



Implementing UDS4: MCI vs. Impaired, Not MCI

Presented by: Cindy Carlsson, MD, MS, Wisconsin ADRC, CTF

CTF Session: October 19th – Fall 2023 ADRC Meeting

Highlighted Differences between UDSv3 and UDSv4

UDSv3

- “D1 Clinician Diagnosis” cognitive and behavioral status categories:
 - normal cognition
 - Dementia
 - MCI
 - Cognitively impaired, not MCI
- MCI core clinical criteria grouped together
- “Cognitively impaired, not MCI” listed as option to catch those not falling into MCI or dementia categories

UDSv4

- “D1 Clinician Diagnosis” cognitive and behavioral status categories:
 - normal cognition
 - ***Subjective cognitive decline***
 - Dementia
 - MCI
 - ***Cognitively impaired, not MCI***
 - ***Mild behavioral impairment (MBI)***
- MCI core clinical criteria listed individually to identify which elements met
- “Cognitively impaired, not MCI” identifies why participant did not meet MCI criteria

Highlighted Differences between UDSv3 and UDSv4

UDSv3

5. If the subject does not have normal cognition or behavior and is not clinically demented, indicate the type of cognitive impairment below.

MCI CORE CLINICAL CRITERIA

- Is the subject, the co-participant, or a clinician concerned about a change in cognition compared to the subject's previous level?
- Is there impairment in one or more cognitive domains (memory, language, executive function, attention, and visuospatial skills)?
- Is there largely preserved independence in functional abilities (no change from prior manner of functioning or uses minimal aids or assistance)?

UDSv4

MCI core clinical criteria

Check all criteria that apply in Q4.

4. 1 Clinical concern about decline in cognition compared to participant's prior level of lifelong or usual cognitive function (e.g., based on clinical judgment, CDR SB 0.5+, etc.)
- 1 Impairment in one or more cognitive domains, compared to participant's estimated prior level of lifelong or usual cognitive function, or supported by objective longitudinal neuropsychological evidence of decline
- 1 Largely preserved functional independence OR functional dependence that is not related to cognitive decline (e.g., based on clinical judgment)

If all three criteria are checked, choose **1=MCI** for Q4b. If less than 3 criteria are met, choose **0=No** for Q4b.

4b. Does the participant meet criteria for MCI (amnesic or non-amnesic)?

- 0 No (**CONTINUE TO QUESTION 5**)
- 1 Yes (**SKIP TO QUESTION 6a**)

Highlighted Differences between UDSv3 and UDSv4

UDSv3

Type	Present	Affected domains	No	Yes
5e. Cognitively impaired, not MCI	<input type="checkbox"/> 1			

UDSv4

Cognitively impaired, not MCI/dementia

The purpose of the “Cognitively impaired, not MCI/dementia” category is to capture those individuals with evidence of cognitive impairment or decline who do not meet formal MCI criteria.

Check all applicable criteria for cognitively impaired, not MCI/dementia in Q5, using any relevant data. Any conditions contributing to impairment (e.g., substance abuse or medications) should be identified in Section 3.

(Note: If recent onset (not longstanding impairment), indicate the cognitive symptom(s) in Form B9 – Clinician Judgment of Symptoms.)

5. 1 Evidence of functional impairment (e.g., CDR SB>0 and/or FAS>0), but available cognitive testing is judged to be normal
- 1 No evidence of functional decline (e.g., CDR SB=0 and FAS=0) but available cognitive testing is judged to be abnormal
- 1 Longstanding cognitive difficulties, not representing a change from their usual function (e.g., early developmental differences remote TBI, other medical condition with clear effects on cognition)
- 1 Other (SPECIFY): _____

If any of the criteria in Q5 are met or if some criteria from MCI (Q4) are met, choose **1=Yes** for Q5b.

- 5b. Does the participant meet any criteria for cognitively impaired, not MCI/dementia? 0 No (SKIP TO QUESTION 7)
- 1 Yes (SKIP TO QUESTION 7)

Case Example: MCI vs Impaired, Not MCI

85-year-old woman, 8th annual ADRC study visit. Study partner is her niece.

She completed 12 years of education and worked as a youth counselor at juvenile center. Retired at 57, but not due to memory difficulties. *Worked part-time until age 83 as community support advisor/caretaker for disabled adults.*

Both ppt and co-ppt deny problems with memory and thinking. ADRC clinician did not have any concerns about her memory or thinking. No functional impairments in finances, medication management, driving, or household chores.

PAST MEDICAL HISTORY: *Type 2 diabetes mellitus, hypertension, dyslipidemia, obesity, ongoing poor vision*

MEDICATIONS: *lorazepam 0.5mg HS*, amlodipine, metoprolol, furosemide, atorvastatin, metformin, *tizanidine 2mg*, omeprazole, steroid eye drops

SUBSTANCE USE HISTORY: Never smoked, no alcohol or substance use.

FAMILY HISTORY: Mother: *had AD dementia onset age 84, died at 89.* Father: Died age 56 from cancer.

Case Example: MCI vs Impaired, Not MCI

PHYSICAL EXAM: BP 172/76 (didn't take 3 BP meds that AM) P 60 BMI 34
2+ pitting edema bilateral lower extremities, ambulates with cane, stooped forward.

LABS: unremarkable

IMAGING: ADRC MRI 2021: Normal. DVCID MRI 2023: Normal

CDR:

	Sum of Boxes	Global
Baseline-AY1 CDR	0.0	0.0
AY2-3 CDR	0.5	0.0
AY4	0.0	0.0
AY5-7	0.5	0.0
AY8	0.0	0.0

Case Example: MCI vs Impaired, Not MCI

	Raw Score	z-score	SS/T	Percentile	Description
GENERAL COGNITION					
CDR Global (0 SOB)	0.0	---		---	Normal
MoCA	11 /30	-2.54		1	Impaired
ATTENTION / PROCESSING SPEED					
Trailmaking Part A (0 errors; 23/24 CL)	52 sec	-0.17	11	63	Average
Number Span Forward - Total	6 /14	-0.38		35	Average
Number Span Forward - Span Length	5 /9	-0.69		24	Low Average
Number Span Backwards - Total	4 /14	-0.67		24	Low Average
Number Span Backwards - Span Length	4 /8	-0.08		46	Average
WAIS-R Digit Symbol	52		17	99	Very Superior
LANGUAGE					
MINT	19 /32	-2.58		1	Impaired
Animal Fluency	12	-0.83	10	50	Average
Vegetable Fluency	14	0.31		62	Average
F+L+C Words	19		8	25	Average
F+L Words	14	-1.07		13	Low Average
F Words	6	-1.27		9	Low Average
L Words	8	-0.67		24	Low Average
VISUOSPATIAL					
Benson Figure Copy	13 /16	-0.89		18	Low Average
MEMORY					
Benson Delay (40% retained; Recog = Y)	5 /16	-0.97		17	Low Average
Craft Immediate - Verbatim	9 /44	-1.13		13	Low Average
Craft Immediate - Paraphrase	6 /25	-1.49		6	Borderline
Craft Delay - Verbatim (33% retained)	3 /44	-1.57		5	Borderline
Craft Delay - Paraphrase (33% retained)	2 /25	-1.84		3	Borderline
RAVLT Trial 1	4 /10		10	50	Average
RAVLT Learning (4, 6, 5, 5, 7)	27 /75		---	---	---
RAVLT Distractor List	3 /15		9	37	Average
RAVLT Short Delay	1 /15		5	5	Borderline
RAVLT Long Delay (14% retained)	1 /15		7	16	Low Average
RAVLT Recog Accuracy (Hits=3; FP=0)	60 %		3	1	Impaired
EXECUTIVE FUNCTIONING					
Trailmaking Part B (2 errors; 22/24 CL)	200 sec	-0.80	10	50	Average
Clock Drawing Test	1 /3	---		---	Impaired
MOOD					
GDS-15 (Depression Symptoms)	1 /15	---		---	Minimal

SUMMARY OF COGNITIVE ASSESSMENT:

MoCA 11/30 (2023)

- 16/30 in 2015 – avg to very superior on other cognitive measures
- 21/30 in 2016
- 17/30 in 2019
- 15/22 in 2021
- 14/22 in 2022

Case Example: MCI vs Impaired, Not MCI

IMPRESSION: 85-year-old woman without any memory concerns or functional impairment noted by her, her niece, or the ADRC clinician. She has progressive decline in cognitive performance.

UDS4 D1a

MCI core clinical criteria

Check all criteria that apply in Q4.

4. 1 Clinical concern about decline in cognition compared to participant's prior level of lifelong or usual cognitive function (e.g., based on clinical judgment, CDR SB 0.5+, etc.)
- 1 Impairment in one or more cognitive domains, compared to participant's estimated prior level of lifelong or usual cognitive function, or supported by objective longitudinal neuropsychological evidence of decline
- 1 Largely preserved functional independence OR functional dependence that is not related to cognitive decline (e.g., based on clinical judgment)

If all three criteria are checked, choose **1=MCI** for Q4b. If less than 3 criteria are met, choose **0=No** for Q4b.

- 4b. Does the participant meet criteria for MCI (amnesic or non-amnesic)?
- 0 No (**CONTINUE TO QUESTION 5**)
- 1 Yes (**SKIP TO QUESTION 6a**)

Case Example: MCI vs Impaired, Not MCI

IMPRESSION: 85-year-old woman without any memory concerns or functional impairment noted by her, her niece, or the ADRC clinician. She has progressive decline in cognitive performance.

UDS4 D1a

Cognitively impaired, not MCI/dementia

The purpose of the “Cognitively impaired, not MCI/dementia” category is to capture those individuals with evidence of cognitive impairment or decline who do not meet formal MCI criteria.

Check all applicable criteria for cognitively impaired, not MCI/dementia in Q5, using any relevant data. Any conditions contributing to impairment (e.g., substance abuse or medications) should be identified in Section 3.

(Note: If recent onset (not longstanding impairment), indicate the cognitive symptom(s) in Form B9 – Clinician Judgment of Symptoms.)

5. 1 Evidence of functional impairment (e.g., CDR SB>0 and/or FAS>0), but available cognitive testing is judged to be normal
- 1 No evidence of functional decline (e.g., CDR SB=0 and FAS=0) but available cognitive testing is judged to be abnormal
- 1 Longstanding cognitive difficulties, not representing a change from their usual function (e.g., early developmental differences remote TBI, other medical condition with clear effects on cognition)
- 1 Other (**SPECIFY**): _____

If any of the criteria in Q5 are met or if some criteria from MCI (Q4) are met, choose **1=Yes** for Q5b.

- 5b. Does the participant meet any criteria for cognitively impaired, not MCI/dementia? 0 No (**SKIP TO QUESTION 7**)
- 1 Yes (**SKIP TO QUESTION 7**)

Case Example: MCI vs Impaired, Not MCI

IMPRESSION: 85-year-old woman without any memory concerns or functional impairment noted by her, her niece, or the ADRC clinician. She has progressive decline in cognitive performance.

UDS4 D1a

Section 1 – Level of impairment – *Unimpaired cognition, SCD, MCI/MBI, or dementia* continued...

Mild Behavioral Impairment (MBI) core clinical criteria

- Participant, co-participant, or clinician identifies a change in the participant's affect, motivation, thought content, behavior, or personality that is clearly different from their usual affect, motivation, thought content, behavior, or personality
- Symptoms have been present at least intermittently for the last six months or longer
- Late onset (i.e., age > ~50, unless early onset neurodegenerative syndrome is suspected)
- Not explained by delirium, other psychiatric disorder by DSM criteria (including recent onset, longstanding or recurrence of longstanding disorder).
- Symptoms interfere with at least one of these: work, interpersonal relationships, social activities
- Largely preserved independence in other functional abilities (no change from prior manner/level of functioning, or uses minimal aids or assistance)

7. Does the participant meet criteria for MBI? (*If participant meets criteria for dementia an MBI diagnosis is excluded.*)

0 No (**SKIP TO QUESTION 8**)

1 Yes (**CONTINUE TO QUESTION 7a**)

Case Example: MCI vs Impaired, Not MCI

UDS4 D1a

Section 2 – Clinical syndrome

		Present
9a.	Amnesic predominant syndrome	<input type="checkbox"/> 1
9b.	Dysexecutive predominant syndrome	<input type="checkbox"/> 1
9c.	Primary visual presentation (such as posterior cortical atrophy (PCA) syndrome)	<input type="checkbox"/> 1
9d.	Primary progressive aphasia (PPA) syndrome:	<input type="checkbox"/> 1
9d1.	<p>If present, select one:</p> <input type="checkbox"/> 1 Logopenic PPA <input type="checkbox"/> 2 Semantic PPA <input type="checkbox"/> 3 Nonfluent/agrammatic PPA <input type="checkbox"/> 4 Primary progressive apraxia of speech <input type="checkbox"/> 5 PPA other/not otherwise specified	
9m.	Does not meet any clinical criteria above (<i>most often used for MCI or "impaired, not MCI" participants</i>)	<input checked="" type="checkbox"/> 1
10.	<p>Indicate the source(s) of information used to assign the clinical syndrome: Select one or more as Yes; all others will default to No in the NACC database.</p>	
		Yes
10a.	Clinical information (history, CDR)	<input checked="" type="checkbox"/> 1
10b.	Cognitive testing	<input checked="" type="checkbox"/> 1
10c.	Biomarkers (MRI, PET, CSF, plasma)	<input checked="" type="checkbox"/> 1

Case Example: MCI vs Impaired, Not MCI

CONSENSUS DIAGNOSIS: Impaired, not MCI due to AD pathology

Discussion points on UDS4. Designed to capture:

- which elements of MCI were not met
- which additional clinical impressions went into decision to categorize as “Impaired, not MCI”
- which elements of the evaluation went into the consensus diagnosis

Discussion

