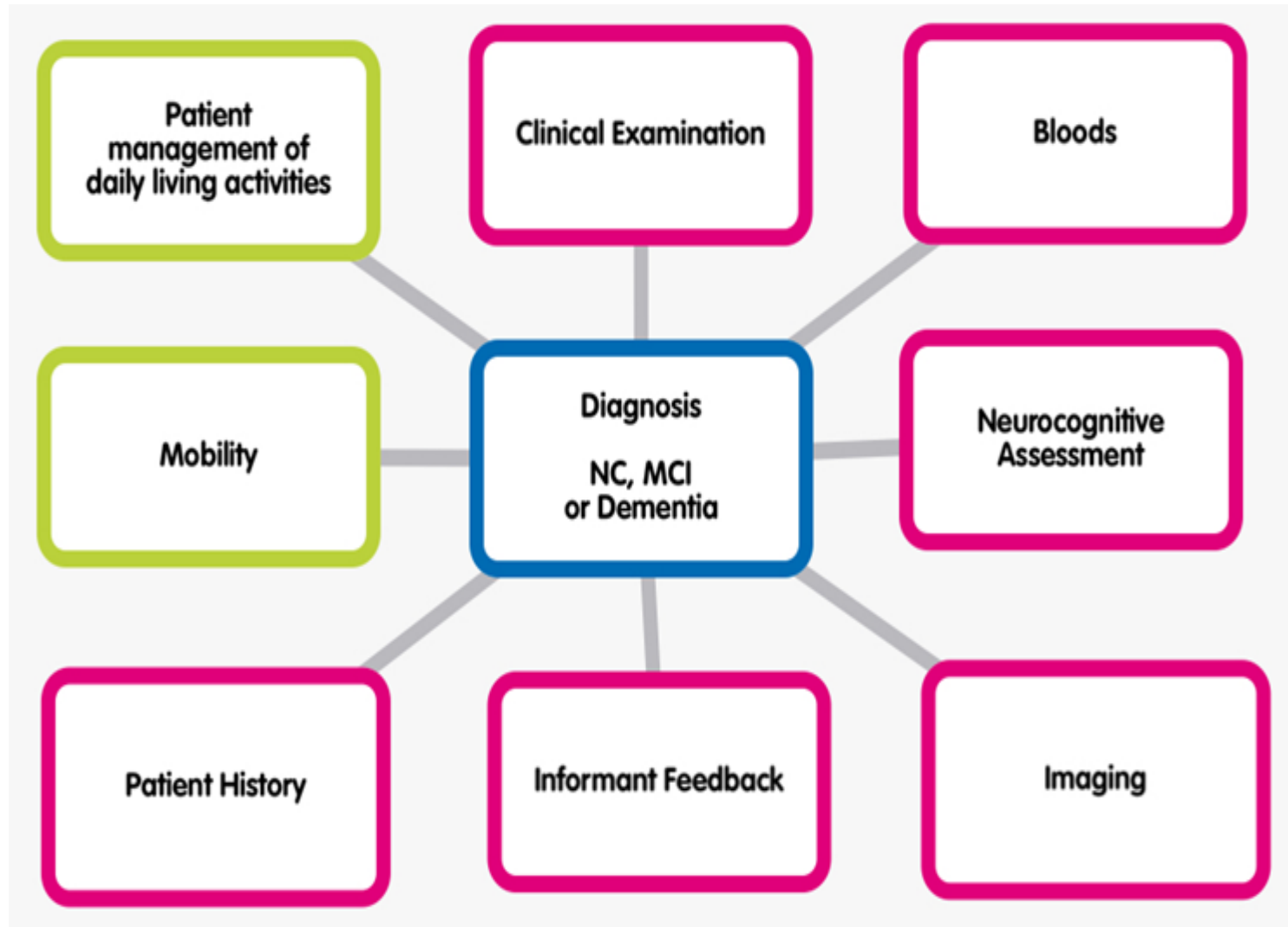
Senior Occupational Therapist

Sir Charles Gairdner Hospital

Memory Clinic

- Multidisciplinary clinic for the assessment and management of patients with progressive cognitive problems





Background

- Timed up and go (TUG) is a common measure of functional mobility and dynamic balance
- Initial evidence of the TUG being able to discriminate between normal cognition, mild cognitive impairment and dementia.



Timed Up and Go' test: Age, gender and cognitive impairment stratified normative values of older adults

Azianah Ibrahim^{1,2}, Devinder Kaur Ajit Singh^{1*}, Suzana Shahar³

Results

529(16%) participants were identified to have MCI. Past history of falls and medical history of hypertension, heart disease, joint pain, hearing and vision problem, and urinary incontinence were found to have influenced TUG performance. Cognitive status as a mediator, predicted TUG performance even when both gender and age were controlled for (B 0.24, 95% CI (0.02–0.47), β 0.03, t 2.10, $p = 0.036$). Further descriptive analysis showed, participants with MCI, women and older in age took a longer time to complete TUG, as compared to men with MCI across all age groups with exceptions for some age groups.

[Am J Phys Med Rehabil](#). 2017 Oct;96(10):700-705. doi: 10.1097/PHM.0000000000000722.

Cognitive Correlates of Timed Up and Go Subtasks in Older People With Preserved Cognition, Mild Cognitive Impairment, and Alzheimer's Disease.

[Ansai JH](#)¹, [Andrade LP](#), [Nakagawa TH](#), [Vale FAC](#), [Caetano MJD](#), [Lord SR](#), [Rebelatto JR](#).

[Arch Phys Med Rehabil](#). 2010 Apr;91(4):584-8. doi: 10.1016/j.apmr.2009.11.020.

Lower-extremity function in cognitively healthy aging, mild cognitive impairment, and Alzheimer's disease.

[Eggermont LH](#)¹, [Gavett BE](#), [Volkers KM](#), [Blankevoort CG](#), [Scherder EJ](#), [Jefferson AL](#), [Steinberg E](#), [Nair A](#), [Green RC](#), [Stern RA](#).



TUG



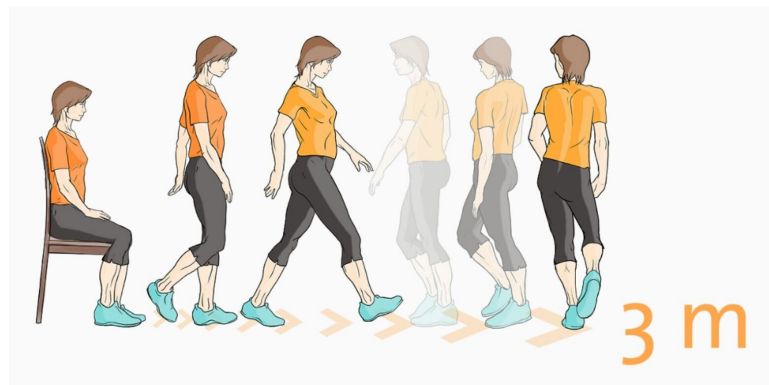
**Cannot identify gait
impairments in patients
with MCI?**

Research Aim

To compare
Go Test (NC), mild
dementia

Detect Early,
Treat Better

and
nal
|



Outcome Measure

Timed up and go (TUG)

- Timed test of general mobility
- Patient stands from a chair with arm rests, walks 3 m to a line on the floor, and returns to sit in the chair.
- Shorter times indicate better performance and test times of up to 13.5 seconds are considered normal.

Other Outcome Measures

Australian Modified Lawton's Instrumental ADL Scale (Lawton's Scale)

- IADL informant-based assessment with 8 IADL domains, screening tool, not OT specific. Score out of 30.

Mini Mental Status Examination (MMSE)

- 30- point verbal and pen and paper test used to screen for cognitive impairment.

Methodology

- Prospective single-blind single centre cohort study
- Recruitment in the Memory Clinic throughout 2017
- Inclusion criteria
 - Able to consent to participation
 - Able to ambulate at least 10 metres with or without walking aid
 - Follow simple instructions
- Exclusion criteria
 - Non-English speaking or did not agree to participate.
 - Comorbid medical conditions with significant physical impairment, major psychiatric disorder and/or behavioural problems, significant cerebrovascular disease and significant impairment of vision, hearing or communication.

Methodology

- OT, blinded to any diagnosis, interviewed the patient and significant other, and administered the TUG.
- From information gained OT completed the Lawton's IADL Scale.
- Comprehensive assessment in which medical staff completed the Mini Mental Status Examination (MMSE).



Demographics

- 158 patients were recruited
- 51.9% female 48.1% male
- Mean age of 81.7 years
- Mean TUG of 15.4 seconds
- Incontinence significantly slower TUG (14.5 sec vs 17.1 sec)



Walking aid use



12.7

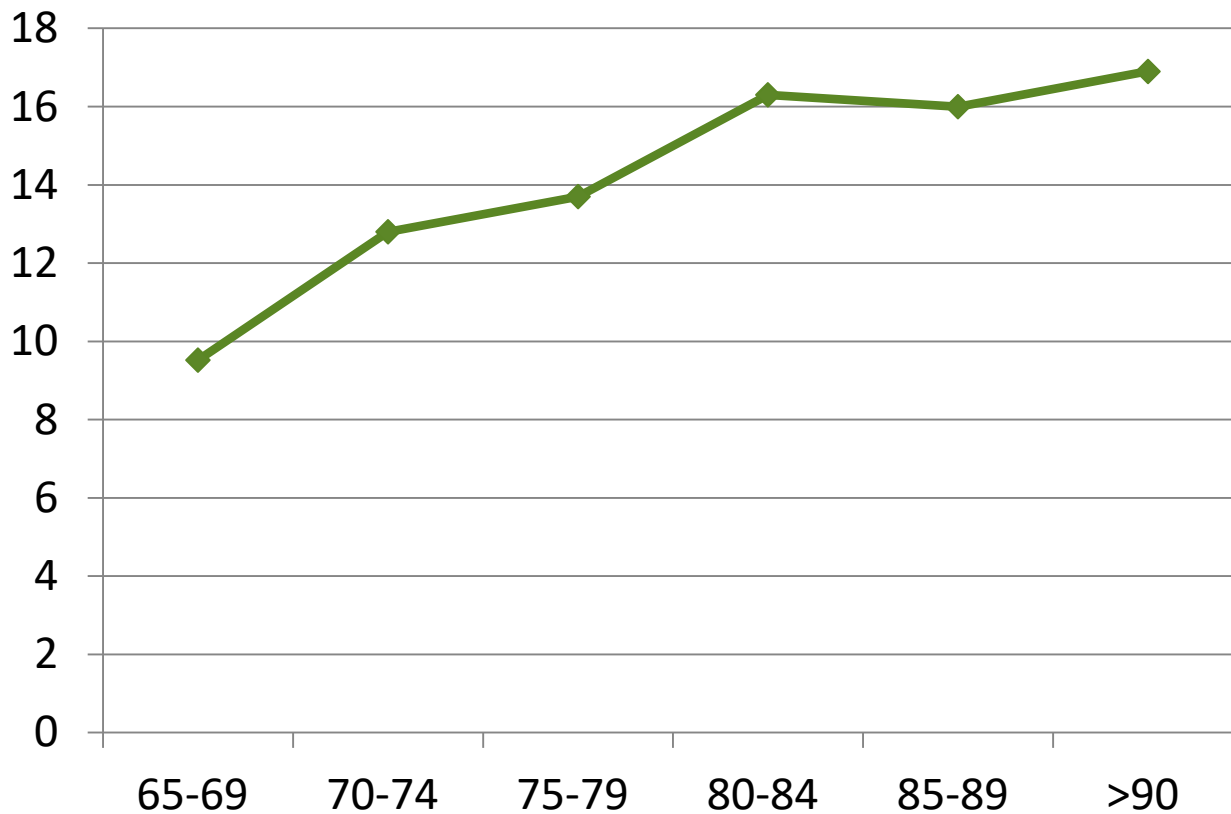


18.7



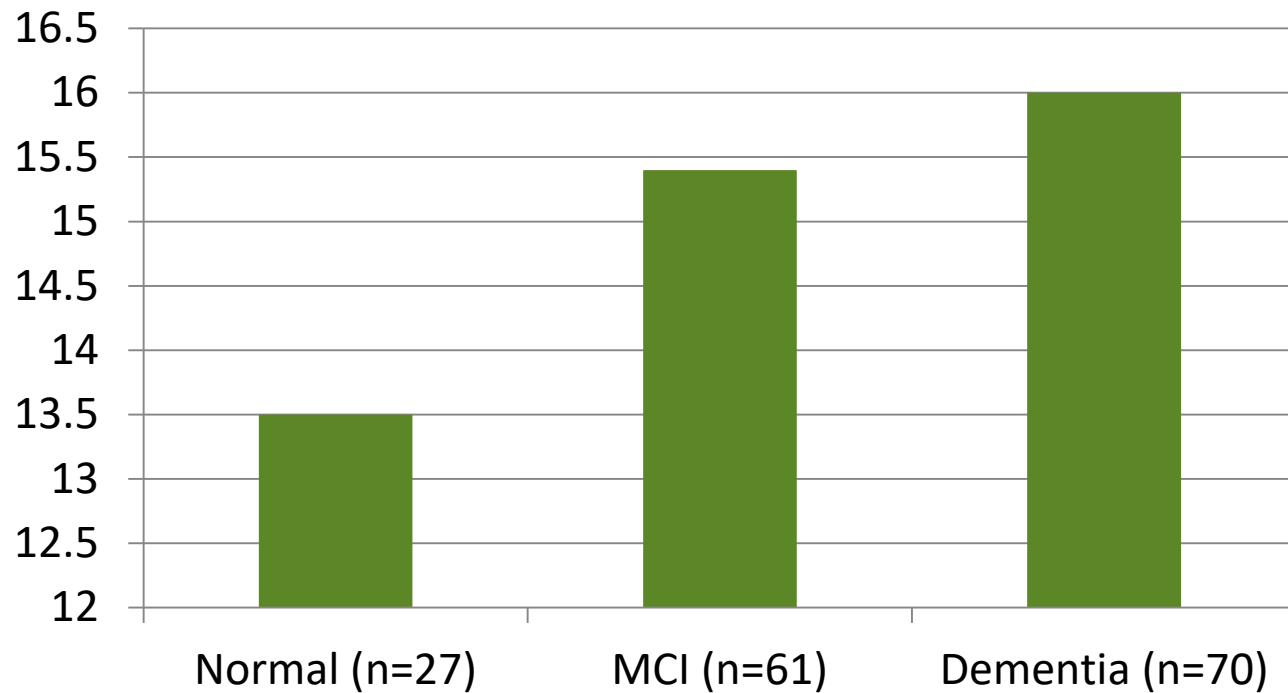
26.7

Mean TUG stratified by AGE



TUG and Cognition

- TUG score increased with decline in cognition:



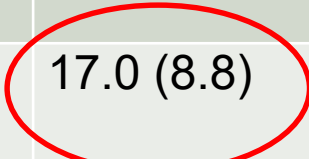

	TUG <14 N (%)	TUG ≥ 14 N (%)	
NC	16 (21.9)	9 (12.0)	0.064
MCI	33 (45.2)	28 (37.3)	0.021
D	24 (32.9)	38 (50.7)	

		MMSE Mean (SD)		Lawton's Mean (SD)	
TUG	<14	25.7 (3.7)	0.002	24.5 (4.0)	<0.001
	≥14	23.4 (4.7)		20.7 (4.3)	

TUG and Falls

- Higher TUG score was associated with increased number of falls ($p=0.023$).

Falls, Mean (SD)	0	14.0 (5.3)	0.023
	1-2	16.5 (9.6)	
	3+	17.9 (7.4)	
Falls, Mean (SD)	0	14.0 (5.3)	0.011
	>0	17.0 (8.8)	



Take Home Messages!

- TUG is useful for identifying risk of falls in a memory clinic setting
- TUG is significantly associated with cognitive function and management at home

ANY
QUESTIONS
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