Depression, Delirium, and Dementia in Older Adults

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Co-Director Dartmouth Center for the Aging
Objectives

- Describe the prevalence of depression in older adults
- Use an assessment instrument for depression in older adults
- Discuss symptoms and treatment strategies for depression in older adults
- Describe the prevalence of delirium and dementia in older adults
Objectives

- Discuss the symptoms of delirium and dementia
- Discuss the assessment and treatment strategies for delirium and dementia
- Contrast criteria for differentiating depression, delirium, and dementia in older adults.
Prevalence of Mental Disorders Age 65+

- Psychiatric: 16.3%
- Dementia: 10%
- Mental disorders: 26.3% (including dementia)

Jeste, et al., 1999
IMPACT: Worldwide Causes of Disability

As a Percentage of All Disabilities
Prevalence of Late-Life Depression

- Clinically significant depressive symptoms
  - 15% community
  - 25% primary care
  - 25% medical inpatients
  - 40% nursing home

- Major depressive disorder
  - 1-3% community
  - 10% primary care
  - 15% medical inpatients
  - 15% nursing home
Depression Is a Medical Illness with Poor Health Outcomes

- **Worse outcomes**
  - Hip fractures
  - Myocardial infarction
  - Cancer (Mossey 1990; Penninx et al. 2001; Evans 1999)

- **Increased mortality rates**
  - Myocardial Infarction (Frasure-Smith 1993, 1995)
Depression and Mortality in Older Women Following Hip Fracture

Number of Depressive Symptoms 7-Year Follow Up

Osteoporotic Fractures Research Group, 1998
Depression Following Heart Attack and Mortality

Depressed (n = 35)
Nondepressed (n = 187)

Odds ratio = 3.6

Frasure-Smith, Lespérance. 1996.
Suicide in the US
Suicide in Older Adults

- 65+: highest suicide rate of any age group
- 85+: 2X the national average (CDC 1999)
- Men > Women; Whites > African Americans
- Peak suicide rates:
  - Suicide rate goes up continuously for men
  - Peaks at midlife for women, then declines
- 20% older men saw PCP on day of suicide
- 40% older men saw PCP on week of suicide
- 70% older men saw PCP on month of suicide
Suicide risk factors

- Depression, Hopelessness
- Serious medical illness
- Living alone
- Recent bereavement, divorce, or separation,
- Unemployment or retirement
- Substance abuse (alcohol and medication misuse
Risk Factors for Late Life Depression

- Medical Illness
- Self-report of poor health and disability
- Pain; Use of pain medication
- Cognitive Impairment
- Medications; Substance Abuse
- Prior Depressive Episode
- Financial difficulties
- Bereavement
- Isolation; dissatisfaction with social network
- Physiological changes associated with aging
What We Know

- Depression is complex and can be difficult to identify (“depression without sadness”)
- Treatments are pretty good
- Effects of treatment may be slowed and incomplete (“response but not remission”)
- Long-term approaches are needed to keep people well
- We know what to do
Definition of Depression

- Clinical syndrome characterized by low mood tone, difficulty thinking, and somatic changes precipitated by feelings of loss and / or guilt.

- Diagnostic labels: minor depression, major depression, adjustment disorder with depressed mood, dysthymia, bipolar depression, seasonal affective disorder
MAKING THE DIAGNOSIS: ANHEDONIA

- Loss of interest or pleasure in things that you normally enjoy.

- May be the most important and useful symptom.
MAKING THE DIAGNOSIS:
PHYSICAL SYMPTOMS

- Sleep disturbance.
- Appetite or weight change.
- Low energy or fatigue.
- Psychomotor retardation or agitation.
MAKING THE DIAGNOSIS: PSYCHOLOGICAL SYMPTOMS

- Low self-esteem or guilt.

- Poor concentration.

- Suicidal ideation or persistent thoughts of death.
Depression: “SIG-E-CAPS”

- **S** Sleep disturbance (insomnia or hypersomnia)
- **I** Interests (anhedonia or loss of interest in usually pleasurable activities)
- **G** Guilt and/or low self-esteem
- **E** Energy (loss of energy, low energy, or fatigue)
- **C** Concentration (poor concentration, forgetful)
- **A** Appetite changes (loss of appetite or increased appetite)
- **P** Psychomotor changes (agitation or slowing/retardation)
- **S** Suicide (morbid or suicidal ideation)
Depression Screening and Monitoring

- PHQ-9: Nine Item Patient Health Questionnaire
- Geriatric Depression Scale
- Cornell Scale for Depression in Dementia
### PHQ - 9 Symptom Checklist

**1. Over the last two weeks have you been bothered by the following problems?**

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
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<tr>
<td>c.</td>
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<tr>
<td>d.</td>
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<tr>
<td>e.</td>
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<tr>
<td>f.</td>
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<td>g.</td>
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<tr>
<td>h.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i.</td>
<td></td>
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</tr>
</tbody>
</table>

- a. Little interest or pleasure in doing things
- b. Feeling down, depressed, or hopeless
- c. Trouble falling or staying asleep, or sleeping too much
- d. Feeling tired or having little energy
- e. Poor appetite or overeating
- f. Feeling bad about yourself, or that you are a failure . . .
- g. Trouble concentrating on things, such as reading . . .
- h. Moving or speaking so slowly . . .
- i. Thoughts that you would be better off dead . . .

2. ... how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtotals:</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>TOTAL:</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**PHQ - 9 Symptom Checklist**

More than Nearly
Not Several half the every
days days day
0 12 3
Geriatric Depression Scale

Source: Yesavage, 1983

1. Are you basically satisfied with your life? .............................................. No
2. Have you dropped many of your activities and interests? ............... Yes
3. Do you feel that your life is empty? ................................................... Yes
4. Do you often get bored? ................................................................. Yes
5. Are you in good spirits most of the time? ........................................ No
6. Are you afraid that something bad is going to happen to you? ........ Yes
7. Do you feel happy most of the time? ............................................... No
8. Do you often feel helpless? ............................................................... Yes
9. Do you prefer to stay at home, rather than going out and doing new things? ................................................................. Yes
10. Do you feel that you have more problems with memory than most? Yes
11. Do you think it is wonderful to be alive now? ................................. No
12. Do you feel pretty worthless the way you are now? ....................... Yes
13. Do you feel full of energy? ............................................................. No
14. Do you feel that your situation is hopeless? ................................... Yes
15. Do you think that most people are better off than you are? ........... Yes

Total checked: ..........................................................................................

> 5  Suggestive of Depression and Should Warrant a Follow-up Interview
> 10  Almost Always Depression
### Cornell Scale for Depression in Dementia

**Source:** Alexopoulos, 1998

<table>
<thead>
<tr>
<th>MOOD-RELATED SYMPTOMS</th>
<th>Absent (0)</th>
<th>Mild to Intermediate (1)</th>
<th>Severe (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anxiety: anxious expression, ruminating, worrying</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
</tr>
<tr>
<td>2. Sadness: sad expression, sad voice, tearfulness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Lack of reaction to present events</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4. Irritability: annoyed, short temper</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BEHAVIORAL DISTURBANCE**

| 5. Agitation: restlessness, hand wringing, hair pulling | Q1 | Q2 | Q3 | Q4 |
| 6. Retardation: slow movements, slow speech, slow reactions | | | | |
| 7. Multiple physical complaints (score 0 if gastrointestinal symptoms only) | | | | |
| 8. Loss of interest: less involved in usual activities (score only if change occurred acutely, i.e., in less than one month) | | | | |

**PHYSICAL SIGNS**

| 9. Appetite loss; eating less than usual | Q1 | Q2 | Q3 | Q4 |
| 10. Weight loss (score 2 if greater than 5 pounds in one month) | | | | |
| 11. Lack of energy: fatigues easily, unable to sustain activities | | | | |

**CYCLIC FUNCTIONS**

| 12. Diurnal variation of mood: symptoms worse in the morning | Q1 | Q2 | Q3 | Q4 |
| 13. Difficulty falling asleep: later than usual for this individual | | | | |
| 14. Multiple awakenings during sleep | | | | |
| 15. Early morning awakening: earlier than usual for this individual | | | | |

**IDEATIONAL DISTURBANCE**

| 16. Suicidal: feels life is not worth living | Q1 | Q2 | Q3 | Q4 |
| 17. Poor self-esteem: self-blame, self-depreciation, feelings of failure | | | | |
| 18. Pessimism: anticipation of the worst | | | | |
| 19. Mood congruent delusions: delusions of poverty, illness or loss | | | | |

**Total score**

Score greater than 12 = Probable Depression
Treatment of Depression: Non-pharmacological

- Support groups
- Individual psychotherapy
  - (PST, IPT, CBT)
- Involvement in productive activities
- Remaining physically active
PSYCHOTHERAPY/BEHAVIORAL THERAPY

- Can be effective as medication for mild to moderate major depression or dysthymia

- Should be offered as option.

- Also useful adjunct to medication.

- Particularly useful with underlying psychosocial issues, abuse issues, family dysfunction, life transitions
ANTIDEPRESSANTS

- Tricyclics (e.g. elavil, sinequan)
  - Side effects, but less expensive.

- SSRIs
  - citalopram (Celexa)
  - fluoxetine (Prozac)
  - paroxetine (Paxil)
  - sertraline (Zoloft)
ANTIDEPRESSANTS

OTHER (non-SSRI) AGENTS:

- bupropion (Wellbutrin)
- mirtazapine (Remeron)
- nefazodone (Serzone)
- venlafaxine (Effexor)
TRICYCLIC ANTIDEPRESSANTS

- As effective as newer agents, at least for major depressive episodes.

- Side effects can be common, bothersome.

- Adherence an issue, especially over time.

- Can be lethal in overdose.
Treatment of Depression: Other Somatic Treatments

- Phototherapy for seasonal depression
- Electroconvulsive Therapy (ECT)
<table>
<thead>
<tr>
<th>Normalacy</th>
<th>Remission</th>
<th>Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Severity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Phase</td>
<td>Only 25% Have ≥ 3 Visits</td>
<td>&gt; 50% STOP Rx</td>
</tr>
<tr>
<td>Syndrome</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Phase</td>
<td></td>
<td>65 to 70% STOP Rx</td>
</tr>
<tr>
<td>Continuation Phase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance Phase</td>
<td></td>
<td></td>
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<tr>
<td>Time</td>
<td></td>
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</tr>
</tbody>
</table>

**Response**

- **Remission** 65 to 70% STOP Rx
- **Relapse**
- **Recurrent**
Points to consider......

- Comorbidities
- Monitor every 1 – 2 weeks
- Assess response every 4 – 6 weeks
Care Manager

Communicate with Clinicians

Encourage Adherence
Problem Solve Barriers

Measure Treatment Response

Monitor Remission
Nursing Interventions

- Institute safety precautions for suicide risk
- Monitor / promote nutrition, elimination, sleep, rest, comfort, pain control
- Enhance physical function and social support
- Maximize autonomy

- Structure and encourage daily participation in therapies
- Remove etiologic agents
- Monitor / document responses
- Provide practical assistance, such as problem-solving
- Provide emotional support
Case Study

Ms. G is a 75-year old female living alone in her apartment in New York City. Her husband died suddenly two years ago of a heart attack. Their two children are alive and living out-of-state. Both of her sons maintain weekly phone contact with Ms. G and visit usually once a year. Ms. G has been doing well until about 6 weeks ago when she fell in her apartment and sustained bruises but did not require a hospital visit. Since then, she has been preoccupied with her failing eyesight and decreased ambulation. She does not go shopping as often, stating she doesn’t enjoy going out anymore and feels “very sad and teary.” Ms. G states that her shopping needs are less, since she is not as hungry as she used to be and “besides I’m getting too old to cook for one person only.”
Questions

1. What risk factors might account for Ms. G’s symptoms of depression?
2. What are Ms. G’s depressive symptoms?
3. What might be some treatment strategies for Ms. G?
Delirium and Dementia

- Delirium – a **reversible confusional state**, a mental disturbance characterized by acute onset, disturbed consciousness, impaired cognition, and an identifiable underlying medical cause (medications, anesthesia, sleep disturbance, electrolyte imbalance, etc.)

- Dementia – an **irreversible confusional state**, acquired impairment of mental function, not the result of impaired level of arousal, with compromise in at least three areas of mental activity.
Delirium

- 35% of U.S. population aged ≥ 65 years hospitalized each year accounting for nearly 50% of inpatient days.

- Delirium: 14% - 56% of elderly hospitalized patients

- Mortality: 10% - 65%.
Prevalence of Alzheimer’s Disease by Age

## Symptoms

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Delirium</th>
<th>Dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>Short, rapid, hours/days</td>
<td>Insidious and gradual</td>
</tr>
<tr>
<td>Presentation</td>
<td>Disoriented, fluctuating moods</td>
<td>Vague symptoms, loss of intellect, agitated, aggressive</td>
</tr>
<tr>
<td>Course</td>
<td>Hours, weeks, or longer</td>
<td>Slow and continuous</td>
</tr>
<tr>
<td>Sleep/Wake</td>
<td>Worse at night in darkness and on awakening, insomnia</td>
<td>Worse in evening; “sundowning”, reversed sleep</td>
</tr>
<tr>
<td>Duration</td>
<td>Hours to &lt; month</td>
<td>Month to years</td>
</tr>
<tr>
<td>Affect</td>
<td>Labile variable; fear / panic, euphoria, disturbed</td>
<td>Easily distracted, inappropriate anxiety, labile to apathy</td>
</tr>
</tbody>
</table>
## Symptoms

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Delirium</th>
<th>Dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judgment</td>
<td>Impaired; difficulty separating facts and hallucinations</td>
<td>Impaired, bad / inappropriate decisions, denies problems</td>
</tr>
<tr>
<td>Psychotic symptoms</td>
<td>Delusions</td>
<td>Misperceives people and events as threatening; late delusions, hallucinations</td>
</tr>
<tr>
<td>Level of Consciousness</td>
<td>Disturbed</td>
<td>Intact</td>
</tr>
<tr>
<td>Recent Memory</td>
<td>Impaired, but remote memory is intact</td>
<td>Short term memory deficit in early course, progresses to long-term deficits, confabulation, perseveration</td>
</tr>
</tbody>
</table>
Common Causes of Delirium

- Toxicity (Prescribed and OTC Medications)
- Drugs of abuse, Withdrawal states
- Traumatic injuries, Cerebrovascular accidents
- Infectious processes: (e.g. systemic infection, urinary tract infections, meningitis, encephalitis)
- Metabolic derangements
- Endocrine: (thyroid, adrenal, diabetes)
- Nutritional
Amyloid Plaques and Neurofibrillary Tangles in Alzheimer’s Disease vs. Normal Aging

Plaques
Alzheimer’s

Tangles

Normal

Courtesy of Harry Vinters, MD.
Assessment of Delirium

- History and Physical
- Current medication
- Tests: chemistries, EKG, CXR, ABGs, oxygen saturation, u/a, thyroid function tests, cultures, drug levels, folate levels, pulse oximetry, EEG, lumbar puncture, serum B12
Treatment of Delirium

- Failure to treat delays recovery and can worsen the older person’s health and function.

- Psychiatric Management: identify and treat underlying etiology, intervene immediately for urgent medical conditions; ongoing monitoring of psychiatric status

- Environmental and supportive interventions: ↓ all environmental factors that exacerbate delirium; make environment more familiar; reorient; reassure, and inform to ↓ fear or demoralization

- Somatic Interventions: antipsychotic; benzodiazepines
Assessment of Dementia

- Folstein Mini-Mental Status Examination (MMSE)
- 7-minute screen: cued recall, category fluency, Benton Temporal Orientation Test, Clock Drawing Test
- MiniCog: 3 object recall and Clock Drawing Test
Mini-Mental State Exam (MMSE)

Orientation
1. “What is the (year) (season) (day) (date) (month)’’ ................................................ 5

2. “What is your address? (state) (county) (town) (street) (number).’’ .................. 5

Registration
3. “I am going to say three words. After I have said them, I want you to repeat them.’’
   “APPLE TABLE PENNY”
   “Could you repeat the three words for me?”
   (NOTE: SCORE 1 POINT FOR EACH CORRECT REPETITION ON FIRST TRY. TRY WORDS UNTIL ALL ARE LEARNED. # of Trials_____) .......... 3
   “Remember what they are, I am going to ask you to name them again in a few minutes.”

Attention and Concentration
4. Serial 7’s, backwards from 100. (93, 86, 79, 72, 65) Score 1 point for each correct.
   Stop after 5 answers. Alternatively, spell WORLD backwards. ......................... 5

Recall
5. Ask for the 3 words repeated above. Give 1 point for each correct. ............... 3

Language
6. Point to, and ask to name: a pencil and a watch. ........................................... 2

7. Repeat the following “No ifs, ands, or buts”. ............................................. 1

8. Follow a 3-stage command:
   “Take a paper in your right hand, fold it in half, and put it on the floor”. ............. 3

9. “Read and obey the following” : CLOSE YOUR EYES (See next page) ............ 1

10. “Please write a sentence.” (See next page for blank space) ......................... 1

11. “Please copy this design.” (See next page) .................................................. 1

Total Score: .................................................................................................. (Total Possible=30)

>23 Normal
18-23 Mild Cognitive Impairment
<18 Moderate to Severe Cognitive Impairment

Source: Folstein, 1975
Minicog Dementia Screen

1) Name 3 unrelated objects (e.g. “apple, house, book” or “pony, quarter, orange”)
2) Draw a large circle and ask the individual to put the numbers on the face of the clock and then to put the hands of the clock to indicated the time 11:20
3) Ask for the individual to repeat the names of the 3 objects

No or very mild Cognitive Impairment/No Dementia
___Score =1 or 2 (one or 2 objects recalled) and normal clock drawing test)
___Score =3 (regardless of clock drawing test)

Significant Cognitive Impairment/Dementia
___Score= 0 (none of the 3 objects recalled)
___Score= 1 or 2 (one or 2 objects recalled) and abnormal clock drawing test)
Treatment of Dementia

- Treat cognitive symptoms: cholinesterase inhibitors; Vitamin E; Gingko Biloba; stroke prevention

- Treatment of Behavioral Disturbances: antipsychotics; benzodiazepines; selected tricyclics

- Educational interventions: family caregivers and staff
Treatment of Dementia

- Improve functional performance: low lighting level, music, behavior modification

- Nonpharmacologic Interventions for Problem Behaviors: cognitive remediation, massage, pet therapy, occupational and physical therapy, validation therapy

- Care Environment Alterations: homelike setting, special care unit

- Interventions for Caregivers: assess for caregiver depression
Alzheimer Care

- Use personal history, life experiences, and habits
- Maintain a familiar and comfortable routine
- Slow down, speak clearly, make eye contact, in field of vision
- Cue the person to do as much for him or herself as possible
- Modify physical environment – reduce misinterpretation
- Monitor for symptoms of personal distress
Ms. D is a 98-year-old female in a skilled nursing facility with a diagnosis of Alzheimer’s disease. Ms. D comes to the nursing station and appears very upset. She tells you that she is looking for her mother and asks you to help her. You start walking with Ms. D.
Which strategies would be helpful in assisting Ms. D.?

1. Using reality orientation in the hope of reversing her cognitive loss
2. Telling her that her mother died a long time ago
3. Attempt to distract / redirect her into a pleasurable activity, such as eating or singing
4. Ask her to help you with a small task and that later you will look for her mother together.
Resources: Try This Dementia Series

at www.hartfordign.org

- Developed by The Hartford Institute for Geriatric Nursing in collaboration with The National Alzheimer’s Association
- Assessment tool that can be administered in 20 minutes or less
- Topics include:
  - Brief Evaluation of Executive Dysfunction
  - Recognition of Dementia in Hospitalized Older Adults
  - Assessing Pain in Persons with Dementia
  - Assessing and Managing Delirium in Persons with Dementia
Brief Evaluation of Executive Dysfunction: An Essential Refinement in the Assessment of Cognitive Impairment

By Gary J. Kennedy, MD

WHAT: A hospital admission may serve a previously undetected dementia in some older adults. While at home in a familiar environment, patients and family may fail to recognize subtle, and slow progressive cognitive changes. Such changes, however, often become apparent when the patient is moved to the clinical setting of the hospital. These are the patients whose family report "my mother was never like this at home."

This Jay-Hee suggests assessing executive function for older patients not thought to have dementia prior to hospitalization but where the patient, family or staff feel the patient has not returned to baseline cognitive status at the time of discharge. Particularly when the patient is alert and verbal and memory is not obviously impaired, assessing executive dysfunction can be critical to safe, risk-free treatment and discharge plans. Patients with subtle executive dysfunction should be transferred to their primary care provider or to an Aging and Dementia Center.

Executive dysfunction defined: Executive function is an integrated set of abilities that include cognitive flexibility, concept formation, and self-monitoring. Assessing executive function can help determine a patient's capacity to make sound health care decisions and with discharge planning decisions. With impaired executive dysfunction, instrumental activities of daily living (incontinence, shopping, medication management, driving) may be beyond the patient's capacity even though memory impairment is mild. The patient's capacity to understand and execute, and to control others to provide care, must be determined. Dementia dysfunctions is one element in the DSM-IV criteria for the diagnosis of dementia and in all dementia disorders.

NOTE: Patients with impaired executive function need not have impaired memory.

TARGET POPULATION: Older patients:
- Not thought to have dementia prior to hospitalization but where the patient, family or staff feel the patient has not returned to baseline cognitive status at the time of discharge.
- For whom other screening (e.g., MMSE, GMS) see Try This at www.mhhe.com 1 results in no reasonable cause for a cognitive impairment.
- For whom cognitive impairment, observed as alterations in memory, use of language and abstract thinking, and spatial sense, parents may have been identified and treated or ruled out.

BEST PRACTICES: Test performances are familiar with testing for executive function, yet there are valid and reliable instruments. The test results listed below have good internal consistency, inter-rater reliability, and are strongly correlated with the MMSE and with longitudinal neuropsychological assessments of executive function:
- Beattie's CLOX (clock drawing).
- Controlled Oral Word Association Test (COWAT).
- Trail Making Test, parts A and B.

Further reading:
- Beattie's CLOX (clock drawing).
- Controlled Oral Word Association Test, and Trail Making Test, parts A and B.

Screening Tests of Executive Function:

The following screening tests of executive function can be administered in hospital and in the ambulatory setting:

- Beattie's CLOX (clock drawing): First ask the patient to "Draw a clock that says 1:45. Set the hands and numbers in the box so that a child could understand them." Once the task is complete, draw a clock with 2 black circles, with all of the numbers in it, and the hands set at 1:45. Then ask the patient to copy it. An unimpaired person will form a round figure with the following elements recognizable in at least one condition: a figure with all the numbers present and in correct numerical sequence. There will be two hands anchored in the center pointing to the correct time. Any of the above elements are missing the person is possibly impaired. If more than one element is missing the person is probably impaired. Intruded elements such as words or letters indicate impairment. People with only executive dysfunction will usually attempt to copy the clock but fail to copy the hands. Those with both executive dysfunction and construction apraxia usually as a result of moderate Alzheimer's disease or stroke will fail both.

- The Controlled Oral Word Association Test: With categories beginning with the letter "P", then "A", then "B", the Controlled Oral Word Association Test by Schuell and Benton (1973) was designed to elicit the category by providing words of 3 or more letters. For example, correct responses to the category "P" would include "ink, lead, etc." This test reflects abstract mental operations related to problem solving, sequencing, maintaining distractions, intrusions and perseverations. It is considered a "frontal" task as the organization of words by first letter is a frontal lobe function and requires sustained attention, inhibition, and working memory. A frontal dysfunction is referred to as a "D" and can indicate executive dysfunction. A person with pure executive dysfunction will produce 5 or more words in each category without one exception.

- The Trail Making Test, Oral Version (Beattie and Swaab, 1990) requires the subject to count from 1 to 20 and then route the 20 letters of this alphabet. For testing, the subject is asked to pair numbers and letters in "1-A, 2-B, 3-C, etc." until the digit 12 is reached. This version does not make visual scanning or visually guided motor demands. However, the individual is required to keep the number and letter sequences in working memory so as not to lose place. More than 2 errors in 15 pairs are considered impairment.
Summary

- Prevalence, symptoms and treatment strategies for depression, delirium, and dementia.
- Assessment tools
- Interventions for behavior problems
- Case Studies to reinforce knowledge