GLOBAL DETERIORATION SCALE (GDS)

(Choose the most appropriate global stage based upon cognition and function, and CHECK ONLY ONE.)

☐ 1. **No subjective complaints of memory deficit.** No memory deficit evident on clinical interview.

☐ 2. **Subjective complaints of memory deficit,** most frequently in following areas:
(a) forgetting where one has placed familiar objects;
(b) forgetting names one formerly knew well.

No objective evidence of memory deficit on clinical interview.
No objective deficit in employment or social situations.
Appropriate concern with respect to symptomatology.

☐ 3. **Earliest clear-cut deficits.**

Manifestations in more than one of the following areas:
(a) patient may have gotten lost when traveling to an unfamiliar location.
(b) co-workers become aware of patient's relatively poor performance.
(c) word and/or name finding deficit become evident to intimates.
(d) patient may read a passage or book and retain relatively little material.
(e) patient may demonstrate decreased facility remembering names upon introduction to new people.
(f) patient may have lost or misplaced an object of value.
(g) concentration deficit may be evident on clinical testing.

Objective evidence of memory deficit obtained **only with an intensive interview.**
Decreased performance in demanding employment and social settings.
Denial begins to become manifest in patient.
Mild to moderate anxiety frequently accompanies symptoms.

☐ 4. **Clear-cut deficit on careful clinical interview.**

Deficit manifest in following areas:
(a) decreased knowledge of current and recent events.
(b) may exhibit some deficit in memory of one's personal history.
(c) concentration deficit elicited on serial subtractions.
(d) decreased ability to travel, **handle finances,** etc.

Frequently no deficit in following areas:
(a) orientation to time and place.
(b) recognition of familiar persons and faces.
(c) ability to travel to familiar locations.

Inability to perform complex tasks.
Denial is dominant defense mechanism.
Flattening of affect and withdrawal from challenging situations.

☐ 5. **Patient can no longer survive without some assistance.**

Patient is unable during interview to recall a major relevant aspect of their current life, e.g.:
(a) their address or telephone number of many years.
(b) the names of close members of their family (such as grandchildren).
(c) the name of the high school or college from which they graduated.

Frequently some disorientation to time (date, day of the week, season, etc.) or to place.
An educated person may have difficulty counting back from 40 by 4s or from 20 by 2s.
Persons at this stage retain knowledge of many major facts regarding themselves and others.
They invariably know their own names and generally know their spouse's and children's names.
They require no assistance with toileting or eating, but may have difficulty choosing the proper clothing to wear.

☐ 6. May occasionally forget the name of the spouse upon whom they are entirely dependent for survival.
Will be **largely unaware of all recent events and experiences in their lives.**
Retain some knowledge of their surroundings; the year, the season, etc.
May have difficulty counting by 1s from 10, both backward and sometimes forward.

Will require some assistance with activities of daily living:
(a) may become incontinent.
(b) will require travel assistance but occasionally will be able to travel to familiar locations.

Diurnal rhythm frequently disturbed.
Almost always recall their own name.
Frequently continue to be able to distinguish familiar from unfamiliar persons in their environment.

Personality and emotional changes occur. These are quite variable and include:
(a) delusional behavior, e.g., patients may accuse their spouse of being an imposter; may talk to imaginary figures in the environment, or to their own reflection in the mirror.
(b) obsessive symptoms, e.g., person may continually repeat simple cleaning activities.
(c) anxiety symptoms, agitation, and even previously non-existent violent behavior may occur.
(d) cognitive abulia, e.g., loss of willpower because an individual cannot carry a thought long enough to determine a purposeful course of action.

☐ 7. **All verbal abilities are lost over the course of this stage.**
Early in this stage words and phrases are spoken but speech is very circumscribed.
Later there is no serviceable speech at all - only unintelligible utterances with rare emergence of seemingly forgotten words and phrases.

Incontinent; requires assistance toileting and feeding.

Basic psychomotor skills (e.g. ability to walk) **are lost with the progression of this stage.**
The brain appears to no longer be able to tell the body what to do.
Generalized rigidity and developmental neurologic reflexes are frequently present.

[1] Reisberg, B., Ferris, S.H., de Leon, M.J., & Crook, T. The global deterioration scale for assessment of primary degenerative dementia. *Am.J.Psychiatry*, 1982;139:1136-1139.

FUNCTIONAL ASSESSMENT STAGING (FAST)[1,2] (Check highest **consecutive** level of disability.)

1. ☐ **No difficulty**, either subjectively or objectively.

2. ☐ Complains of forgetting location of objects. **Subjective work difficulties.**

3. ☐ Decreased job functioning evident to co-workers. Difficulty in traveling to new locations. **Decreased organizational capacity.***

4. ☐ **Decreased ability to perform complex tasks**, e.g., planning dinner for guests, handling personal finances (such as forgetting to pay bills), difficulty marketing, etc.*

5. ☐ **Requires assistance in choosing proper clothing** to wear for the day, season, or occasion, e.g. patient may wear the same clothing repeatedly, unless supervised.*

6. ☐ (a) **Improperly putting on clothes without assistance or cuing** (e.g., may put street clothes on over night clothes, or put shoes on wrong feet, or have difficulty buttoning clothing) occasionally or more frequently over the past weeks.*

   ☐ (b) Unable to bathe properly (e.g., **difficulty adjusting bath-water temperature**) occasionally or more frequently over the past weeks.*

   ☐ (c) **Inability to handle mechanics of toileting** (e.g., forgets to flush the toilet, does not wipe properly or properly dispose of toilet tissue) occasionally or more frequently over the past weeks.*

   ☐ (d) **Urinary incontinence** (occasionally or more frequently over the past weeks).*

   ☐ (e) **Fecal incontinence** (occasionally or more frequently over the past weeks).*

7. ☐ (a) Ability to speak limited to approximately **a half a dozen intelligible different words or fewer**, in the course of an average day or **in the course of an intensive interview.**

   ☐ (b) Speech ability limited to the use of **a single intelligible word** in an average day or **in the course of an intensive interview** (the person may repeat the word over and over).

   ☐ (c) Ambulatory ability lost (**cannot walk without personal assistance**).

   ☐ (d) **Cannot sit up without assistance** (e.g., the individual **will fall over if there are no lateral rests** [arms] **on the chair**).

   ☐ (e) **Loss of ability to smile.**

   ☐ (f) **Loss of ability to hold up head independently.**

* Scored primarily on the basis of information obtained from a knowledgeable informant and/or caregiver.

[1] Adapted from Reisberg, B., Functional assessment staging (FAST). *Psychopharmacology Bulletin,* 1988;24:653-659.

FUNCTIONAL ASSESSMENT STAGING (FAST)

INSTRUCTIONS

The **FAST Stage** is the highest consecutive level of disability. For clinical purposes, in addition to staging the level of disability, additional, non-ordinal (nonconsecutive) deficits should be noted, since these additional deficits are of clear clinical relevance.

For the purpose of therapeutical trials, the FAST can be used to sensitively encompass the full range in functional disability in CNS aging and dementia. For these purposes the **FAST Disability Score** should be obtained as follows:

(1) Each FAST substage should be converted into a numerical stage. Specifically, the following scoring should be applied: 6a=6.0; 6b=6.2; 6c=6.4; 6d = 6.6; 6e = 6.8; 7a = 7.0; 7b=7.2; 7c=7.4; 7d=7.6; 7e=7.8; 7f=8.0.

(2) The consecutive level of disability (FAST stage) is scored and given a numerical value.

(3) The non-consecutive FAST deficits are scored. A non-consecutive full stage deficit is scored as 1.0. A non-consecutive sub - stage deficit is scored as 0.2.

(4) The **FAST Disability Score** =(The FAST Stage Score) + (Each Non-Consecutive FAST disability scored as described).

For example, if a patient is at FAST Stage 6a, then the patient's FAST stage score = 6.0. By definition, this patient cannot handle a job, manage their personal finances, independently pick out their clothing properly, or put on their clothing properly without assistance. If, in addition, this patient is incontinent of urine and cannot walk without assistance, then nonconsecutive deficits "6d" and "7c" are scored. The **FAST Disability Score** for this patient is 6.0 + 0.2+0.2 = 6.4.

Management Needs in Normal Development and of the Alzheimer's Patient at the Corresponding Developmental Age (DA)[1]

Global Deterioration and FAST Stage of Aging and AD	Development Age (DA)	Management Needs of Aged and AD Patients
1	Adult	None
2	Adult	None
3	12+ years	None
4	8-12 years	Independent survival still attainable
5	5-7 years	Patient can no longer survive in the community without part-time assistance
6	2-5 years	patient requires full time supervision
7	0-2 years	Patient requires continuous care

[1]Reisberg, B., Franssen, E.H., Souren, L.E.M., Auer, S., & Kenowsky, S. Progession of Alzheimer's disease: Variability and consistency; Ontogenic models, their applicability and relevance. *Journal of Neural Transmission* 54 (Suppl):9-20, 1998.

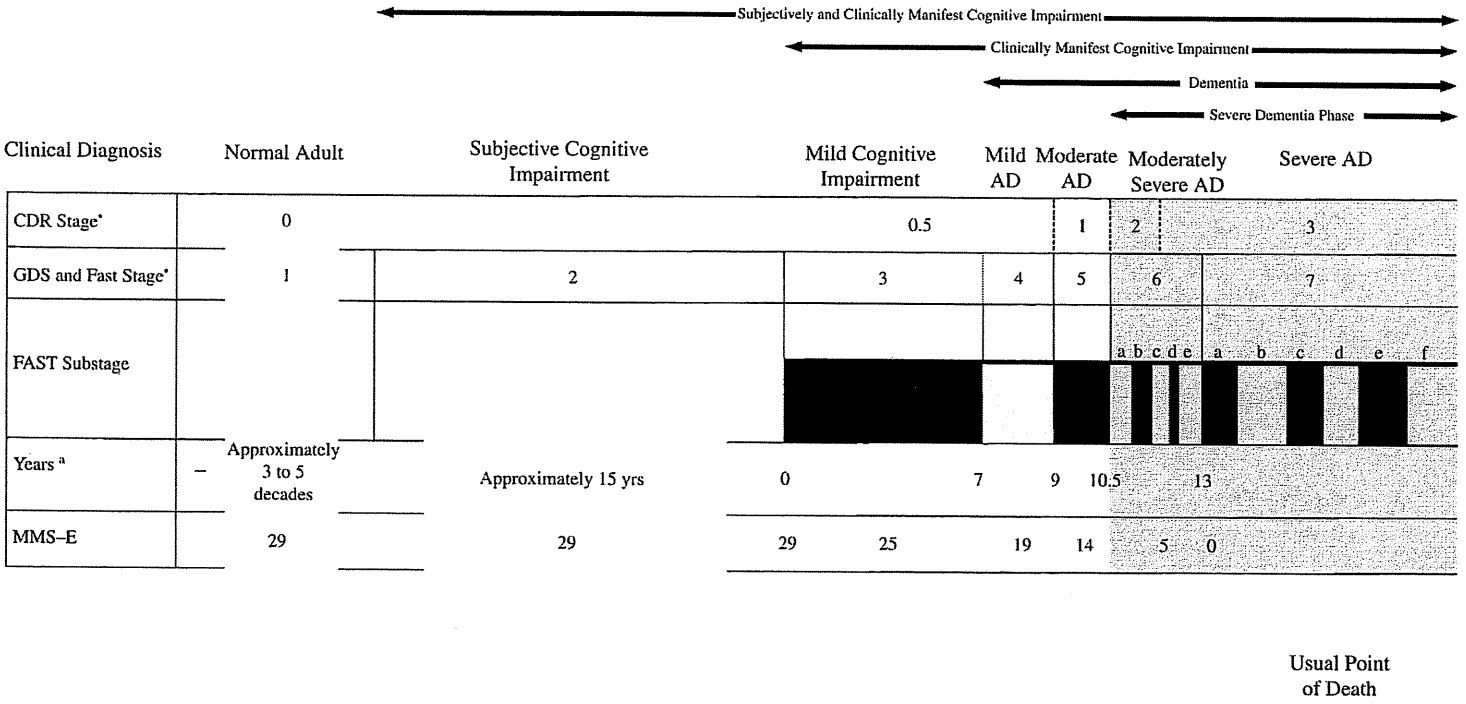
FUNCTIONAL STAGES IN NORMAL HUMAN DEVELOPMENT AND ALZHEIMER'S DISEASE[1,2,3]

APPROXIMATE AGE	ACQUIRED ABILITIES		LOST ABILITIES	ALZHEIMER STAGE
12 + years	Hold a job		Hold a job	3 - INCIPIENT
8 - 12 years	Handle simple finances		Handle simple finances	4- MILD
5-7 years	Select proper clothing		Select proper clothing	5 - MODERATE
5 years	Put on clothes unaided		Put on clothes unaided	6 - MODERATELY SEVERE
4 years	Shower unaided		Shower unaided	
4 years	Toilet unaided		Toilet unaided	
3 -41/2 years	Control urine		Control urine	
2 -3 years	Control bowels		Control bowels	
15 months	Speak 5-6 words		Speak 5-6 words	7 - SEVERE
1 year	Speak 1 word		Speak 1 word	
1 year	Walk		Walk	
6-10 months	Sit up		Sit up	
2 -4 months	Smile		Smile	
1-3 months	Hold up head		Hold up head	

[1]Reisberg, B., Dementia: A Systematic Approach to Identifying Reversible Causes. *Geriatrics,* 1986, 41(4):30-46.

[2]Reisberg, B., Functional Assessment Staging (FAST). *Psychopharmacology Bulletin,* 1988, 24:653-659.

[3]Reisberg, B., Franssen, E.H., Souren, L.E.M. Auer, S., Kenowsky, S. Progression of Alzheimer's disease: Variability and consistency: Ontogenic models, their applicability and relevance. *Journal of Neural Transmission,* 1998 [Suppl.] 54:9-20.



Source: Adapted from: Reisberg, et al., *Alzheimer's Disease and Associated Disorders*, 1994; 8 (Suppl.) : S 1884 –205
AD, Alzheimer's disease; CDR, Clinical Dementia Rating; GDS, Global Deterioration Scale; FAST, Functional Assessment Staging; MMSE, Mini-Mental State Examination.
*Stage range comparisons shown between the CDR and GDS/FAST stages are based upon published functioning and self -care descriptors.
[a] "Numerical values represent time from the earliest clinically manifest symptoms of mild cognitive impairment associated with subsequently manifest Alzheimer's disease (i.e., the beginning of GDS and FAST stage 3). For GDS and
[b] FAST stages 1 and 2, the temporal values are prior to onset of mild cognitive impairment symptoms, for GDS and FAST stages 3 and above, the values are subsequent to the onset of mild cognitive impairment symptoms. All temporal estimates were initially published in Reisberg, 1986, and have been supported by subsequent clinical and pathological cross-sectional and longitudinal investigations (e.g., Reisberg, et al., 1996: Robinski, et al., 1995, 1997; Kluger, et al., 1999).

Figure 1. Typical time course of normal brain ageing, mild cognitive impairment and Alzheimer's disease.