The 3 Ds (Dementia, Delirium and Depression): Impact on Rehabilitation for Older Adults

David Conn - Baycrest & U. of Toronto

GTA Rehab Network's Best Practices Day 2019
Faculty/Presenter Disclosure

• Faculty: **David Conn**

• Relationships with commercial interests:
  – Grants/Research Support: **None**
  – Speakers Bureau/Honoraria: **None**
  – Consulting Fees: **None**
At the end of the session participants will be able to:

- Describe diagnostic criteria for each of the 3 Ds.
- Outline how to assess and manage these disorders.
- Discuss the implications for practice in rehabilitation settings.
Healthy Ageing is the process of developing and maintaining the functional ability that enables wellbeing in older age.

Intrinsic Capacity

- Personal characteristics
- Genetic inheritance

Health characteristics
- Underlying age-related trends
- Health-related behaviors, traits, skills
- Physiological changes and risk factors
- Diseases and injuries
- Changes to homeostasis
- Broader geriatric syndromes

Environments

Functional ability

Intrinsic capacity

High and stable capacity

Declining capacity

Significant loss of capacity

Prevent chronic conditions or ensure early detection and control

Reverse or slow declines in capacity

Manage advanced chronic conditions

Support capacity-enhancing behaviours

Ensure a dignified late life

Promote capacity-enhancing behaviours

Remove barriers to participation, compensate for loss of capacity

FIGURE 1 Prevalence of comorbidity for selected common conditions. Source: based on data from the study reported by Barnett et al. CHD, coronary heart disease; COPD, chronic obstructive pulmonary disease; TIA, transient ischaemic attack.
Principles of rehabilitation of older people

David J Stott
Terence J Quinn

Domains assessed and considered in the multidimensional approach of comprehensive geriatric assessment (CGA)

Physical health
- Co-morbidity review
- Screening for ‘giants’
- Medication review
- Nutritional review

Cognitive/emotional health
- Depression
- Cognition
- Substance use

Social support
- Care needs
- Advocacy
- Carer support
- Financial support

External environment
- Home safety
- Aids, appliances
- Transport

CGA
Key points

- Rehabilitation using a comprehensive geriatric assessment (CGA) approach is an effective intervention. There is robust evidence to show decreased mortality and improved functional outcomes when CGA is used for hospitalized, frail older adults.

- Rehabilitation is a process that should begin at admission, should continue throughout the admission and may guide subsequent chronic disease management on discharge.

- Effective rehabilitation is delivered by a multidisciplinary team. The medical component of rehabilitation is essential to ensure that disease contributing to functional problems is diagnosed and treated.
Elements of successful rehabilitation in older adults

- Geriatric rehabilitation involves multiple disciplines with differing expertise, working as a team with the patient to enable a holistic, individualized focus
- Geriatric rehabilitation is not (usually) a single intervention
- There are multiple potential triggers to geriatric rehabilitation, but a final common goal is to impact on functioning, enabling patients and carers to live their lives to the fullest potential
- In hospital, geriatric rehabilitation should begin at admission and often continues beyond discharge
Key components of CGA

- Medical contributors to disability/multimorbidity
- Cognition and language (delirium, dementia, dysphasia)
- Psychological state including mood and anxiety
- Vision
- Hearing
- Swallowing and the mouth
- Nutritional state
- Basic activities of daily living, physical function
- Continence
- Extended activities of daily living
- Risk assessment (falls, pressure sores)
- Social circumstances including home environment and network of support and contacts
- Caregiver stress
Comprehensive geriatric assessment for older adults admitted to hospital

The Cochrane systematic review of CGA in hospital summarizes data from 22 randomized controlled trials with more than 10,000 participants from six countries. Patients allocated to undergo CGA were compared with those allocated to general medical care. With CGA, patients were more likely to be alive and in their own homes after 12 months (odds ratio (OR) 1.16, 95% confidence interval (CI) 1.05—1.28), less likely to be institutionalized after acute hospital care (OR 0.79, 95% CI 0.69—0.88), less likely to suffer death or deterioration (OR 0.76, 95% CI 0.64—0.90) and more likely to experience improved cognition.

DSM-5 Criteria for Delirium

A. A disturbance in attention and awareness (reduced orientation)
B. Develops over a short period, represents a change from baseline and tends to fluctuate in severity during the course of a day
C. An additional disturbance in cognition (e.g. memory, disorientation, language, visuospatial ability or perception)
D. A and C are not better explained by another pre-existing, established, or evolving neurocognitive disorder and do not occur in the context of a severely reduced level of arousal (e.g. coma)
E. There is evidence from the history, physical examination, or laboratory findings that the disturbance is a direct physiological consequence of another medical condition, substance intoxication or withdrawal, or exposure to a toxin, or is due to multiple etiologies.
Categories

- HYPOACTIVE delirium (lethargic, somnolent, sluggish) - more often not recognized as they don’t cause a “disturbance”; may be seen as depressed; 19-71%
- HYPERACTIVE delirium (agitated, hallucinating, inappropriateness); 15-47%
- MIXED - combination of both
Fig. 1 The sequential causation of delirium: contrasting delirium profile in two patients with differing predispositions to delirium exposed to sequentially occurring deliriogenic insults after sustaining a head injury in a road traffic accident. TBI, traumatic brain injury.
Possible Delirium Outcomes And Key Related Factors (Adapted from Trzepacz et al, 2002)

- Prior delirium
- Prior cognitive impairment
- Medical comorbidity
- Index episode of delirium
- Increased length of stay
- Increased mortality rate
- Persistent cognitive impairment
- Increased institutionalization
Delirium episode as a sign of undetected dementia among community dwelling elderly subjects: a 2 year follow up study

Terhi Rahkonen, Riitta Luukkainen-Markkula, Satu Paanila, Juhani Sivenius, Raimo Sulkava

51 people >65 with no diagnosis of dementia admitted via Emergency Dept. with acute delirium. 27% received diagnosis of dementia during admission and another 28% received diagnosis of dementia over the next 2 years.
# Confusion Assessment Method (CAM)

**Shortened version**

The diagnosis of delirium by CAM requires the presence of **BOTH** features **A** and **B**

<table>
<thead>
<tr>
<th>A. Acute onset and Fluctuating course</th>
<th>Is there evidence of an acute change in mental status from patient baseline? Does the abnormal behavior:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>➢ come and go?</td>
</tr>
<tr>
<td></td>
<td>➢ fluctuate during the day?</td>
</tr>
<tr>
<td></td>
<td>➢ increase/decrease in severity?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Inattention</th>
<th>Does the patient:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>➢ have difficulty focusing attention?</td>
</tr>
<tr>
<td></td>
<td>➢ become easily distracted?</td>
</tr>
<tr>
<td></td>
<td>➢ have difficulty keeping track of what is said?</td>
</tr>
</tbody>
</table>

AND the presence of **EITHER** feature **C** or **D**

<table>
<thead>
<tr>
<th>C. Disorganized thinking</th>
<th>Is the patient’s thinking:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>➢ disorganized</td>
</tr>
<tr>
<td></td>
<td>➢ incoherent</td>
</tr>
<tr>
<td>For example does the patient have:</td>
<td>➢ rambling speech/irrelevant conversation?</td>
</tr>
<tr>
<td></td>
<td>➢ unpredictable switching of subjects?</td>
</tr>
<tr>
<td></td>
<td>➢ unclear or illogical flow of ideas?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D. Altered level of consciousness</th>
<th>Overall, what is the patient’s level of consciousness:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>➢ alert (normal)</td>
</tr>
<tr>
<td></td>
<td>➢ vigilant (hyper-alert)</td>
</tr>
<tr>
<td></td>
<td>➢ lethargic (drowsy but easily roused)</td>
</tr>
<tr>
<td></td>
<td>➢ stuporous (difficult to rouse)</td>
</tr>
<tr>
<td></td>
<td>➢ comatose (unrousable)</td>
</tr>
</tbody>
</table>
You Can Help Prevent Delirium

What is delirium?
Delirium is a sudden confused state of mind. It is a common problem in older people in the hospital. Delirium can be prevented and treated.

What does delirium look like?
People with delirium can act confused and may:
- be restless and upset
- slur their speech
- not make any sense
- act differently
- drift between sleep and wakefulness
- have trouble concentrating
- see and hear imaginary things
- be unaware of surroundings
- mix up days and nights
- be forgetful

What can you do?

Promote Healthy Rest and Sleep
- Reduce noise, distractions and unnecessary lighting
- Add comfort with a pillow, blanket, warm drink or back rub
- Avoid sleeping medications when possible

Promote Physical Activity
- Avoid using restraints
- Help with sitting and walking
- Talk to the nurse about how you can help with exercises and safe activities

Promote Mental Stimulation
- Arrange for familiar people to visit regularly
- Talk about current events and surroundings
- Read out loud
- Try large print or talking books

Promote Healthy Eating
- After checking with staff:
  - Encourage and help with eating
  - Offer fluids frequently

Promote Healthy Vision
- Encourage the use of glasses and keep them clean
- Use enough light
- Consider magnifying glass or eye exam

Promote Healthy Hearing
- Encourage hearing aids and amplifiers when needed
- Make sure hearing aids are working
- If in doubt, talk to the speech or hearing specialist

Ways to Help

Health Promotion and Prevention Really Works!

The Delirium Prevention and Education Project sponsored by RSPrC—Regional Geriatric Program, centralizing on the committee for the enhancement of elder-friendly environments (CEFE).

For more information: 905-777-8937 ext. 12462

Dr. S. Sharma, M.D., F.C.C.P., Professor of Medicine, McMaster University, School of Medicine.
Risk Factors For Delirium: Predisposing

- Dementia
- Psychiatric disorder
- Abnormal sodium level
- Sensory impairment
- Impaired physical functioning
- Male gender
- Medical illness
- Polypharmacy (especially anticholinergics)

Tune LE. Serum anticholinergic activity levels and delirium in the elderly. 
Common Causes of Delirium

- Infections
- Drugs or drug withdrawal
- Metabolic disturbance
- Cardio-respiratory, anemia, shock
- Endocrine
- Neurological / trauma
Drugs Associated With Delirium

• Sedative / hypnotics
• **Narcotics**
• **Anticholinergic drugs**
• Cardiac medications
• H2 blockers (Cimetidine, ranitidine, famotidine, nizatidine), metoclopramide
• Miscellaneous (anticonvulsants, steroids, levodopa, lithium)
• Nonprescription drugs (cold preparations, sleep wake preparations)
# Prevalence of Delirium

<table>
<thead>
<tr>
<th>Population</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults &gt;18</td>
<td>0.4%</td>
</tr>
<tr>
<td>Adults &gt;55</td>
<td>1.1%</td>
</tr>
<tr>
<td>Hospitalized elderly</td>
<td>10-40%</td>
</tr>
<tr>
<td>Nursing home residents &gt; 75</td>
<td>??</td>
</tr>
<tr>
<td>Cancer patients</td>
<td>25-40 %</td>
</tr>
<tr>
<td>Terminal illness</td>
<td>Up to 80%</td>
</tr>
</tbody>
</table>

Clinical Course of Delirium

• The duration of symptoms of delirium has been reported to range from less than 1 week to more than 2 months.

• Typically the symptoms of delirium resolve within 10-12 days; however, up to 15% of patients with delirium have symptoms that persist for up to 30 days and beyond.

• Elderly patients with delirium may be more likely to have a prolonged course, with symptom durations frequently exceeding 1 month.
Management-Non-pharmacological

• Treatment of all potentially correctable, contributing causes should be done in a timely, effective manner [D]
  – Maintain cardiovascular stability
  – Temperature control
  – Adequate oxygenation
  – Fluid and electrolyte balance
  – Control glucose levels,
  – Maintain normal elimination pattern (avoiding continuous catheterization)
  – Correct micronutrient deficiencies
Management-Non-pharmacological

• Prevent older persons from harming themselves or others using the least restrictive measures [D]

• **Suggested environmental strategies include:**
  – Avoid sensory deprivation or overload [C]
  – Adequate lighting in room [C]
  – Use of clocks, calendar, chart of day’s schedule [C]
  – Avoid room changes [C]
  – Use of familiar objects [D]
  – Avoid putting delirious patients in the same room together [D]
Pharmacologic Management

- Psychotrophic medications should be reserved those in significant distress due to agitation or psychotic symptoms, in order to carry out essential investigations or treatment, and/or to prevent older delirious persons from endangering themselves or others. [D]

- In the absence of psychotic symptoms causing distress to the patient, treatment of hypoactive delirium with psychotropic medications is not recommended [D]
• Dementia

– an acquired syndrome consisting of a decline in memory and other cognitive functions
Predicted Increase in Alzheimer’s Disease Prevalence by 2050

Based on estimated data for 2006 and 2050

DSM-5 Diagnosis: Major Neurocognitive Disorder

• Significant cognitive decline in one or more domain
• Deficits sufficient to interfere with independence
• Not delirium or attributable to another mental disorder
• NOTE: MCI is termed Mild Neurocognitive Disorder in DSM-5
The 7 A’s of Dementia

The 7 A’s are:

1. **Anosognosia** (no knowledge of illness)
2. **Amnesia** (loss of memory)
3. **Aphasia** (loss of language)
4. **Agnosia** (loss of recognition)
5. **Apraxia** (loss of purposeful movement)
6. **Altered perception** (loss of visual perception)
7. **Apathy** (loss of initiation)
Summary of the evidence on modifiable risk factors for cognitive decline and dementia: A population-based perspective

Matthew Baumgart\textsuperscript{a}, Heather M. Snyder\textsuperscript{b,}\textsuperscript{*}, Maria C. Carrillo\textsuperscript{b}, Sam Fazio\textsuperscript{c}, Hye Kim\textsuperscript{a}, Harry Johns\textsuperscript{d}

\begin{itemize}
  \item \textsuperscript{a}Division of Public Policy, Alzheimer’s Association, Washington, DC, USA
  \item \textsuperscript{b}Division of Medical & Scientific Relations, Alzheimer’s Association, Chicago, IL, USA
  \item \textsuperscript{c}Division of Constituent Relations, Alzheimer’s Association, Chicago, IL, USA
  \item \textsuperscript{d}President & CEO, Alzheimer’s Association, Chicago, IL, USA
\end{itemize}

Abstract

An estimated 47 million people worldwide are living with dementia in 2015, and this number is projected to triple by 2050. In the absence of a disease-modifying treatment or cure, reducing the risk of developing dementia takes on added importance. In 2014, the World Dementia Council (WDC) requested the Alzheimer’s Association evaluate and report on the state of the evidence on modifiable risk factors for cognitive decline and dementia. This report is a summary of the Association’s evaluation, which was presented at the October 2014 WDC meeting. The Association believes there is sufficient evidence to support the link between several modifiable risk factors and a reduced risk for cognitive decline, and sufficient evidence to suggest that some modifiable risk factors may be associated with reduced risk of dementia. Specifically, the Association believes there is sufficiently strong evidence, from a population-based perspective, to conclude that regular physical activity and management of cardiovascular risk factors (diabetes, obesity, smoking, and hypertension) reduce the risk of cognitive decline and may reduce the risk of dementia. The Association also believes there is sufficiently strong evidence to conclude that a healthy diet and lifelong learning/cognitive training may also reduce the risk of cognitive decline.

1. Introduction

An estimated 47 million people worldwide are living with dementia in 2015\cite{1}, and this number is projected to triple by 2050\cite{2}. In the absence of a disease-modifying treatment or cure, reducing the risk of developing dementia takes on added importance. Even when effective treatments become available, risk reduction will likely remain a fundamental strategy in reducing the number of individuals affected; for many non-communicable diseases with available treatments (such as diabetes, cancer, and heart disease), risk reduction efforts remain a major component of the campaigns against these diseases.

As a science-based advocacy organization, the Alzheimer’s Association—the largest voluntary health organization dedicated to Alzheimer’s disease and other dementias—is the global nonprofit leader in Alzheimer’s disease research and the leading resource for more than 5 million individuals living with the disease in the United States and their caregivers. In this role, we are often asked for both expertise and guidance related to risk reduction for Alzheimer’s disease. The Association monitors the science and develops its positions accordingly.

*Corresponding author. Tel.: 312-335-5184; Fax: 866-875-2553. E-mail address: hsnyder@alz.org

http://dx.doi.org/10.1016/j.jalz.2015.05.016

1552-5260/\textcopyright 2015 The Authors. Published by Elsevier Inc. on behalf of the Alzheimer’s Association. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
Fig. 1. Strength of evidence on risk factors for cognitive decline.
Fig. 2. Strength of evidence on risk factors for dementia.
# Using the Dementia Risk Calculator

The Dementia Risk Calculator Doubling Rule
(de la Torre, 2004, Gauthier et al., 1997 and Siu, 1991)

<table>
<thead>
<tr>
<th>Age</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;65 years</td>
<td>1%</td>
</tr>
<tr>
<td>65 years</td>
<td>2%</td>
</tr>
<tr>
<td>70 years</td>
<td>4%</td>
</tr>
<tr>
<td>75 years</td>
<td>8%</td>
</tr>
<tr>
<td>80 years</td>
<td>16%</td>
</tr>
<tr>
<td>85 years</td>
<td>32%</td>
</tr>
</tbody>
</table>

Each additional vascular risk factor approximately **doubles** the risk (One risk factor: risk multiplier is 2; 2 or more risk factors: risk multiplier is 4)

Positive family history **doubles** the risk. (One family member: risk multiplier is 2; 2 or more family members: risk multiplier is 4)

Overall risk = age risk _____% x family hx risk multiplier____x vascular risk multiplier____ = ____%

## Normative Data on MMSE

<table>
<thead>
<tr>
<th>Education</th>
<th>18-24</th>
<th>25-29</th>
<th>30-34</th>
<th>35-39</th>
<th>40-44</th>
<th>45-49</th>
<th>50-54</th>
<th>55-59</th>
<th>60-64</th>
<th>65-69</th>
<th>70-74</th>
<th>75-79</th>
<th>80-84</th>
<th>&gt;84</th>
</tr>
</thead>
<tbody>
<tr>
<td>4th Grade</td>
<td>22</td>
<td>25</td>
<td>25</td>
<td>23</td>
<td>23</td>
<td>23</td>
<td>22</td>
<td>23</td>
<td>22</td>
<td>22</td>
<td>21</td>
<td>20</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>8th Grade</td>
<td>27</td>
<td>27</td>
<td>26</td>
<td>26</td>
<td>27</td>
<td>27</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>28</td>
<td>28</td>
<td>28</td>
<td>28</td>
<td>28</td>
<td>28</td>
<td>27</td>
<td>27</td>
<td>25</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>28</td>
<td>28</td>
<td>27</td>
<td>27</td>
<td>27</td>
</tr>
</tbody>
</table>

Normative scores vary with age and education level!
MMSE
Pros and Cons

• Pros
  – Widely used and therefore can track cognition over time and between clinicians
  – 5-10 minutes.

• Cons
  – False positives: those with little education.
  – False negatives: those with high premorbid intellectual functioning.
MOCA is better for Mild Cognitive Impairment (MCI) Screening
Very Brief Screening

• **Mini-Cog** (Borson et al, 2006)
  - 3 item recall
  - clock test

• **Dementia Quick Screen**
  - Same as above plus:
    Animal Name Generation
Assessment

• Taking the patient’s history
• Interviewing caregiver / family
  - ADLs, Behaviour, Cognition
• Cognitive tests
• Basic lab tests
• Physical examination
• Structural imaging – if certain criteria are met

ref: CCCDTD-3
Assessment of Function is more important than any cognitive test: many tools available

**Has There Been An Effect On Functional Activities?**

<table>
<thead>
<tr>
<th>Instrumental Activities of Daily Living</th>
<th>Independent</th>
<th>Can do with difficulty</th>
<th>Needs some help</th>
<th>Dependent on others</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pay bills/manage finances (forgets to pay bills, pays bills twice)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Plan meals and organize shopping (food spoiled)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Food preparation/Cooking (oven or stove left on, food has “funny” taste, not properly cooked)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. Ability to deal with emergencies (fire, fall, medical emergency, lock outside, power outages)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Manage medication (misses doses, takes too many)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. Transportation (driving issues, gets lost, wandering)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Plan trip and outings</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. Home maintenance</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. Housekeeping/laundry (difficulty using appliances)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10. Ability to carry out hobbies</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11. Telephone use</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activities of Daily Living</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Feeding</td>
</tr>
<tr>
<td>2. Bathing</td>
</tr>
<tr>
<td>3. Grooming (hair, shaving, nails, makeup)</td>
</tr>
<tr>
<td>4. Dressing</td>
</tr>
<tr>
<td>5. Toileting</td>
</tr>
<tr>
<td>6. Transfers</td>
</tr>
<tr>
<td>7. Ambulation</td>
</tr>
<tr>
<td>8. Climbing stairs</td>
</tr>
</tbody>
</table>

(Adapted from the Dementia Tool Box, 2006)

Other resources: (see appendix)
The Modified Physician Self-Maintenance Scale /Instrumental Activities of Daily Living Scale
Lawton-Brody Functional Assessment Questionnaire (FAQ)
SMAF and e-SMAF – e-mail to get French and English copies and information:
luoi@ssss.gouv.qc.ca
If the patient has a history of risk factors for sexually transmitted infections, testing for syphilis and human immunodeficiency virus (HIV) infection should be added. Other testing such as urinalysis, urine culture, and heavy metal screening should be performed when clinical suspicion is high. Lumbar puncture with cerebrospinal fluid analysis may be indicated if there is suspicion of neurosyphilis, HIV infection, cerebral Lyme disease, or vasculitis.

The yield for neuroimaging is low (approximately 5 percent); however, it may be useful in some symptomatic patients. Neuroimaging via computed tomography or magnetic resonance imaging of the brain may detect clinically significant structural lesions that would otherwise be missed. The AGS recommends neuroimaging in patients with any of the following: onset of symptoms before 60 years of age; abrupt onset or rapid cognitive decline (weeks to months); focal neurologic symptoms; or predisposing conditions such as malignancy, HIV disease, or current anticoagulation. Neuroimaging should also be considered if vascular disease, normal pressure hydrocephalus, infection, or subdural hematoma is suspected.

If imaging studies are indicated, magnetic resonance imaging without contrast media is the preferred study. Newer diagnostic methods, such as positron emission tomography (PET) and evaluation of cerebrospinal fluid biomarkers, have been shown to have good diagnostic sensitivity.

One study has shown a significant relationship between levels of cerebrospinal fluid biomarkers, such as beta amyloid and tau protein, and the development of Alzheimer disease and mild cognitive impairment. PET can help differentiate among types of dementia, including frontotemporal dementia. Another study showed PET with Pittsburgh Compound B protocol to accurately measure the amount of amyloid in the brain and predict Alzheimer disease. The implications and benefits of these novel approaches in research settings are straightforward, although their role in clinical medicine is unclear because of issues such as availability, cost, and lack of effective treatment. PET can be considered if differentiation among dementia types would affect management.

**Table 3. Studies Recommended by the American Geriatrics Society for Patients with Suspected Dementia**

<table>
<thead>
<tr>
<th>Laboratory tests</th>
<th>Imaging tests</th>
<th>Tests to consider in patients with specific risk factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium level</td>
<td>Computed tomography or magnetic resonance imaging of the brain if any of the following are present:</td>
<td>Cerebrospinal fluid analysis</td>
</tr>
<tr>
<td>Complete blood count</td>
<td>• Abrupt or rapid decline</td>
<td>Human immunodeficiency virus test</td>
</tr>
<tr>
<td>Complete metabolic panel</td>
<td>• Age younger than 60 years</td>
<td>Lyme titer</td>
</tr>
<tr>
<td>Folate level</td>
<td>• Focal deficits</td>
<td>Rapid plasma reagin test</td>
</tr>
<tr>
<td>Thyroid-stimulating hormone level*</td>
<td>• Predisposing conditions</td>
<td></td>
</tr>
<tr>
<td>Vitamin B₁₂ level*</td>
<td>Consider positron emission tomography if definitive diagnosis will change management decisions</td>
<td></td>
</tr>
</tbody>
</table>

*The only tests routinely recommended by the American Academy of Neurology for all patients with suspected dementia are thyroid-stimulating hormone and vitamin B₁₂ levels.*

Information from references 27 and 28.
Table 1. Key Findings and Suggested Diagnoses in Patients with Cognitive Dysfunction

<table>
<thead>
<tr>
<th>Key findings on history and physical examination</th>
<th>Suggested diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascending paresthesias, tongue soreness, limb weakness, weight loss</td>
<td>Vitamin B₁₂ deficiency</td>
</tr>
<tr>
<td>Broad-based shuffling gait, urinary incontinence</td>
<td>Normal pressure hydrocephalus</td>
</tr>
<tr>
<td>Current use of psychoactive drugs, such as benzodiazepines or anticholinergics</td>
<td>Adverse effects from medication</td>
</tr>
<tr>
<td>Depressed mood, anhedonia, feelings of worthlessness, flat affect, slowed speech</td>
<td>Depression</td>
</tr>
<tr>
<td>Fatigue, cold intolerance, constipation, weight gain, reduced body hair</td>
<td>Hypothyroidism</td>
</tr>
<tr>
<td>Head trauma within the previous three months, headache, seizures, hemiparesis, papilledema</td>
<td>Subdural hematoma</td>
</tr>
<tr>
<td>History of alcoholism, nystagmus or extraocular muscle weakness, broad-based gait and stance</td>
<td>Wernicke-Korsakoff syndrome</td>
</tr>
<tr>
<td>History of high-risk sexual behavior or drug use, hyperreflexia, incoordination, peripheral neuropathy</td>
<td>Human immunodeficiency virus–-associated dementia</td>
</tr>
<tr>
<td>History of high-risk sexual behavior or drug use, hyporeflexia, papillary abnormalities, decreased proprioception</td>
<td>Neurosyphilis</td>
</tr>
<tr>
<td>Recent hospitalization or acute illness, inattention, fluctuating behavioral changes, altered level of consciousness</td>
<td>Delirium</td>
</tr>
</tbody>
</table>

Simmons et al, 2011
Types of Dementia
(mixed not included)

- AD
- Vascular dementias
  - multi-infarct dementia
  - Binswanger’s disease
- DLBD
  - Parkinson’s disease
  - diffuse DLB
  - Lewy body variant of AD
- Other dementias
  - frontal lobe dementia
  - Creutzfeldt-Jakob disease
  - corticobasal degeneration
  - progressive supranuclear palsy
  - potentially reversible dementias

Gersing et al., 1998; Cras, 1998
Amyloid PET Imaging in Aging

Alzheimer’s Disease

Normal Aging (Amyloid Negative)

Normal Aging (Amyloid Positive)

30% of normal older people are amyloid positive

S. Landau, UCB
AD Progression

Pre-symptomatic  eMCI  LMCI  Dementia

Abnormal

Normal

Time

CSF abeta42
Amyloid imaging
FDG PET

MRI hippocampal volume
CSF Tau
Cognitive performance
Function (ADL)
Course of the Disease

MMSE Score

Years

Mild
Mild-Moderate Disease
Severe Disease

Memory loss
Diagnosis
Mood & Behavioural problems
Loss of functional independence
Nursing home placement
Death

MMSE = Mini Mental State Examination

Vascular Dementia – classic features

- Abrupt onset
- Stepwise progression
- Memory problems (not predominant)
- Impaired executive function
- Emotional lability
- History of cerebrovascular risk factors
- Focal neurological signs and symptoms or neuroimaging evidence
Vascular Dementia

Alzheimer’s disease and vascular dementia share common risk factors

- hypertension
- generalized atherosclerosis
- coronary heart disease
- atrial fibrillation
- diabetes mellitus
- hyperlipidemia
- elevated plasma homocysteine
- white matter lesions
- history of stroke

Dementia With Lewy Bodies

• Characterized by 3 core symptoms:
  – Fluctuating cognitive impairment (~80%)
  – Persistent visual hallucinations (>60%)
  – Parkinsonism (65%–70%)

Also:
  – Systematized delusions (~70%)
  – Depression (38%)
  – Neuroleptic sensitivity (>50%)
  – REM Sleep Disorder
Possible bvFTD (at least 3 of following)

- Early behavioural disinhibition
- Early apathy or inertia
- Early loss of sympathy or empathy
- Early perseverative, stereotyped or compulsive/ritualistic behaviour
- Hyperorality and dietary changes
- Neuropsychological profile: executive dysfunction with relative sparing of memory and visuospatial function

Dementia: Care & Management

- Optimal Environment
- Person-Centred Care
- Caregiver education & support / respite
- Psychosocial interventions
- Optimal healthcare
- Pharmacological treatment
Cholinergic Treatment of AD and related dementias

- **Aricept®** (donepezil hydrochloride) – approved 1997
- **Exelon®** (rivastigmine) – approved 2000
- **Reminyl®** (galantamine) – approved 2001

**Note:** Memantine (Ebixa) works on Glutamate receptors (blocks NMDA).
BEHAVIOURAL PROBLEMS
(Responsive behaviours)

• Begin with environmental modification and non-pharmacological approaches

• Monitor and withdraw medications if possible
Responsive Behaviours: Medications

- **Antidepressants** (trazodone, SSRIs e.g. sertraline)
- **Antipsychotics**
  - Atypical (risperidone, quetiapine)

Less often:

- **Benzodiazepines** (lorazepam, clonazepam)
- **Anticonvulsants** (carbamazapine)
Rehabilitating Patients With Dementia Who Have Had a Hip Fracture
Part II: Cognitive Symptoms That Influence Care

Katherine McGilton, PhD, RN; Jennie Wells, MD; Aileen Davis, PhD; Elizabeth Rochon, PhD; Sue Calabrese, MN, RN; Gary Teare, PhD; Gary Naglie, MD; Melissa Biscardi, RN
<table>
<thead>
<tr>
<th>Cognitive symptoms</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory problems</td>
<td>Patient has difficulty remembering information, forgetfulness, and lack of carry-over.</td>
</tr>
<tr>
<td>Loss of spatial orientation</td>
<td>Patient has difficulty finding destinations within the environment (eg, patient cannot find his or her room).</td>
</tr>
<tr>
<td>Loss of recognition</td>
<td>Patient does not recognize caregivers.</td>
</tr>
<tr>
<td></td>
<td>Patient does not recognize objects such as a walker or a toothbrush.</td>
</tr>
<tr>
<td></td>
<td>Patient does not recognize the environment (eg, own room).</td>
</tr>
<tr>
<td>Loss of purposeful movements</td>
<td>Patient is unable to do things on his or her own (eg, dress himself or herself without help, eat independently, start activities on his or her own).</td>
</tr>
<tr>
<td>Language impairments</td>
<td>Patient has difficulties speaking/cannot speak.</td>
</tr>
<tr>
<td></td>
<td>Patient is not able to express needs.</td>
</tr>
<tr>
<td></td>
<td>Patient is not able to understand instructions/commands.</td>
</tr>
<tr>
<td></td>
<td>Patient has lost the ability to read and write.</td>
</tr>
<tr>
<td>Lack of insight or judgment</td>
<td>Patient does not recognize need for therapies.</td>
</tr>
<tr>
<td></td>
<td>Patient attempts self-transfer when not physically able.</td>
</tr>
<tr>
<td>Loss of ability to initiate activities</td>
<td>Patient is not able to start activities/conversations on his or her own without prompting.</td>
</tr>
</tbody>
</table>
Table 3. Proportion of staff who identified a cognitive symptom as interfering with care and who indicated a strategy to minimize the impact of the symptom on care*

<table>
<thead>
<tr>
<th>Cognitive disturbance</th>
<th>Nursing</th>
<th>Allied health</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Memory problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does interfere with care</td>
<td>92 (95.8)</td>
<td>37 (100)</td>
</tr>
<tr>
<td>Reported strategies</td>
<td>45 (49.5)</td>
<td>37 (100)</td>
</tr>
<tr>
<td>2. Lack of insight/judgment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does interfere with care</td>
<td>90 (93.75)</td>
<td>34 (91.9)</td>
</tr>
<tr>
<td>Reported strategies</td>
<td>53 (60.2)</td>
<td>36 (97.3)</td>
</tr>
<tr>
<td>3. Loss of purposeful movement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does interfere with care</td>
<td>88 (91.7)</td>
<td>33 (89.2)</td>
</tr>
<tr>
<td>Reported strategies</td>
<td>40 (45.5)</td>
<td>22 (100)</td>
</tr>
</tbody>
</table>

*Values given are number (percentage).
<table>
<thead>
<tr>
<th>Lack of insight/judgment</th>
<th>( n = 94 )</th>
<th>( n = 95 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relational approaches</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Reminders (visual and verbal)</td>
<td>15</td>
<td>26</td>
</tr>
<tr>
<td>Simple instructions</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Adjust environment</td>
<td>34</td>
<td>15</td>
</tr>
<tr>
<td>Schedule activities</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Continuity</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Family involvement</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Reorient to person, place, and time</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Adjust routines</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Team assist</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Supervise patient</td>
<td>16</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Loss of purposeful movements</th>
<th>( n = 59 )</th>
<th>( n = 59 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relational approaches</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Reminders (visual and verbal)</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>Schedule activity</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Adjust environment</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Physical assistance</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>Breakdown tasks</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Family involvement</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Provide assistive devices</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Adjust routines (ADL retraining)</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Continuity</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Team assist</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Supervise patient</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
Evidence that following a hip fracture, patients with mild to moderate dementia who received rehabilitation show similar relative gains in function to patients without dementia.

More research is needed to determine the effect of rehabilitation following hip fracture in patients who reside in continuing care settings and those with severe dementia.
Included five trials with a total of 316 participants. Four trials evaluated models of enhanced interdisciplinary rehabilitation and care, two of these for inpatients only and two for inpatients and at home after discharge. All were compared with usual rehabilitation and care in the trial settings. The fifth trial compared outcomes of geriatrician-led care in hospital to conventional care led by the orthopaedic team.

- All papers analysed subgroups of people with dementia/cognitive impairment from larger RCTs of older people following hip fracture.
- There is currently insufficient evidence to draw conclusions about how effective the models of enhanced rehabilitation and care after hip fracture used in these trials are for people with dementia above active usual care.
- The current evidence base derives from a small number of studies with quality limitations. This should be addressed as a research priority to determine the optimal strategies to improve outcomes for this growing population of patients.
Can we prevent / delay Dementia?
Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER) study

A proof-of-concept randomised controlled trial assesses a multidomain approach to prevent cognitive decline in at-risk elderly people from the general population.

Double-blind randomised controlled trial; aged 60–77 years
2 year multidomain intervention (diet, exercise, cognitive training, vascular risk monitoring), or a control group (general health advice).

Primary outcome: change in cognition - comprehensive neuropsychological test battery (NTB) Z score.

Screened 2654 individuals and randomly assigned 1260 to the intervention group (n=631) or control group (n=629).

Miia Kivipelto et al. Lancet; Volume 385, No. 9984, p2255–2263, 6 June 2015
INTENSIVE INTERVENTION

NUTRITIONAL COUNSELING:
7 group & 3 individual sessions

PHYSICAL ACTIVITY:
1-2x/wk muscle strength &
1-4x/wk aerobic training

PHYSICAL ACTIVITY:
2-3x/wk muscle strength &
5-6x/wk aerobic training

COGNITIVE TRAINING:
9 group sessions,
Independent training 3x/wk 6mo

COGNITIVE TRAINING:
2 group sessions,
Independent training 3x/wk 6mo

MANAGEMENT OF METABOLIC AND VASCULAR RISK FACTORS
6 nurse visits, 4 physician visits

MINI-INTERVENTION

Follow-up visit

Follow-up visit

Follow-up visit

Follow-up visit

Follow-up visit

Follow-up visit

Follow-up visit

REGULAR HEALTH ADVICE
Cognitive decline can be prevented by implementing lifestyle changes

Results from the FINGER research project show that when people received regular health advice, the risk of cognitive decline was 31% higher than when they received intensive lifestyle guidance.

Higher risk in control group compared to group receiving intensive lifestyle guidance

Overall cognitive function
p = 0.04

Memory function
p = 0.12

Executive function
p = 0.04

Processing speed
p = 0.01

www.thl.fi/fingeren
The Fountain of Health Initiative

www.fountainofhealth.ca

Bringing Seniors’ Mental Health Promotion into Clinical Practice
FoH 5 Key Messages

- Social Activity
- Positive Thinking
- Physical Activity
- Mental Health
- Lifelong Learning
Findings from a strength-based moderate-intensity exercise interventions for individuals with dementia (innovative practice)

Nicole Dawson
Department of Health Professions, University of Central Florida, Orlando, USA

Hayden Gerhart
Department of Kinesiology, Health, and Sport Science, Indiana University of Pennsylvania, Indiana, USA

Katherine S Judge
Department of Psychology, Cleveland State University, Cleveland, USA

Average age 76.6, MMSE 18.8
Excellent treatment adherence. High levels of acceptability and feasibility.
Table 1. Use of implementation techniques based on Strength-Based Approach.

<table>
<thead>
<tr>
<th>Strength-Based Approach technique</th>
<th>Potential barriers</th>
<th>Cognitive strength being used</th>
<th>Example of applied technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keeping it short and simple (KISS)</td>
<td>Frustration; inability to complete activity properly</td>
<td>Procedural memory; language comprehension</td>
<td>Reducing verbal cuing during instructions e.g. “Get up off of the floor” instead of “Roll over on your side and use your right hand and forearm to push up from the floor so you can stand up”</td>
</tr>
<tr>
<td>External memory aids</td>
<td>Poor adherence despite willingness to participate; repetitive questions or demonstration</td>
<td>Simple attention; reading</td>
<td>Use of calendars; use of written instructions for exercises; use of visual cues (spots) for foot placement</td>
</tr>
<tr>
<td>Learning by modeling</td>
<td>Frustration; inability to complete activity properly</td>
<td>Procedural memory; visuospatial functioning</td>
<td>Demonstrating activity with participants instead of relying on verbal cues only</td>
</tr>
<tr>
<td>Allowing IWD to choose activity</td>
<td>Boredom; poor adherence</td>
<td>Procedural memory</td>
<td>Giving IWD choice of two possible activities</td>
</tr>
<tr>
<td>Using familiar activities or hobbies in exercise</td>
<td>Boredom; poor adherence; inability to complete activity properly</td>
<td>Procedural memory</td>
<td></td>
</tr>
</tbody>
</table>

IWD: individual with dementia.
22 RCTs included
Evidence of some cognitive improvement in MCI (executive fn, attention and delayed recall)
No evidence in studies of people with dementia.
Depression: Stressors affecting Elderly

- Physical Illness
- Sensory deprivation
- Retirement
- Poverty and poor living conditions
- Bereavement
- Social isolation
- Loss of roles/status
Spectrum of Depressive Disorders

- Major depressive episode (single or recurrent)
- Persistent Depressive Disorder = Dysthymia
- Mixed anxiety/depressive disorder
- Bereavement
- Adjustment disorder
- Subthreshold depressive disorder
- Bipolar disorder
- Dementia with depression
- Depression associated with another psychiatric or substance use disorder
Major Depression criteria
SIG: e CAPS

- S - Sleep
- I - Interest
- G - Guilt
- E - Energy
- C - Concentration
- A - Appetite
- P - Psychomotor
- S - Suicide
Diagnosis of Depression in the Elderly: Key Messages

- Be vigilant
- Always ask about suicidal feelings
- Be aware of diagnostic criteria
- Remember unusual presentations
- Consider the differential diagnosis (medical and psychiatric)
- Consider biological, psychological and social factors
- Make a diagnosis (DSM-5)
Suicide Risk Factors (1)

• Male gender
• Living alone
• Inadequate social support
• Recent significant loss
• chronic medical illness (esp. pain)
• alcohol abuse
• Cultural acceptability
Suicide Risk Factors (2)

- Past attempt
- Agitation
- Guilt
- Hopelessness
- Low self-esteem
- Hypochondriacal preoccupation
Overall objectives of Treatment

- Resolution of depression
- Reintegration into family and social environment
- Restoration of functioning and social roles
- Prevention of relapse and recurrence
Treatment Options: Antidepressants

- SSRIs (sertraline, citalopram, escitalopram)
- SNRI (venlafaxine, duloxetine)
- 5-HT2 receptor blockers (trazodone)
- NASSA (mirtazapine)
- Bupropion
- Tricyclics (nortriptyline, desipramine)
Choosing an Antidepressant

- Tolerability and Safety
- Potential for drug-drug interactions
- Pharmacokinetics
- Patient’s Previous Response
- Family History
- Risk of Suicide
- Cost
Potential Antidepressant side effects

### CNS
- Insomnia
- Anxiety
- Nervousness
- Increased Sweating
- Seizures
- EPS
- Somnolence
- Asthenia

### Sexual Function
- Decreased libido
- Impotence
- Ejaculation disorder
- Anorgasmia

### GI
- Nausea
- Constipation
- Diarrhea
- Dyspepsia
- Weight Change
- Dry mouth

### Cardiovascular
- Hypertension
- Orthostatic hypotension
- Arrhythmias
Psychological Therapies

• Supportive
• Family
• CBT
• Dynamic
• Self-help programs

• Group vs. Individual
Other Treatments

• Electroconvulsive Therapy (ECT)
• Transcranial Magnetic Stimulation (TMS)
• Phototherapy
• Herbal (St. John’s Wort)
The experiences of physiotherapists treating people with dementia who fracture their hip

AJ Hall, R Watkins, IA Lang, R Endacott and VA Goodwin

3 themes:
Challenges
Need to “think outside the box”
Positive experiences
“It’s always put as a limiting factor “ooh, they’re doing ok, but they have got dementia so they won’t go much further” or .... “they’re not doing very well, it’s ‘cos they’ve got dementia.” (community, physical health)

People with dementia were described as regularly being “written off far too early” (community, physical health) after suffering a hip fracture, frequently without valid reason, but potentially the result of lack of knowledge or experience of treating people with dementia rather than for true physiological reasons. Community based physiotherapists felt that patients were often judged for their potential to improve in an acute setting which was an inappropriate setting to provide physiotherapy. This often prevented them being referred to community based services. Acute physiotherapists also acknowledged the acute setting as being inappropriate for this population, but felt there was no option as they were frequently unable to refer to community based services.
Acute physiotherapists suggested that national guidelines pose unachievable targets for physiotherapists to achieve when treating this population in view of resource limitations and commonly occurring post-operative complications such as delirium.

“You know the NICE guidelines are suggesting that it’s very important to get these people moving as early as possible so there is a recommendation ...... early mobilisation within 24 hours....... which is a ridiculous recommendation for this population anyway.” (In-patient, physical health)
Biomedical v’s person centred care approach
Physiotherapists suggested feeling pressured to comply with unsuitable biomedical assessments and outcomes; however this was the only approach that was taught at undergraduate level. Mental health physiotherapists reported that such biomedical approaches simply were ineffective for this population which led to them needing to change the way they manage this population. The adoption of person-centred care approaches were described commonly by physiotherapists working in a variety of specialities.
Thinking outside the box

“Certainly know their life history. Certainly know their story. What makes sense to them? What is their context? What is their environment? What are they used to? So that you can interpret what they’re saying....” (Outpatient, physical health)

Encouraging the patient to set their own goals if able was deemed important in less acute settings. Physiotherapists tried to adapt interventions to make them meaningful to the patient and enjoyable. This required a significant time investment to learn about the patient and spend time talking to them and their relatives. In acute settings, the goals revolved around discharge planning.
Realising potential
Determining potential was a challenge reported by all physiotherapists, with the term “rehabilitation potential” frequently being used in this context. This is a label that was reported to be used mainly in the acute setting, to classify whether somebody has the potential to improve physically. There was significant disagreement about the value of this label.

Generally in-patient physiotherapists found this label useful as it helped determine the patient’s pathway, although they recognised that it was often poorly used and needed to be justified. Physiotherapists working in mental health and community settings viewed this term less favourably, reporting that it was often applied to a patient too soon and could be very detrimental to future services that were offered to that patient.

“I see a lot of negative labels being used for people with dementia and once that label has been put on, it’s almost like they can’t get rid of it” (in-patient, mental health)
Final Thoughts

- Comprehensive geriatric approach is essential.
- Must get clear picture of pre-morbid level of functioning.
- Important to rule out co-existing delirium or depression and if present actively assess and/or treat.
- Outcomes for people with mild to moderate dementia and hip are generally positive.
- Important to understand cognitive strengths and weaknesses – e.g. the 7 A’s
- Multiple treatment options for depression depending on the type
- Need for more research!