

THE 3 D's

Comparison of DEPRESSION, DELIRIUM And DEMENTIA

	Depression	Delirium	Dementia
Definition	A change in mood which lasts at least 2 weeks and includes sadness, negativity, loss of interest, pleasure and/or decline in functioning.	An acute or sudden onset of mental confusion as a result of a medical, social, and/ or environmental condition.	Progressive loss of brain cells resulting in decline of day-to-day cognition and functioning. A terminal condition.
Duration	At least 6 weeks, but can last several months to years, especially if not treated.	Hours to months, dependent on speed of diagnosis.	Years (usually 8 to 20)
Thinking	May be indecisive and thoughts highlight failures and a sense of hopelessness.	Fluctuates between rational state and disorganized, distorted thinking with incoherent speech.	Gradual loss of cognition and ability to problem solve and function independently.
Mental status testing	Capable of giving correct answers, however often may state "I don't know"	Testing may vary from poor to good depending on time of day and fluctuation in cognition.	Will attempt to answer and will not be aware of mistakes.
Memory	Generally intact, though may be selective. Highlights negativity.	Recent and immediate memory impaired.	Inability to learn new information or to recall previously learned information.
Sleep-wake cycle	Disturbed, usually early morning awakening.	Disturbed. Sleep-wake cycle is reversed (up in night, very sleepy and sometimes non-responsive during the day)	Normal to fragmented
Hallucinations & delusions	Can be present in a severe depression. Themes of guilt & self-loathing.	Often of a frightening or paranoid nature	Can be present. May misperceive. In Lewy Body dementia visual hallucinations are present.
Diagnosis	May deny being depressed but often exhibit anxiety. Others may notice symptoms first. Increased complaints of physical illness. Social withdrawal is common.	Diagnosis based on rapid onset of fluctuating symptoms. Can be mistaken for progression of the dementia.	Usually diagnosed approximately 3 years after onset of symptoms. Must rule out other cause of cognitive decline, e.g. depression or delirium.

	Depression	Delirium	Dementia
Care approaches	Identify the symptoms of depression early. Help person to follow treatment plan & offer them hope.	Early recognition is key. Keep person safe, find cause of the delirium and treat as quickly as possible.	Maintain and enhance abilities that remain. Focus on the positive and support the lost abilities.
Prognosis	Treatable and reversible condition.	Treatable and reversible with early diagnosis but can lead to permanent disability or death	Progression can be slowed but not reversed.
Treatment	Antidepressants, ECT, interpersonal therapy, behavioural-cognitive therapy. Assist person to improve confidence and self-esteem through conversation and activity.	Treat underlying cause. Monitor response. Be alert for relapse; occurs in 90% of cases	Cholinesterase inhibitors slow the progression of some dementias. Symptomatic treatment with environmental & staff approaches.

Sources: Forman, MD & Zane, D. (1996). Nursing strategies for acute confusion in elders. American Journal of Nursing, 96(4), 44-51; Lipowski, Z. (1989). Delirium in the elderly patient. The New England Journal of Medicine, 320(9), 578-582.

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CLINICAL PEARL

Differentiating among Depression, Delirium, and Dementia in Elderly Patients

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Elderly patients are at high risk for depression and cognitive disorders, the latter of which can be chronic (as in dementia) or acute (as in delirium). Some patients have both affective (mood) and cognitive disorders. Clarifying the diagnosis is the first step to effective treatment, but this can be particularly difficult because elderly patients often have medical comorbidities that can contribute to cognitive and affective changes.

When evaluating elderly patients, it is important to assess cognitive status and determine their baseline ability to function and perform activities of daily living (ADLs). ADLs relate to personal care including bathing or showering, dressing, getting in or out of bed or a chair, using the toilet, and eating [1]. Instrumental activities of daily living (IADLs) include the individual's ability to prepare food, manage finances, shop for groceries, do housework, and use the telephone [2]. Having a baseline for a patient's ADLs and IADLs allows the physician to recognize and act upon changes. Though it is tempting to make assumptions based on a patient's appearance, contacting family members or staff at the facility where a patient resides can provide valuable information about his or her cognitive and functional status that may otherwise be missed.

Elderly patients who experience memory impairment should be screened for depressive symptoms, since they may be suffering from depression with "pseudodementia," that is, cognitive impairment traditionally believed to be related to the presence of depressive disorder. There is increasing evidence that dementia itself may be associated with or preceded by a period of depressive symptomatology, so it is important to screen patients thoroughly for cognitive function and the neurovegetative and affective symptoms of depression [3]. On the basis of clinical presentation alone, it can be difficult to sort out the primary problem. Patients with depression are more likely to bring concerns about cognitive impairment to the attention of their physicians than are patients with underlying cognitive decline or dementia, who may actually be unaware of their impairments [4].

Major Depressive Disorder

Major depressive disorder is thought to affect 1-2 percent of elderly people in the community at any one time; significant depressive symptoms affect up to 20 percent of elderly adults [5] and have been associated with poor outcomes for underlying medical problems and increased risk for suicide [6]. Depression is common following stroke, with an estimated 25-50 percent of poststroke patients meeting

criteria for major depressive disorder [7]. Parkinson's disease, coronary artery disease, cancer, and other medical problems have also been associated with a higher incidence of depression.

Here again, some patients who report memory problems, on further evaluation of mood and neurovegetative symptoms (sleep, energy, appetite, motivation), meet criteria for major depressive disorder. While evaluating for underlying medical illnesses that may cause physical symptoms similar to the neurovegetative symptoms of major depressive disorder, physicians can simultaneously screen for depression using, for example, the short form of the Geriatric Depression Scale [8]. Other screening strategies include the PRIME-MD Patient Health Questionnaire (PHQ-9) [9]. In any patient with depression it is also imperative to assess for suicidality. Elderly patients and those with multiple medical conditions comprise the highest risk group for completed suicide [10].

After a patient has been identified as having depression, the physician should assess for a lifetime history of mania (periods of time in which the patient had decreased need for sleep and still felt energetic and productive, for example, or actual episodes of impaired judgment, impulsivity, spending, or recklessness). The Mood Disorder Questionnaire [11] is a 13-item scale that can help elicit a history of mania in patients in the primary care setting, though it has not been explicitly validated in the geriatric population. Physicians should also remember that mania sometimes manifests as an acute confusional or delirious state, particularly in elderly patients.

Delirium

Delirium, or acute confusional state, is underrecognized. Delirium is thought to be reversible (with correction of the underlying medical problem) and is present in 10-30 percent of hospitalized elderly patients. It contributes to less desirable outcomes including longer hospitalization, higher rates of nursing home placement, and possibly higher mortality [12]. Elderly patients with apathy, lethargy, or low mood should be evaluated for delirium. In hospitalized elderly patients, the presence of dysphoria may also be a manifestation of delirium [13]. The Confusion Assessment Method (CAM) [14] is a four-question screening tool that can be useful in detecting delirium. The CAM can be implemented for screening on an inpatient service, and those using the tool—nurses, physicians, or researchers—should be educated and trained to optimize its sensitivity [15].

The hallmark of delirium is the presence of an underlying medical disorder, so it is imperative to discover its cause. Urinary tract infection is a common cause of delirium in elderly patients, but other possible causes include thyroid dysfunction, coronary event, stroke, electrolyte imbalance, and renal insufficiency. Medications can contribute to acute confusional states, particularly anticholinergic medications such as diphenhydramine [16], as well as benzodiazepines and narcotic pain medications.

The optimal way to treat delirium is to identify and correct the underlying medical etiology, avoid unnecessary interventions (medications, medical devices), provide frequent reorientation and optimize the sleep-wake cycle, and avoid the use of restraints whenever possible. The role of pharmacology—specifically antipsychotics and cholinesterase inhibitors—is unclear, though antipsychotics may be helpful for acute agitation or in regulating the sleep-wake cycle. This use, however, is off-label, and the most important aspect in managing delirium is identifying and treating the underlying medical cause.

Dementia

Dementia is an age-associated illness estimated to affect 5 percent of people between the ages of 71 and 80 and more than 37 percent of people over the age of 90 in the United States [17]. Because progressive cognitive impairment is thought to be a normal consequence of aging, and patients frequently do not self-report cognitive impairment, early or mild dementia can go undetected. Families may only notice deficits when the level of functional impairment warrants increased assistance from or reliance upon others. For the physician, signs of cognitive impairment include missed appointments, difficulty understanding or remembering instructions, car accidents, or poor hygiene and grooming.

Once cognitive impairment is suspected, screening can be undertaken [18] using the widely known Folstein Mini-Mental State Examination (MMSE) [19] or the Memory Impairment Screen [20]. There are many subtypes of dementia; Alzheimer's dementia and vascular dementia are most common. At present, we do not know which strategy for treating dementia is most effective. Though cholinesterase inhibitors and memantine have demonstrated statistically significant improvements in cognitive functioning in clinical trials, the clinical relevance of these findings is not clearly demonstrated [21].

Practical Advice for Differentiating Depression, Delirium, and Dementia

Generally speaking, an acute behavioral or mood change is suggestive of delirium. Once medical contributors have been ruled out, depression, characterized by a more pervasive or chronic low-mood state with or without cognitive impairment should be considered. Patients with dementia are less likely to self-report their cognitive problems than are patients with depression (see table 1) [22, 23].

Table 1. Characteristics of depression, delirium and dementia

	Depression	Delirium	Dementia
Onset	Weeks to months	Hours to days	Months to years
Mood	Low/apathetic	Fluctuates	Fluctuates
Course	Chronic; responds to treatment.	Acute; responds to treatment	Chronic, with deterioration over time
Self-Awareness	Likely to be concerned about memory impairment	May be aware of changes in cognition; fluctuates	Likely to hide or be unaware of cognitive deficits
Activities of Daily Living (ADLs)	May neglect basic self-care	May be intact or impaired	May be intact early, impaired as disease progresses
Instrumental Activities of Daily Living (IADLs)	May be intact or impaired	May be intact or impaired	May be intact early, impaired before ADLs as disease progresses

References

1. National Center for Health Statistics. NCHS definitions. Activities of daily living. <http://www.cdc.gov/NCHS/datawh/nchsdefs/adl.htm>. Accessed March 3, 2008.
2. National Center for Health Statistics. NCHS definitions. Instrumental activities of daily living. <http://www.cdc.gov/NCHS/datawh/nchsdefs/iadl.htm>. Accessed March 3, 2008.
3. Alexopoulos GS. Clinical and biological interactions in affective and cognitive geriatric syndromes. *Am J Psychiatry*. 2003;160(5):811-814.
4. Hanyu H, Sakurai H, Iwamoto T. Are subjective memory complaints mandatory for the diagnosis of mild cognitive impairment? *Intern Med*. 2007;46(11):791-792.
5. Barry LC, Allore HG, Guo Z, Bruce ML, Gill TM. Higher burden of depression among older women: the effect of onset, persistence, and mortality over time. *Arch Gen Psychiatry*. 2008;65(2):172-178.
6. Frederick JT, Steinman LE, Prohaska T, et al; Late Life Depression Special Interest Project Panelists. Community-based treatment of late life depression: an expert panel-informed literature review. *Am J Preventive Medicine*. 2007;33(3):222-249.
7. Evans DL, Charney DS, Lewis L, et al. Mood disorders in the medically ill: scientific review and recommendations. *Biol Psychiatry*. 2005;58(3):175-189.
8. Geriatric Depression Scale (short form). <http://www.stanford.edu/~yesavage/GDS.english.short.score.html>. Accessed February 28, 2008.

9. The MacArthur Initiative on Depression and Primary Care. *Patient Health Questionnaire*. http://www.depression-primarycare.org/clinicians/toolkits/materials/forms/phq9/questionnaire_sample/. Accessed March 5, 2008.
10. Centers for Disease Control and Prevention. *Suicide*. <http://www.cdc.gov/ncipc/dvp/Suicide/SuicideDataSheet.pdf>. Accessed March 10, 2008.
11. Hirschfeld RM, Williams JB, Spitzer RL, et al. Development and validation of a screening instrument for bipolar spectrum disorder: The Mood Disorder Questionnaire. *Am J Psychiatry*. 2000;157(11):1873-1875.
12. Overshott R, Karim S, Burns A. Cholinesterase inhibitors for delirium. *Cochrane Database Syst Rev*. 2008;1:CD005317.
13. McAvay GJ, Van Ness PH, Bogardus ST Jr, et al. Depressive symptoms and the risk of incident delirium in older hospitalized adults. *J Am Geriatr Soc*. 2007;55(5):684-691.
14. Inouye SK, van Dyck CH, Aless CA, Balkin S, Siegel AP, Horwitz RL. Clarifying confusion: the confusion assessment method. A new method for detection of delirium. *Ann Intern Med*. 1990;113(12): 941-948.
15. Inouye SK, Foreman MD, Mion LC, Katz KH, Cooney LM Jr. Nurses' recognition of delirium and its symptoms: comparison of nurse and researcher ratings. *Arch Intern Med*. 2001;161(20):2467-2473.
16. Agostini JV, Leo-Summers LS, Inouye SK. Cognitive and other adverse effects of diphenhydramine use in hospitalized older patients. *Arch Intern Med*. 2001;161(17):2091-2097.
17. Plassman BL, Langa KM, Fisher GG, et al. Prevalence of dementia in the United States: the aging, demographics, and memory study. *Neuroepidemiology*. 2007;29(1-2):125-132.
18. Holsinger T, Deveau J, Boustani M, Williams JW Jr. Does this patient have dementia? *JAMA*. 2007;297(21):2391-2404.
19. Folstein MF, Folstein SE, McHugh PR. "Mini-mental state." A practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res*. 1975;12(3):189-198.
20. Kulansky G, Buschke H, Katz M, Sliwinski M, Lipton RB. Screening for Alzheimer's disease: the memory impairment screen versus the conventional three-word memory test. *J Am Geriatr Soc*. 2002;50(6):1086-1091.
21. Raina P, Santaguida P, Ismaila A, et al. Effectiveness of cholinesterase inhibitors and memantine for treating dementia: evidence review for a clinical practice guideline. *Ann Intern Med*. 2008;148(5):379-397.
22. Insel KC, Badger TA. Deciphering the 4 D's: cognitive decline, delirium, depression and dementia—a review. *J Adv Nurs*. 2002;38(4):360-368.
23. Rivelli SK. The patient with confusion or memory problems. In: Krishnan KRR, Gagliardi JP, Jiang J, eds. *Clinician's Guide to Psychiatric Care*. New York, NY: Oxford University Press; 2008:In Press.

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