ID#	COMF	PLETED:	YES	1
DATE			NO	2

#### **NEUROLOGICAL EXAM**

**Circle** "Normal", "Abnormal", "Other", "Can't execute" or "Missing" for each question. If you circle "Abnormal" or "Other", also check the appropriate reason why or explain in comment field.

For each question, "Can't Execute" and "Missing" will mean the following:

- -Can't Execute: subject will not/cannot attempt task secondary to dementia.
- -Missing: examiner omits task, subject refuses (not secondary to dementia), or subject unable to do task secondary to physical reason.

#### 1. VISUAL FIELDS BY CONFRONTATION

		Circle
NORMAL	No field cut in any quadrant	1
ABNORMAL	Field cut (SPECIFY)	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/COMMENT:		

#### 2. RANGE/EXTENT OF LATERAL GAZE

		Circle
NORMAL	Complete gaze to left/right	1
ABNORMAL	Incomplete left or right gaze (Specify left or right)	2
	Complete absence of left or right gaze (Specify left or right)	3
OTHER (SPECIFY)		4
CAN'T EXECUTE		8
MISSING		9
SPECIFY/COMMENT:		

#### 3. RANGE/EXTENT OF VERTICAL GAZE

	Circle
Complete up & down gaze	1
Incomplete up & down gaze	2
Complete absence of up & down gaze	3
	4
	8
	9
	Incomplete up & down gaze

#### 4. PUPILLARY REFLEX

		Circle
NORMAL	PERRLA	1
ABNORMAL	Re: pupil size, reaction time (Specify left or right)	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

#### 5. CLOSE EYES, RESIST OPENING BY EXAMINER

		Circle
NORMAL	No weakness of upper eyelid on either side	1
ABNORMAL	Unilateral or bilateral weakness (Specify left or right)	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

# 6. OPENING AND CLOSING JAW

		Circle
NORMAL	No deviation of mandible	1
ABNORMAL (SPECIFY)		2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

# 7. PHARYNGEAL MOVEMENTS (subject opens mouth, says "ah")

		Circle
NORMAL	No deviation of uvula or tongue	1
ABNORMAL	Deviation to left or right (Specify left or right)	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

# 8. BLOW OUT CHEEKS WITH MOUTH CLOSED

		Circle
NORMAL	Can perform evenly bilateral	1
ABNORMAL	Cannot perform evenly (Specify left or right)	2
	Cannot perform with mouth closed	3
OTHER (SPECIFY)		4
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

#### 9. WIDE SMILE- SHOW TEETH

		Circle
NORMAL	No weakness noted	1
ABNORMAL	Flattened nasolabial fold	2
	Inability to raise corner of mouth on left or right (Specify left or right)	3
OTHER (SPECIFY)		4
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

#### 10. RAISE EYEBROWS

		Circle
NORMAL	No weakness noted	1
ABNORMAL	Inability to raise eyebrow	2
	Inability to wrinkle forehead on left or right (Specify left or right)	3
OTHER (SPECIFY)		4
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

# 11. WINK WITH OTHER EYE OPEN

		Circle
NORMAL	Can perform with either eye	1
	Can perform with one eye only (Specify left or right)	2
ABNORMAL	Cannot perform	3
OTHER (SPECIFY)		4
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENTS		

#### 12. RAPID TONGUE MOVEMENT

		Circle
NORMAL	4 touches/second	1
ABNORMAL	< 4 touches/second or arrhythmic	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

#### 13. MOTOR IMPERSISTENCE

A. Eye closure x 20 seconds		Circle
NORMAL	Maintains act for 20 seconds	1
ABNORMAL	Opens eyes before 20 seconds	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

B. Tongue protrusion x 20 seconds		Circle
NORMAL	Maintains act for 20 seconds	1
ABNORMAL	Pulls tongue in before 20 seconds	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

# 14. ACOUSTIC NERVE

A. Rubbing of fingers		Right	Left
		Circle	Circle
NORMAL	Able to hear	1	1
ABNORMAL	Unable to hear	2	2
OTHER (SPECIFY)		3	3
CAN'T EXECUTE		8	8
MISSING		9	9
SPECIFY/ COMMENT:			

B. Whispering		Right	Left
		Circle	Circle
NORMAL	Able to hear	1	1
ABNORMAL	Unable to hear	2	2
OTHER (SPECIFY)		3	3
CAN'T EXECUTE		8	8
MISSING		9	9
SPECIFY/ COMMENT:			

# 15. CHIN RESISTANCE

		Circle
NORMAL	No weakness noted on either side	1
ABNORMAL	Unilateral weakness (Specify left or right)	2
	Bilateral weakness	3
OTHER (SPECIFY)		4
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

16. SHOULDER ELEVATION (shrug)

		Circle
NORMAL	No weakness noted	1
ABNORMAL	Unilateral weakness (Specify left or right)	2
	Bilateral weakness	3
OTHER (SPECIFY)		4
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

# 17. IS SUBJECT MUTE?

	Circle	
YES	1 (GO TO 21)	
NO	2	

# 18. REPEAT

A). "La, La, La, La, La"		Circle
NORMAL	Regular rate, rhythm and > 4 syllables/second, each syllable clear	1
ABNORMAL	Arrhythmic	2
	< 4 syllables/second	3
	Slurred words	4
OTHER (SPECIFY)		5
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

B). "Go, Go, Go, Go, Go"		Circle
NORMAL	Regular rate, rhythm and > 4 syllables/second, each syllable clear	1
ABNORMAL	Arrhythmic	2
	< 4 syllables/second	3
	Slurred words	4
OTHER (SPECIFY)		5
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

C). ''Kitty, Kitty, Kitty, Kitty''		Circle
NORMAL	Regular rate, rhythm and > 4 syllables/second, each syllable clear	1
ABNORMAL	Arrhythmic	2
	< 4 syllables/second	3
	Slurred words	4
OTHER (SPECIFY)		5
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

# 19. RATE OF CONVERSATION

		Circle
NORMAL	Normal speed	1
ABNORMAL	Too fast	2
	Too slow	3
OTHER (SPECIFY)		4
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

# 20. CLARITY OF CONVERSATION

		Circle
NORMAL	Normally understandable	1
ABNORMAL	Examiner must listen carefully	2
	Subject must repeat to be understood	3
	Almost incomprehensible	4
OTHER (SPECIFY)		5
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

#### 21. FINGER -TO-NOSE TOUCHING

		Right	Left
		Circle	Circle
NORMAL	Quickly, smooth and accurate	1	1
ABNORMAL	Slow but accurate	2	2
	Dysmetria noted	3	3
OTHER (SPECIFY)		4	4
CAN'T EXECUTE		8	8
MISSING		9	9
SPECIFY/ COMMENTS:			

# 22. FINGER-THUMB TAPPING

		Right	Left
		Circle	Circle
NORMAL	4 taps/second	1	1
ABNORMAL	3 taps/second or faster but arrhythmic	2	2
	< 3 taps/second	3	3
OTHER (SPECIFY)		4	4
CAN'T EXECUTE		8	8
MISSING		9	9
SPECIFY/ COMMENT:			

# 23. DIADOCHOKINESIS

		Right	Left
		Circle	Circle
NORMAL	At least 3 pats/second and smooth	1	1
ABNORMAL	Right = <3 pats/second =1, Arrhythmic =2, Both = 3	2	2
	Left = <3 pats/second =1, Arrhythmic =2, Both = 3		
OTHER (SPECIFY)		4	4
CAN'T EXECUTE		8	8
MISSING		9	9
SPECIFY/ COMMENT:			

#### 24. HAND PRAXIS TASKS

A). Inter-locking thum	abs	Circle
NORMAL	Performs correctly	1
ABNORMAL	Performs incorrectly	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT	·:	

B). Mirrored fingers	3	Circle
NORMAL	Performs correctly	1
ABNORMAL	Performs incorrectly	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMEN	NT:	

# 25. GRASP

		Right	Left
		Circle	Circle
NORMAL	Absent	1	1
ABNORMAL	Subject grasps examiners hand on stimulation	2	2
	Grasps after verbal request not to do so	3	3
OTHER (SPECIFY)		4	4
CAN'T EXECUTE		8	8
MISSING		9	9
SPECIFY/ COMMENT:			

# 26. MUSCLE TONUS (passive flexion/extension at elbow and wrist)

		Right	Left
		Circle	Circle
NORMAL	Normal muscle tone, no rigidity	1	1
ABNORMAL	Rigidity or stiffness present	2	2
OTHER (SPECIFY)		3	3
CAN'T EXECUTE		8	8
MISSING		9	9
SPECIFY/ COMMENT:			

# 27. COGWHEEL PHENOMENON

		Right	Left
		Circle	Circle
NORMAL	No cogwheeling noted	1	1
ABNORMAL	Slight or noticeable rhythmicity throughout	2	2
OTHER (SPECIFY)		3	3
CAN'T EXECUTE		8	8
MISSING		9	9
SPECIFY/COMMENT:			

# 28. PRIMITIVE REFLEXES

A). Snout (tap closed lips with reflex hammer)		Circle
NORMAL	Absent	1
ABNORMAL	Present	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

B). Visual suck		Circle
NORMAL	Absent	1
ABNORMAL	Present	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

C). Tactile suck		Circle
NORMAL	Absent	1
ABNORMAL	Present	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

#### 29. DEEP TENDON REFLEXES

	ABSENT	REDUCED	NORMAL	BRISK, NO	BRISK, W/	CAN'T EXECUTE	MISSING
				CLONUS	CLONUS		
Biceps, R	0	1	2	3	4	8	9
Biceps, L	0	1	2	3	4	8	9
<i>BR., R</i>	0	1	2	3	4	8	9
BR., L	0	1	2	3	4	8	9
Knees, R	0	1	2	3	4	8	9
Knees, L	0	1	2	3	4	8	9
AJ, R	0	1	2	3	4	8	9
AJ, L	0	1	2	3	4	8	9
SPECIFY:							

# 30. ANKLE CLONUS

		Right	Left
		Circle	Circle
NORMAL	Absent	1	1
ABNORMAL	Present	2	2
OTHER (SPECIFY)		3	3
CAN'T EXECUTE		8	8
MISSING		9	9
SPECIFY/ COMMEN	Τ:		

# 31. PROPRIOCEPTION

	Right	Left
	Circle	Circle
PRESENT	1	1
ABSENT	2	2
CAN'T EXECUTE	8	8
MISSING	9	9
SPECIFY/COMMENT:		

# 32. VIBRATING SENSATION

	Right	Left
	Circle	Circle
PRESENT	1	1
ABSENT	2	2
CAN'T EXECUTE	8	8
MISSING	9	9
SPECIFY/COMMENT		

#### 33. PLANTAR RESPONSE

		Right	Left
		Circle	Circle
NORMAL	Plantar flexion of great toe	1	1
ABNORMAL	Extension of great toe	2	2
	No reflex present	3	3
OTHER (SPECIFY)		4	4
CAN'T EXECUTE		8	8
MISSING		9	9
SPECIFY/COMMENT			

#### 34. HEEL - TO - KNEE TEST

		Right	Left
		Circle	Circle
NORMAL	Moving foot is dorsiflexed and motion down shin is smooth, slow and accurate	1	1
ABNORMAL	Path of heel is shaky, jerky, wavering	2	2
	Knee is overshot	3	3
	Slide down skin accompanied by action tremor	4	4
OTHER (SPECIFY)		5	5
CAN'T EXECUTE		8	8
MISSING		9	9
SPECIFY/ COMMENT:			

# 35. ROMBERG'S SIGN (stand with feet together for 10-15 seconds)

		Circle
NORMAL	Normally still or slight weaving	1
ABNORMAL	Falls to one side with eyes closed (Specify left or right)	2
	Falls to one side with eyes open (Specify left or right)	3
	Needs widend base to stay in one place	4
OTHER (SPECIFY)		5
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

# 36. GAIT ACTIVITIES

A). Walking down a hall at least 10 paces		Circle
NORMAL	Normal gait, narrow base	1
ABNORMAL	Deviation from straight line	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT	:	

B). Pivot while turning		Circle
NORMAL	Pivots on narrow base	1
ABNORMAL	Hesitates	2
	Widens base or moves feet	3
	Turns slowly or awkwardly	4
OTHER (SPECIFY)	·	5
CAN' T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

C). Stopping on unexpected command		Circle
NORMAL	Stops on command or takes one small step	1
ABNORMAL	Stops but body lurches forward	2
	Takes > 1 step before stopping	3
OTHER (SPECIFY)		4
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

D). Festination		Circle
NORMAL	None	1
ABNORMAL	Slow start	2
	Shuffling gait	3
OTHER (SPECIFY)		4
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

E). Accessory movement	ts	Circle
NORMAL	Normal	1
ABNORMAL	Decrease of arm swings	2
	Trunk/neck rigid and flexed	3
	Width of gait gets smaller	4
OTHER (SPECIFY)		5
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

#### 38. TREMOR AT REST

		Circle
NORMAL	None	1
ABNORMAL	Slight/occassional	2
	Moderate to severe	3
OTHER (SPECIFY)		4
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

#### 39. TREMOR WITH ARMS OUTSTRETCHED

		Circle
NORMAL	None	1
ABNORMAL	Slight/ occasional	2
	Moderate to severe	3
OTHER (SPECIFY)		4
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMEN	Т:	

40. PRONATOR DRIFT (arms outstretched, palms up, eyes closed)

		Circle
NORMAL	Absence of drift	1
ABNORMAL	Spontaneous drift of either/both hands (Specify left or right)	2
OTHER (SPECIFY)		3
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

# 41. STRENGTH DIFFERENCE WITH DOWNWARD PRESSURE AND THEN SUDDEN RELEASE BY EXAMINER (arms outstretched, resists examiner's pressure)

		Circle
NORMAL	No strength difference, equal rebound	1
ABNORMAL	Unequal rebound (Specify left or right)	2
OTHER (SPECIFY)		3
CAN' T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

# 42. UPPER EXTREMITY MOTOR STRENGTH. GRIP STRENGTH OR BICEPS PULL. STRENGTH DIFFERENCE BETWEEN L AND R FINGER GRASP OR BICEPS PULL. SUBJECT GRASPS EXAMINER'S EXTENDED FINGERS (2 digits) WITH R AND L TRIALS.

	Grip strength = 1	Biceps pull = 2	
			Circle
NORMAL	No strength difference between	en R and L trials	1
ABNORMAL	Specify weakness (L or R)		2
OTHER (SPECIFY)			3
CAN' T EXECUTE			8
MISSING			9
SPECIFY/ COMMENT			

#### 43. BRADYKINESIA

		Circle
NORMAL	Voluntary movements are normal	1
ABNORMAL	Mild or marked slowness	2
OTHER (SPECIFY)		3
CAN' T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT		

#### 44. MYOCLONUS

		Circle
NORMAL	Absent	1
ABNORMAL	Mild myoclonus	2
	Occasional myoclonus	3
	Frequent myoclonus	4
	Severe myoclonus	5
OTHER (SPECIFY)		6
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

# 45. POSTURE

		Circle
NORMAL	Normal, erect	1
ABNORMAL	Slightly stooped	2
	Very stooped	3
	Leans to one side (Specifiy left or right)	4
OTHER (SPECIFY)		5
CAN'T EXECUTE		8
MISSING		9
SPECIFY/ COMMENT:		

#### 46. PRAXIS TASKS (PRETEND TO)

	NORMAL PERFORMS	ABNORMAL (SPECIFY)	OTHER (SPECIFY)	CAN'T EXECUTE	MISSING
	CORRECTLY	(SI ECH I)	(SI ECH I)	EXECUTE	
Comb your hair	1	2	3	8	9
Hammer a nail	1	2	3	8	9
Brush your teeth	1	2	3	8	9
SPECIFY/COMMENT:					

COMMENTS			
		_	•

This neurological examination was modified from similar instruments for assessment of Huntington's disease(Folstein,SE et al., Neurobehavioral Toxicology and Teratology,1983,5:605-609) and the CERAD exam for AD (Morris,JC et al., Neurology, 1989, 39:1159-1165.)