

PRIMARY CARE MANAGEMENT OF THE ELDERLY WITH ALZHEIMER'S DISEASE

by

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A CULMINATING PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF

MASTER OF NURSING – NURSE PRACTITIONER

in

THE FACULTY OF GRADUATE AND POSTDOCTORAL STUDIES

(School of Nursing)

THE UNIVERSITY OF BRITISH COLUMBIA

Vancouver

March/2017

### Abstract

The rising prevalence of Alzheimer's disease (AD) in Canada demands practical and effective management of AD in the primary care setting. Currently, there is no curative treatment available for AD, which makes its management a challenging task. Therefore, this paper aims to consolidate evidence-based clinical recommendations from current literature for family nurse practitioners (FNPs) to implement when managing AD patients. In this literature review, 26 relevant journal articles from CINAHL Complete, MEDLINE with Full Text, and PubMed were examined. The literature review was guided by this question: What should FNPs include in their clinical checklist to provide the best evidence-based care when managing patients with AD? Based on the examined literature, 11 essential quality measures were recommended to be included in the clinical checklist, namely, goals and principles of care, dementia education, cognitive and functional status assessments, safety and driving counseling and assessments, nutrition and diet, pharmacological treatment for cognitive symptoms, behavioural and psychological symptoms and management, concomitant conditions and management, caregiver support, advance care planning and palliative care, and lab and neuroimaging investigations. FNPs and specialists should also review these essential quality measures regularly during the course of disease. In conclusion, the management of AD requires multi-disciplinary involvement and FNPs should follow a systematic management approach when providing family-centred care for AD patients.

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## Primary Care Management of the Elderly with Alzheimer's disease

### Background

Dementia management has been named one of the greatest challenges in health care systems for the elderly population worldwide (Holle et al., 2009; Ihl et al., 2011; Ngo & Holroyd-Leduc, 2015; Nichols et al., 2009; Robinson et al., 2010; Vickrey et al., 2006). The Alzheimer Society of Canada (2016) estimated that in 2016 about 564,000 Canadians were living with dementia and projected that the number will nearly double by 2031. At least 65 percent of Canadians with dementia are women. In 2016, it cost the Canadian health care system approximately \$10.4 billion to provide care for people with dementia. Additionally, about 10 percent of Canadians with dementia are receiving care in hospitals despite the hospital being an impractical setting for care. Unfortunately, there is currently no curative treatment for dementia (Qaseem et al, 2008); therefore, effective care management plans and comprehensive guidelines in primary care settings are significant in reducing the economic burden caused by dementia (Ngo & Holroyd-Leduc, 2015). Notably, early diagnosis of dementia improves management of dementia (Villars et al., 2010). Villars et al. (2010) found that primary care providers lack knowledge of dementia. Specifically, Aminzadeh, Molnar, Dalziel, and Ayotte (2012) found that Canadian primary care providers delay dementia diagnosis due to low confidence in their ability to identify the subtypes of dementia and to make an accurate diagnosis. There are various subtypes of dementia and each subtype has its own unique clinical features. Therefore, NPs would improve in providing ongoing care for patients with dementia when they have more knowledge and understanding all the main subtypes of dementia.

## Subtypes of dementia

Dementia is a syndrome featured by cognitive denegeration that mainly disrupts the activities of daily living, including social and occupational functions (Qaseem et al., 2008; Walter, Edwards, Griggs, & Yehle, 2014). Dementia can cause a decline in physical functioning which usually progresses to future disabilities. Though Alzheimer's disease is the most common type of dementia, dementia can present in many forms.

### *Alzheimer's disease*

Alzheimer's disease (AD) is an irreversible and gradual developing brain disorder due to a permanent loss of neurons and neuronal synapses (Walter et al., 2014). The loss of neurons can be due to having a buildup of plaques extracellularly and/or fibres intracellularly. AD patients also have a decrease in acetylcholine, which is a neurotransmitter important for learning and memory functions. Walter, Edwards, Griggs, and Yehle found that family history and age over 65 are high risk factors for the development of AD. With each diagnosed family member, an individual has a 30 percent increased risk for developing AD. In fact, the first criterion of AD is the presence of AD in family history or a known genetic familial mutation (American Psychiatric Association, 2013). Other criteria include gradual onset of cogntive changes, impairment that results in significant functional deficit in daily activities, symptoms that have no mixed etiologies, and, most crucially, two impaired cognitive domains (Guidelines & Protocols Advisory Committee, 2016). The cognitive domains are comprised of language, visual-spatial function, execution function, and memory. Memory is the most common impaired domain.

### *Mild cognitive impairment*

Mild cognitive impairment (MCI) is considered a transitional diagnosis for patients who display cognitive impairment without meeting all the diagnostic criteria for dementia (Galluzzi, Sheu, Zanetti & Frisoni, 2005). Therefore, a physician may diagnose a patient with MCI when the patient does not meet the full criteria either because the patient only has one impaired cognitive domain or because the cognitive deficits are not considerably affecting daily activities. According to the American Psychiatric Association (2013), the cardinal features of MCI include the presentation of memory and learning deficit, and insidious decline with short plateaus with no other known causes such as a history of cardiovascular accidents.

#### *Dementia with Lewy bodies*

Dementia with Lewy bodies (DLB) is a newer diagnosis and affects about seven out of 1000 individuals over the age of 65 (McKeith et al., 2005). In comparison, AD has an incidence of 10 out of 1000 for the same age group. This type of neurodegenerative disorder mostly affects the male population whereas AD is gender neutral. DLB is similar to Parkinson's disease dementia (PDD) so patients are often misdiagnosed because both forms of dementia present motor symptoms. This is because the dopaminergic pathway is involved and dopamine is found to be decreased in both DLB and PDD. The differentiating factor is the chronology of symptom presentation. Patients with DLB will have cognitive deficits before experiencing motor deficits (American Psychiatric Association, 2013). In addition, DLB involves the multitude of Lewy body proteins in the neuronal synapses affecting the midbrain, brainstem, and frontotemporal lobes. DLB patients also experience involuntary nervous system effects above motor symptoms (Walter et al., 2014). The cardinal features according to DSM-5 include recurrent visual hallucinations, fluctuating cognition and alertness, and cognitive symptoms such as memory loss

before spontaneous parkinsonism (American Psychiatric Association, 2013). The common features are sleep disturbance with rapid eye movement and severe sensitivity to antipsychotic drugs.

### *Parkinson's disease dementia*

Parkinson's disease dementia (PDD) is slightly more common than DLB with a prevalence of eight out of 1000 individuals in those over the age of 80 (Barton et al., 2012). Males are slightly more at risk than females, with about 1.5 times greater risk; however, unlike AD, family history has no association with increased risk of PDD. Pathophysiologically, PDD is a brain disorder where neurons lose the capacity to produce dopamine, resulting in motor dysfunction, and Lewy bodies are specifically found in the midbrain only (Walter, Edwards, Griggs, & Yehle, 2014). The cardinal feature of PDD is the diagnosis of Parkinson's disease at least one year prior to the experience of cognitive impairment. The main sign and symptom is tremor. Clinical manifestations that support the diagnosis of PDD include mood disorders, delusions, hallucinations, apathy, severe daytime drowsiness, and sleep disturbances with rapid eye movement (American Psychiatric Association, 2013). In later stages of PDD, the afflicted individuals will experience slowness of thoughts, which is known as bradyphrenia (Walter, Edwards, Griggs, & Yehle, 2014).

### *Vascular dementia*

Following AD, vascular dementia (VD) is the second most common subtype of dementia (Wong, Gilmour, & Ramage-Morin, 2016). VD makes up 10 to 20 percent of all cases of dementia in developed countries (Lobo et al., 2000). According to Wright (2017), three main

pathologies are considered to be contributive to VD, namely, small arterial infarctions, large arterial infarctions and chronic subcortical ischemia. There are various clinical features in VD given that the contributing pathologies lead to different clinical patterns. Patients afflicted by small arterial infarctions and chronic subcortical inschemia usually exhibit subcortical syndrome that includes focal motor signs, gait disturbances, urologic disease, mood or personality changes, and cognitive decline in memory and executive function. Large arterial infarctions affect the cortical branch; therefore, the cognitive features are dependent on the lobes affected. The clinical presentation will be very similar to the presentation induced by a stroke. For example, aphasia, agnosia, or apraxia may present if the left parietal lobe is affected. For patients suspected of VD, Wright (2017) recommends performing magnetic resonance imaging to look for subcortical infarctions, subcortical ischemic changes, and cortical infarctions. However, magnetic resonance imaging cannot be used alone for diagnostic purposes. For diagnosing VD, the Hachinski Ischemic Score (HIS) may be used. HIS was first created to distinguish VD from AD and is comprised of 13 various possible clinical features of VD. Each clinical feature may score one or two points. The clinical features with two points include abrupt onset, fluctuating course, history of stroke, focal neurologic symptoms, and focal neurologic signs. HIS has about a 90 percent sensitivity and specificity for VD if the individual scores more than six out of the possible 18 points.

### *Frontotemporal dementia*

Frontotemporal dementia (FD) is the least common subtype of dementia (Wong, Gilmour, & Ramage-Morin, 2016). It is more common in individuals younger than 65 years old



and has a mean age of onset of 58 (Lee & Miller, 2017). FD is considered a heterogeneous degenerative disorder since the patients will present with behavioural, personality, and verbal disturbances along with focal frontotemporal lobar degeneration. This subtype of dementia has a high hereditary link; about ten to 25 percent of patients diagnosed with FD follow an autosomal dominant pattern. Furthermore, approximately 40 percent of FD patients have a history of mental health. The cardinal features include apathy, loss of empathy, disinhibition, compulsiveness, and increased appetite. Since only about 60 percent of FD patients show focal frontal or temporal atrophy as FD progresses, neuroimaging such as magnetic resonance imaging should only be used as supportive evidence.

#### Scope of Nurse Practitioner practice in British Columbia

According to the College of Registered Nurses in British Columbia (CRNBC) (2015), Nurse Practitioners (NPs) have the autonomy to suspect a diagnosis of AD or other forms of dementia but must consult with a physician to confirm the actual diagnosis and management plan. Once the diagnosis is confirmed, the NP may refer the patient to the appropriate physician, request a physician to share the responsibility of managing the patient, or assume the main responsibility for the patient's plan of care. In addition, under the regulation of CRNBC, NPs may prescribe anti-dementia medications and independently perform relevant advanced assessments such as cognitive assessments (College of Registered Nurses in British Columbia, 2016). However, in order for an NP to conduct the functional section of the financial incapability assessment, the NP must prove successful completion of the Ministry of Health course called *A Guide to the Certificate of Incapability Process under the Adult Guardianship Act* (Ministry of

Health, Public Guardian and Trustee of British Columbia, Ministry of Justice, & Health Authority, 2016).

### Limitations in the current BC Guideline

In 2016, the Ministry of Health in British Columbia revised their guideline for cognitive impairment that focuses on AD management in primary care. Though the guideline provides various pertinent general care components to discuss with patients diagnosed with AD and their caregivers during office visits, the list does not provide a systematic or structured management of AD. In fact, the suggestions given are far too general, which makes them difficult to apply and implement in the clinical setting. For example, under “Medication Management” the guideline suggests using “blister packages or dosette trays” and monitoring medication “through Home & Community Care” (Ministry of Health, 2016, p. 5). However, the guideline does not indicate how often to monitor a patient’s medication regimen during the course of disease. In fact, the BC Guideline does not provide monitoring frequency for any item listed under “General Care and Support for Community Dwelling Patients” (p. 5). In addition, the BC Guideline does not offer guidance in when to involve other interdisciplinary professionals. For instance, the BC Guideline only generally suggests to involve allied health professionals for specialty services. According to Heckman et al. (2016), primary care providers have a lack of understanding of their roles and responsibilities in dementia management and when to refer their patients to specialty services. Heckman et al. urges primary care providers to understand the importance of integrative dementia care, since effective collaboration among health care professionals improve care. Therefore, current NPs in British Columbia would benefit from following a more systematic and specific checklist when managing a patient with dementia in the office.

### Rationale for project

Clinical practice guidelines become crucial tools that provide evidence-based assistance to NPs; however, current clinical practice guidelines on the management of dementia are varying in quality (Ngo & Holroyd-Leduc, 2015). Since dementia is known to require long-term management, research articles suggested a systematic and structured primary care management plan in order to meet the needs of the patients and their caregivers (Robinson et al, 2010; Ngo & Holroyd-Leduc, 2015). In addition, current literature showed that primary care providers are poorly trained to deal with a patient's dementia related behaviour problems (Cohen-Mansfield, Jensen, Resnick, & Norris, 2012). Correspondingly, Daniel, Upshaw, Plank, and Nunnelee (2014) indicated that about half of their sample nurse practitioners felt uncomfortable and unfamiliar with techniques in either screening, diagnosing, or managing patients with dementia. Therefore, this culminating project aims to improve dementia management for novice family nurse practitioners in the primary care practice by synthesizing current practice recommendations based on dementia guidelines and relevant articles.

### Scope of project

In order to integrate the current evidence-based practice recommendations into practical guidelines for FNPs, this project aims to create a checklist that incorporates the principal goals of dementia care based on an extensive literature review. The checklist will solely focus on AD due to the expansive nature of dementia care and because AD is the most common subtype of dementia. The checklist will consist of various components pertinent to the needs of both the patients affected and their caregivers. Furthermore, since FNPs cannot diagnose dementia, the

checklist will focus solely on the management part of AD care and will not include the screening or early diagnosis of AD. This will allow the checklist to be concise and user-friendly and therefore improve guideline adherence.

### Research question

This literature review aims to answer the following question: What should NPs include in their clinical checklist to provide the best evidence-based care when managing patients with AD? This paper focuses on NPs since they might assume care for patients diagnosed with AD. After a thorough literature search, this paper will synthesize and interpret the findings, and then discuss possible implications to nurse practitioners' practice.

### Search strategy

This literature review followed a methodical approach to generate relevant literature. To scout out all pertinent articles regarding Alzheimer's management in primary care, the literature search used three leading scholarly databases, namely, CINAHL Complete, MEDLINE with Full Text, and PubMed. The refined keywords and subject headings included the following 21 terms in various combinations: family practice, nurse practitioner, family practitioner, primary care, primary health care, primary care practitioner, primary care provider, general practitioner, geriatric, frail elderly, aged, elderly, Alzheimer's disease, Alzheimer's, Alzheimer's dementia, dementia, dementia therapy, dementia management, disease management, practice guidelines, and guidelines. In order to include only the most up-to-date evidence-based practices, the search range included studies dated from 2008 to 2017. The search strategy applied strict limiters and articles were included if the following criteria were met: full text, academic journals, peer

reviewed, primary research, population aged 65+, and written in the English language. This preliminary database search led to a thorough review of 164 abstracts. The journal articles included relevant recommendations for practical management of AD in the primary care setting. Papers that focused mainly on the screening or diagnosis of AD were excluded from the review. In the end, this search strategy resulted in the 26 journal articles used in the literature review.

### Literature review

Of the 26 journal articles included in this literature review, there were eight qualitative studies, seven literature reviews, six systematic reviews, two retrospective cohort studies, one national guideline, one quantitative study, and one cluster-randomized trial. The 26 journal articles recommended 11 essential quality measures to include when managing AD in primary care setting.

#### *Establishing the goals and principles of care*

The literature unanimously identified that one of the key themes to establish and discuss with AD patients and their caregivers is the goals and principles of care (Dyer et al., 2016; Edwards, Voss, & Iliffe, 2014; Fox et al., 2014; Howard & Westerby, 2011; Robinson et al., 2010). Edwards, Voss, and Iliffe (2014) performed a qualitative study on the importance of person-centredness in primary care. The study revealed that it is essential to consider the patient's residual abilities and to emphasize maintaining independence in dementia. The Australian guideline indicated that primary care providers should place high importance on providing person-centred care that recognizes the needs and preferences of the individual and family (Dyer et al., 2016). The patient's own unique character and life circumstances influences

his or her understanding and management of AD (Howard & Westerby, 2011; Spenceley, Sedgwick, & Keenan; 2015). Howard and Westerby (2011) found that individuals with dementia may take on either of two coping approaches in dealing with dementia. Some individuals may adopt the “self-adjusting style” which is characterized by amplified emotions while seeking help and being conscious of ongoing cognitive changes. In contrast, others may display blunted affect with minimal emotions and responses while continuing to live their lives “as per usual”, which is the “self-maintaining style”. Howard and Westerby concluded that the reason individuals diagnosed with dementia may feel fear and negativity towards their diagnosis is the association of dementia to loneliness, abuse, and devaluation by others. Therefore, to avoid having a patient experience self-stigmatisation, providers should realize the importance of tailoring a care plan together with the patient (Robinson et al., 2010). Providers should also emphasize the ongoing opportunity to review and revisit any issue as needed (Howard & Westerby, 2011). This type of communication shows individuals with AD that they are included and crucial to their plan of care. Once trust and dignity in care is established, Dyer et al. (2016) suggested that providers communicate with their patients about the three permanent goals to dementia management, namely, “improving quality of life, maintaining function and maximising comfort” (p. 7). Though these three goals will not change, individualized and particular goals may change as the disease progresses.

### *Education on dementia*

Though NPs cannot diagnose patients with AD (College of Registered Nurses in British Columbia, 2015), providing education on dementia to the patient and care givers is one of the essential quality measures in AD management (Dyer et al., 2016; Heckman et al., 2016).

Following the diagnosis of dementia, the NP should ensure that the patient has written and verbal

information about dementia (Dyer et al., 2016). Both types of information should consider the patient and family members' cultural and linguistic diversity. Consequently, written information should be in an easily accessible format, require literacy of less than fifth grade level and, if available, in the patients' own language. For the elderly, written information should be offered in large print. Information about dementia should include epidemiology, etiology, heredity, signs and symptoms, disease course and prognosis, treatments, and available community services (Dyer et al, 2016; Heckman et al., 2016). However, Grossberg et al. (2010) suggested that providers should avoid providing too much information in one session. Patients and their families may need several visits after their diagnosis to address their questions regarding dementia. For that reason, providers should offer written information to help consolidate a patient's understanding of dementia. In addition, since not all internet resources are reliable, providers should direct their patients and family members to trustworthy and well-established websites to ensure that no misconceptions are harboured. Grossberg et al. found that it is crucial for providers to address any mistaken beliefs or misconceptions early on. For example, some common myths include "dementia is part of normal aging" or "dementia treatment does not work". At the very least, Grossberg et al. recommended discussion of the patient's current stage of dementia and the projected changes during the next six months.

### *Cognitive & functional status assessments*

According to systematic reviews by Ngo and Holroyd-Leduc (2015) and Villars et al. (2010) and qualitative studies by Murphy et al. (2014) and Boustani et al. (2011), primary care providers should use a standardized cognitive assessment, such as the Mini-Mental Status Examination (MMSE), as part of the regular re-evaluation of their patients as dementia progresses. Villars et al. (2010) proposed that the Activities of Daily Living scale (ADLs),

Instrumental Activities of Daily Living scale (IADLs), MMSE, or General Practitioner of Assessment of Cognition (GPCOG) should be used in the primary care setting to monitor functional and cognitive statuses. However, despite the prevalent use of MMSE in the primary care setting, Ngo and Holroyd-Leduc (2015) and Allan, Berhman, and Ebmeier (2013) found that the Montreal Cognitive Assessment (MoCA) was ranked above the MMSE. MoCA has higher specificity and sensitivity than MMSE (Ngo & Holroyd-Leduc). In fact, Ihl et al. (2011) recommended not using the MMSE to monitor the course of dementia or to measure the effects of treatment. Ihl et al. found that the MMSE has many flaws and variability; therefore, it is not precise in finding the efficacy of interventions. Heckman et al. (2016) and Odenheimer et al. (2013) recommended re-evaluating cognitive and functional statuses at least every 12 months while Villars et al. (2010) stated that many European guidelines proposed every three months as being reasonable. Odenheimer et al. (2013) further recommended that patients with dementia be reassessed at least every 12 months to determine their current stage of dementia: mild, moderate, or severe. Therefore, in following Odenheimer et al.'s recommendation, NPs should refer their patients with AD to a dementia specialist or geriatrician for reassessments at least every 12 months. Dyer et al. (2016) recommended that NPs refer their patients back to a dementia specialist or a specialized dementia clinic six to 18 months after the initial diagnosis to monitor any cognitive and functional changes to rule out other subtypes of dementia.

Furthermore, when using cognitive tests such as the MMSE, MoCA, GPCOG, ADLs, or IADLs as monitoring tools, NPs should interpret the results cautiously since some of the tests have low validity. However, Moore, Patterson, Lee, Vedel, and Bergman (2014) recommended that NPs assess their patients for comorbidities and review the patients' pharmacological regimen when there is a decline of three or more points on the MMSE in a six month period.



*Safety & driving counseling and assessments*

There is a consensus in the literature that safety and driving risks are issues that require ongoing counselling and assessments when managing patients with AD (Grossberg et al., 2010; Murphy et al., 2014; Ngo & Holroyd-Leduc, 2015; Odenheimer et al., 2013; Parmar et al., 2014). Both Odenheimer et al. (2013) and Heckman et al. (2016) suggested performing a safety and driving risk assessment as well as counselling at least every 12 months. In British Columbia, patients who are 80 years old or older require a driver medical examination report every two years (Ministry of Public Safety and Solicitor General, 2016). However, when a patient has known cognitive impairment, it is recommended that a cognitive function test be administered every year or whenever there is a significant clinical decline in a patient's cognition. When the results of the cognitive function test leads to concerns about a patient's ability to drive, NPs are to report their findings to RoadSafetyBC.

A safety risk assessment may include evaluating any home safety risks from smoking or cooking and any hazardous behaviours such as wandering. Grossberg et al. (2010) advised providers to be proactive in addressing safety issues before they happen. For home safety interventions, Howard and Westerby (2011) and Grossberg et al. (2010) suggested considering the use of assistive technologies such as home alarm systems, home control systems, gas detectors, running water detectors, and remote health monitoring systems to ensure their patient's safety at home. Providers should consider involving occupational therapists who may help provide further assessments and recommendations to address their patient's daily needs and concerns.

Financial safety is also an important aspect to assess. Heckman et al. advised that providers should ensure patients are comfortable with their current financial management and are

not under financial abuse. Potential interventions recommended by Grossberg et al. (2010) included recruiting the patient's bank's assistance in monitoring for financial safety or notifying the patient's financial planners of their diagnosis. However, these financial safety interventions will require the patient's or power of attorney's permission to respect the patient's confidentiality.

For driving counselling sessions, providers should discuss the risks of driving and possible alternatives, such as public transit or taxis. Grossberg et al. (2010) recommended having a discussion about driving during the early stages of AD and revisiting this subject in subsequent visits since the topic can be contentious. Grossberg et al. suggested helping patients set conditions on when they can drive to ease the transition to not driving at all. For example, providers may encourage driving only during daytime or low traffic hours, on good road conditions or familiar routes, or with a passenger who has a driver's license. A patient's driving ability should be evaluated based on RoadSafetyBC's guidelines (Ministry of Public Safety and Solicitor General, 2016). NPs have the responsibility of reporting any driving safety concerns they may have to RoadSafetyBC by submitting a *Driver's Medical Examination Report* or *Report of a Condition Affecting Fitness and Ability to Drive* form (Ministry of Public Safety and Solicitor General, 2016; Ngo & Holroyd-Leduc, 2015).

Medication safety is also a prevailing issue. Heckman et al. suggested encouraging patients to manage their medication regimen by using blister packs or by requesting home delivery. In addition, providers should regularly review medication regimens with their patients and caregivers to ensure they are being taken correctly.

*Nutrition & diet*

Nutritional complications are increasingly prevalent in dementia and are an important quality measure for primary care providers in managing patients with AD (Dyer et al., 2016; Jansen et al., 2015). Among all nutritional complications in dementia, Jansen et al. (2015) found that weight loss and malnutrition are the most common. Therefore, it is recommended that providers routinely monitor their patients' weight and nutritional status (Dyer et al., 2016). Villars et al. (2010) recommended using the Mini Nutritional Assessment (MNA) for assessing a patient's nutritional status. In addition, Heckman et al. (2016) and Odenheimer et al. (2013) recommended reassessing a patient's nutritional status at least every 12 months.

The challenges in managing a patient's malnutrition include ongoing issues with forgetting to eat, inability to identify foods, not remembering how to use utensils, and difficulties with swallowing (Jansen et al., 2015). Depending on the stage of dementia, Jansen et al. (2015) recommended various potential interventions. For example, in the early stages, patients with dementia may benefit from a caregiver's assistance in cooking and preparing meals. As the disease progresses, patients may need more assistance, monitoring, and encouragement for self-feeding during meal times. To promote adequate nutritional intake, caregivers are encouraged to follow a consistent meal schedule, use music, eliminate distractions, eat together, provide finger foods, and space meals throughout the day. In later stages of dementia, caregivers may be vigilantly monitoring patients during meal times to prevent aspiration or involved in family meetings with primary care providers or specialists regarding palliative feeding options. Tube-feeding is not recommended as a long-term feeding option for severe dementia; in fact, it should be discouraged (Dyer et al., 2016; Ngo & Holroyd-Leduc, 2015). In addition, Dyer et al. (2016) recommended a referral to a dietician and speech language pathologist if a patient is suspected of undernutrition. Dyer et al. also indicated that dental health is an integral part of nutritional

management. Patients with dementia should be referred to a dentist for consultation and a long-term management plan. Currently, there is no rigorous evidence to support specific types of nutrients to reduce cognitive decline in patients with AD (Jansen et al., 2015). However, Jansen et al. (2015) found that diets with lower saturated fats and cholesterol as well as adequate intake of vitamin B, antioxidants, and folate are associated to reduced risk of developing dementia.

### *Pharmacological treatment of cognitive symptoms*

Despite the fact that current pharmacotherapy cannot cure dementia or effectively stop its progression, the literature unanimously included pharmacological treatment of cognitive symptoms as part of AD management (Boustani et al., 2011; Burock & Naqvi, 2014; Dyer et al., 2016; Grossberg et al., 2010; Heckman et al., 2016; Howard & Westerby, 2011; Ihl et al., 2011; Moore, Patterson, Lee, Vedel, & Bergman, 2014; Nichols et al., 2009; Ngo & Holroyd-Leduc, 2015; Odenheimer et al., 2013; Qaseem et al., 2008; Villars et al., 2010; ). An acetylcholinesterase inhibitor (ACEI) is recommended as an option in managing cognitive symptoms in patients with AD (Burock & Naqvi, 2014; Dyer et al., 2016; Howard & Westerby, 2011; Moore et al., 2014; Ngo & Holroyd-Leduc, 2015). ACEIs prevent the breakdown of acetylcholine, which is an essential neurotransmitter for memory and thinking that neurons use to intercommunicate. Current FDA-approved ACEIs include donepezil, galantamine, and rivastigmine (Burock & Naqvi, 2014). In general, donepezil, galantamine, and rivastigmine are used to reduce cognitive decline in mild to moderate AD patients, though these three ACEIs may also be used in severe AD (Allan, Berhman, & Ebmeier, 2013). Memantine is approved for moderate to severe AD especially when patients cannot tolerate or have contraindications to ACEIs. Memantine is an N-methyl-d-aspartate receptor antagonist (NMDARA) (Burock & Naqvi, 2014). Memantine blocks a neurotransmitter called glutamate, which is important for learning and memory (Howard &

Westerby, 2011). However, high levels of glutamate causes overstimulation of neurons, neuron deaths, and even brain damage.

The reason ACEIs are only considered as an option is that current evidence proving their effectiveness is rated as low grade quality (Dyer et al. 2016). The evidence for memantine treatment for moderate to severe AD is rated as moderate grade quality; while, the combination of memantine and an ACEI to treat moderate to severe AD is considered low grade quality evidence (Dyer et al., 2016). Qaseem et al. (2008) found that donepezil, galantamine, rivastigmine, and memantine showed statistical significance in improving the progression and outcomes of dementia; however, they failed to show clinical importance. Ihl et al. found that these FDA approved anti-dementia medications are modestly effective in improving symptoms for a short time period and for a small sample size. In addition, most of these drugs were not under research trials for longer than one year (Ihl et al., 2011). Therefore, Ihl et al. suggested that providers should consider the use of anti-dementia drugs based on three factors, namely, the signs and symptoms, the drug's tolerability, and cost-effectiveness. Furthermore, Dyer et al. (2016) cautioned that both medical and nurse practitioners should be mindful of the numerous adverse effects associated to ACEIs. Most adverse effects are gastrointestinal-related, namely, nausea, vomiting, anorexia, and diarrhea. However, there are also other adverse reactions such as dizziness, muscle cramps, falls, weight loss, insomnia, urinary incontinence, urinary frequency, fatigue, nightmares, gastrointestinal bleeding, seizure, exacerbation of pulmonary diseases, symptomatic bradycardia, and syncope (Burock & Naqvi, 2014; Dyer et al., 2016). To help reduce gastrointestinal intolerability, Burock and Naqvi (2014) suggested that providers consider prescribing rivastigmine, which is in a transdermal formulation. Memantine also has many

adverse effects that include headache, dizziness, fatigue, constipation, and worsening of behavioural symptoms related to AD.

Although NPs currently cannot prescribe anti-dementia medications, they do manage pharmacological interventions, which includes monitoring its tolerance and efficacy. (College of Registered Nurses in British Columbia, 2016), Odenheimer et al. (2013) and Heckman et al. (2016) recommended reviewing patients' neuropsychiatric symptoms at least every 12 months when on pharmacological interventions. Moore, Patterson, Lee, Vedel, and Bergman (2014) suggested a closer monitoring of patients when starting or adjusting doses to observe any cognitive changes. Moore et al. recommended assessing patients at least every one to three months. Grossberg et al. (2010) recognized the benefit of frequent visits since patients or family members may discontinue medication prematurely due to unrealistic expectations. Therefore, though it is the duty of the prescriber, NPs should review the therapeutic objectives of the medications, possible adverse effects, and potential benefits with their patients and caregivers (Villars et al., 2010). Patients and family members may not consider a slower cognitive, behavioural, and functional decline as obvious improvements; however, research showed that treated patients have an improved course of disease in comparison to those left untreated (Grossberg et al., 2010). Burock and Naqvi (2014) found that nursing home admission is delayed when patients are on ACEI treatment for at least six months. Also, ongoing ACEI or NMDARA treatment for more than one year is linked to reducing caregiver time by one hour per day. In addition, Burock and Naqvi found that patients may experience subacute cognitive decline when they suddenly stop taking anti-dementia medications. Ngo and Holroyd-Leduc (2015) and Allan, Behrman, and Ebmeier (2013) did not recommend routine use of herbs, supplements, and other

pharmacotherapy such as ginkgo biloba, vitamin B12, vitamin E, or statin as part of the dementia management plan.

### *Behavioural & psychological symptoms & management*

Since behavioural and psychological symptoms (BPSs) are common in AD, the literature had consensus in including BPSs in the AD management plan (Boustani et al., 2011; Buhagiar, Afzal, & Cosgrave, 2011; Dyer et al., 2016; Heckman et al., 2016; Ihl et al., 2011; Ngo & Holroyd-Leduc; 2015; Moore et al., 2014; Villars et al., 2010). Common BPSs may include agitation, aggression, disinhibition, anxiety, depression, psychosis, nocturnal confusions, pacing, wandering, apathy, inappropriate activities, and appetite changes (Howard & Westerby, 2011; Ihl et al., 2011). Robinson et al. (2010) found that among the dementia population, between 20 to 90 percent will develop BPSs as dementia progresses. Hence, Heckman et al. (2016) and Odenheimer et al. (2013) recommended assessing and counselling on BPSs at least every 12 months. Moore et al. (2014) and Ngo and Holroyd-Leduc (2015) suggested that once BPSs are identified, re-evaluations of BPSs should occur in three month intervals. Howard and Westerby (2011) believed that most BPSs are better managed using a non-pharmacological approach. Ihl et al. (2011) agreed that psychotherapies should be used as first line treatment for BPSs while pharmacological treatments should be reserved for urgent measures. Among the psychotherapies, cognitive behavioural therapy (CBT) is a promising standard psychotherapy that may help patients with mild to moderate AD in resolving their depressive and negative thoughts (Robinson et al., 2010). Robinson et al. (2010) recommended cognitive stimulation therapy to improve a patient's cognitive function and as a consequence caregivers' the mental health. However, Ngo and Holroyd-Leduc (2015) did not recommend cognitive stimulation programs because of the questionable evidence regarding their cost-effectiveness and the lack of consensus among

guidelines. Multi-facet interventions that involve caregivers have the most successful results and may reduce nursing home admissions (Dyer et al., 2016; Robinson et al., 2010). Howard and Westerby (2011) suggested involving the multidisciplinary team to formulate a non-pharmacological care plan specifically for BPSs management and incorporating music therapy, dance therapy, aromatherapy, pet therapy, or multi-sensory stimulation therapy as part of the management plan.

Literature supports using pharmacotherapies when psychotherapies have failed, when patients or caregivers are in distress, or to prevent immediate risk of harm to the patient or others (Burock & Naqvi, 2014; Dyer et al., 2016; Ngo & Holroyd-Leduc; 2015). BPSs are associated with an overall deterioration of the patient's afflicted functions and have major deleterious effects on the caregivers' quality of life. However, the use of pharmacotherapies to treat BPSs is associated with increased mortality rate and the potential adverse effects from the use of antipsychotics. Some of these effects from the antipsychotics and benzodiazepines, which are commonly used to treat BPSs, include extrapyramidal syndromes and an increased risk of cardiovascular events and hospitalization rates associated with drug-induced delirium (Howard & Westerby, 2011; Moore et al., 2014). Consequently, Moore et al. (2014) recommended discussing the risks and benefits of pharmacological interventions to treat BPSs with the patient and family members prior to using them. The literature advised starting the medication on the lowest effective dose for the short term with slow titration, frequent re-evaluation, and discontinuation if ineffective (Allan, Behrman, & Ebmeier, 2013; Burock & Naqvi, 2014; Ngo & Holroyd-Leduc, 2015; Villars et al., 2010). Antipsychotics should be used strictly for the management of psychotic symptoms or aggressive behaviours that impose harmful risks (Burock & Naqvi, 2014). Currently, there are no medications approved by the FDA to treat dementia-



related BPSs (Burock & Naqvi, 2014). However, second or third generation antipsychotics such as risperidone, olanzapine, and aripiprazole are recommended over first generation antipsychotics (Burock & Naqvi, 2014; Ngo & Holroyd-Leduc, 2015). Nonetheless, nurse practitioners should thoroughly identify and treat medication-induced conditions that may mimic or contribute to symptoms similar to BPSs such as delirium, pain, depression, physical health or psychosocial changes, poor communication, hunger, and infections (Dyer et al., 2016; Grossberg et al., 2010; Howard & Westerby, 2011; Ngo & Holroyd-Leduc, 2015).

### *Concomitant conditions management*

Various concomitant conditions related to AD are considered an important quality measure to manage throughout the disease course of AD (Heckman et al., 2016; Wong, Gilmour, & Ramage-Morin, 2016). According to Wong, Gilmour, and Ramage-Morin (2016), 63 percent of people with dementia have incontinence, 53 percent have hypertension, 35 percent have heart diseases, and 24 percent have diabetes. In addition, Heckman et al. (2016) found that depression is often associated with dementia despite patients having no past history of mood disorder prior to their diagnosis of dementia. Hence, Odenheimer et al. (2013) recommended screening for depression in patients diagnosed with AD at least every 12 months. Also, based on Cook et. al's retrospective cohort study (2015), patients with AD have an increased risk of hemorrhagic stroke and seizures when compared to the general population, particularly for patients under the age of 80. Current literature that was perused did not provide any non-pharmalogical or pharmalogical interventions for the management of incontinence, hypertension, heart diseases, diabetes, seizures, or hemorrhagic stroke in patients with AD. However, the literature suggested that

psychotherapies such as CBT, music and dance therapy, or reminiscence therapy may be used as a first line therapy for depression (Dyer et al., 2016; Ngo & Holroyd-Leduc, 2015).

Treatment of depression in patients with AD is crucial since depression is considered a reversible condition that may increase the global functional status of the patient (Villars et al., 2010). Therefore, when non-pharmacological interventions fail in cases of severe depression, there is consensus that antidepressants may be prescribed (Dyer et al., 2016; Ngo & Holroyd-Leduc, 2015). Among the antidepressants, selective-serotonin reuptake inhibitors are recommended as first line agents for depression in patients with AD (Burock & Naqvi, 2014; Ngo & Holroyd-Leduc, 2015). Citalopram has the highest efficacy, least drug interactions, and is useful in treating anxiety and agitation (Burock & Naqvi, 2014; Ihl et al., 2011). Burock and Naqvi (2014) recommended avoiding the use of tricyclic antidepressants (TCAs) since TCAs are related to many deleterious effects such as cardiac arrhythmias, overdose risk, delirium, constipation, and urinary retention. Ihl et al. (2011) found that trazadone may be useful for mild depression and agitation; while Burock and Naqvi found that mirtazapine may be effective in treating anorexia and insomnia in patients with depression. Due to the possible adverse effects of pharmacological interventions in general, NPs are advised to focus on using various non-pharmacological approaches to manage concomitant conditions prior to initiating any medications (Odenheimer et al., 2013).

#### *Support for caregivers*

The literature placed great emphasis on supporting caregivers in AD management (Allan, Behrman, & Ebmeier, 2013; Ngo & Holroyd-Leduc, 2015; Odenheimer et al., 2013; Robinson et al., 2010). Odenheimer et al. (2013) believed that caregivers are the primary care providers' vital partners in the health management of patients. In fact, the well-being of caregivers greatly

impacts the whole well-being of individuals with AD. For example, high admission rates to nursing homes are associated with caregiver burden (Burock & Naqvi, 2014). In addition, caregivers' unmanaged stress and burden in caring for AD patients is associated with an increased risk of developing depression, stress-induced psychological disorders, myocardial infarctions, immunosuppression, sleep disorders, mortality, and lower quality of life (Grossberg et al, 2010; Hazzan, Ploeg, Shannon, Raina, & Oremus, 2015; Odenheimer et al. 2013; Villars et al., 2010). Hence, the literature recommended that caregivers' well-being and needs be routinely evaluated and that individualized assessments and interventions be provided (Allan, Behrman, & Ebmeier, 2013; Aminzadeh, Molnar, Dalziel, & Ayotte, 2012; Grossberg et al., 2010; Ngo & Holroyd-Leduc, 2015; Odenheimer et al., 2013; Parmar et al., 2014). Villars et al. (2010) suggested using the Zarit Burden Interview (ZBI) to fully evaluate a caregiver's physical and emotional health status as well as organizing a home visitation to assess a patient's living conditions.

Since the caregivers' partnership with primary care providers is central to improving care to patients with AD, providers must ensure the caregivers' most pressing concerns are met (Odenheimer et al., 2013). The literature recommended that within one year of the AD diagnosis nurse practitioners provide or refer caregivers to appropriate community resources for training, support, and education on how to care for patients with AD (Heckman et al., 2016; Holle et al., 2009; Murphy et al., 2014). Nichols et al.'s secondary analysis (2009) found that the top five dementia-related behaviour topics that caregivers had concerns about included daily activities, combativeness, communication, confusion, and eating. Additionally, the top five stress and coping topics that caregivers sought more education on were healthy lifestyle, grief, relaxation, depression, and adult day care. Nichols et al. concluded that primary care providers should

provide educational information to inform caregivers on caring for the patient's needs and ways to cope with the stress and burden of doing so. Furthermore, Hazzan, Ploeg, Shannon, Raina, and Oremus' qualitative study (2015) found that caregivers wanted providers to be aware of the increasing care demands of their patients as the disease progressed and the importance of social support and hired assistance. Therefore, providers should routinely assess the need for respite care and home support and then arrange for supportive help as needed (Heckman et al., 2016; Villars et al., 2010). Robinson et al. (2010) also found that occupational therapists in the community who can assist in cognitive and behavioural interventions are cost-effective in improving the mood, confidence, and quality of life of both caregivers and patients. Therefore, NPs should be familiar with the available local resources and interdisciplinary health providers who can offer assistance to both caregivers and patients as the natural course of AD progresses.

#### *Advanced care planning and palliative care*

Advance care plan (ACP) and palliative care (PC) discussions are an integral part of AD management in the primary care setting (Ngo & Holroyd-Leduc, 2015; Robinson et al., 2010). Literature suggested that discussions regarding ACP and PC be made early, within two years of AD diagnosis, and when patients are capable of making decisions (Heckman et al., 2016; Odenheimer et al., 2010; Robinson et al., 2010). According to Robinson et al. (2010) ACPs are associated with a reduction of patients being admitted to the hospitals for unnecessary reasons. An ACP process may include selecting of a power of attorney and temporary decision maker to be in charge of the patient's health, financial, and personal welfares when the patient loses capacity (Dyer et al., 2016; Ngo & Holroyd-Leduc, 2015; Robinson et al., 2010). Grossberg et al. (2010) and Heckman et al. (2016) recommended that patients with AD create a living will and

include in their ACPs the interventions that the patient wishes to receive in medical emergencies. In addition, despite optimal AD management, as the disease progresses, long-term care placement may be necessary. This probability should be presented during the early stages of dementia to allow patients and caregivers time to discuss their preferences. Furthermore, within two years of diagnosis, the literature is in agreement that providers should have a comprehensive counselling session on end-of-life planning, which may include end-of-life decisions, ongoing palliation, and interventions for symptom management (Heckman et al., 2016; Odenheimer et al., 2010). NPs should direct patients to available written and online resources regarding palliative care and advance care plans, as well as to lawyers for legal advice.

#### *Investigations: lab testing & neuroimaging*

While lab tests and neuroimaging are commonly used for the diagnosis of AD, these kinds of investigations may be ordered during management of AD (Murphy et al., 2014). The diagnostic lab tests usually include hematology, electrolytes, glucose, calcium, liver, thyroid, and renal functions, folate and vitamin B12 levels, urinalysis, electrocardiogram, HIV, and syphilis serology (Allan, Behrman, & Ebmeier, 2013; Dyer et al., 2016). An electrocardiogram should be performed for baseline prior to initiating ACEIs (Dyer et al., 2016). A chest x-ray may be ordered to rule out pulmonary diseases and infections (Allan, Behrman, & Ebmeier, 2013; Dyer et al., 2016). To rule out brain tumours and intracranial hemorrhage, magnetic resonance imaging or a computerized-tomography scan of the brain are appropriate imaging choices. Rarely practiced; however, a brain biopsy may be considered as a final option for diagnosing a potentially reversible condition that cannot be diagnosed otherwise (Dyer et al., 2016). For management of AD, the same lab tests and neuroimaging may be considered when providers are looking for signs of delirium and other reversible or related disorders when their AD patients

have changes to their cognitive, functional, or behavioural status (Dyer et al., 2016; Grossberg et al., 2010; Howard & Westerby, 2011; Ngo & Holroyd-Leduc, 2015).

### Conclusion

In conclusion, AD management in the primary care setting is complex and requires multi-disciplinary involvement in order to provide optimal and evidence-based care. AD management can be very time-consuming due to the many different topics requiring discussion during each medical visit. Odenheimer et al. (2013) found that many dementia patients received uncoordinated and non-proactive care that led to preventable hospitalizations, emergency visits, and deterioration of existing chronic illnesses. Current research findings suggest that a comprehensive, organized management approach that delivers dementia-focused primary care services yield the most promising patient outcomes (Aminzadeh, Molnar, Dalziel, & Ayotte, 2012). Therefore, NPs may benefit from a structured and systematic checklist that includes all 11 quality measures as explored in the literature review when creating an individualized care plan with their AD patients and caregivers. For that reason, I have developed a clinical checklist (see Appendix A) to assist novice FNPs who may benefit from a structured management plan of AD. The checklist contains the 11 quality measures with monitoring frequency provided as a guide. The checklist has a section for NPs to fill in the patient's name and record the initiated date so that NPs can file this management plan directly into their patient's medical records. Since the checklist includes checkboxes beside each issue to be discussed with the patient and caregivers, NPs can save their charting time by checking off the available checkboxes when they have completed or discussed the item. The primary care setting is known for its time-compressed nature (Spenceley, Sedgwick & Keenan, 2015). Therefore, a checklist's easy and quick

documentation method increases its usability and helps reduce administration time. While this checklist aims to simplify AD management for novice NPs, further research regarding its actual usability and usefulness in the primary care setting needs to be studied. For example, I could collect constructive feedback from peer novice NPs through online or paper surveys after they have used the checklist for their AD patients. Consequently, future research studies could then explore the data collected from those feedback surveys.

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## Appendix A: Management of Alzheimer's Disease in Primary Care Setting: Checklist

**INITIATED DATE:** \_\_\_\_\_ **PATIENT'S NAME** \_\_\_\_\_*Please add date beside each item that is revisited in subsequent consultations.***Establishing the Goals and Principles of Care**

- Patient-centred approach in creating individualized care plan
- Emphasize ongoing opportunity to review concerns and issues
- Goals of management *1. Improve quality of life 2. Maintain function 3. Maximize comfort*

**Education on AD**

- Ask about patient's & caregivers' knowledge of AD
  - Clear any misconceptions or myths
- Provide verbal and written information on dementia
  - Epidemiology, etiology and heredity
  - Signs and symptoms
  - Disease course, prognosis & treatment options
  - Community resources & trusted websites on AD
- Discuss current stage of dementia + projected changes in next 6 months

**Cognitive & Functional Status Assessments**

- Re-evaluate cognitive & functional statuses Q 3-12 months
  - MMSE *\* if score declines  $\geq 3$  points, assess for comorbidities & review meds*
  - MoCA
  - GPCOG
  - ADLs
  - IADLs
- Refer to dementia specialist/specialized dementia clinic Q 6-18 months for current dementia stage

**Safety & Driving Counseling and Assessments**

- Home Safety Q 12 months
  - Home environment *e.g. cooking, smoking, running water, gas*
  - Potential home safety interventions *e.g. home alarm/control systems, gas detectors, running water detectors, remote health monitoring systems*
  - Assess for hazardous behaviours, *e.g. wandering Q 12 months*
  - Refer to OT for home assessment
- Financial safety Q 12 months
  - Current financial management. Assess risk for abuse
  - Potential interventions: bank monitoring & financial planner notification
- Driving safety (discuss early) Q 12 months or when significant decline in cognition
  - Risks of driving & alternatives
  - Propose conditions to transition to no driving *e.g. daytime, low traffic hrs, good road conditions, familiar routes, with a driver-licensed passenger*
  - Administer a cognitive function test to evaluate patient's cognition and fitness to drive
  - If concerned about fitness to drive, report findings by submitting (a) Driver's Medical Examination Report or (b) Report of a Condition Affecting Fitness and Ability to Drive form

- Review Medication Regimen Q 12 months
  - Ensure meds taken appropriately
  - Consider blister packs & home delivery of meds

### **Nutrition & Diet**

- Assess nutritional status Q12 months
  - Monitor weight
  - Mini Nutritional Assessment
- Discuss malnutrition risk *e.g. forgetting to eat/how to use utensils, cannot identify foods, swallowing difficulty*
- Potential interventions for stages of AD
  - Mild* – caregiver assist in cooking & meal prep
  - Moderate* – monitor eating, encourage consistent meal schedule, eliminate distractions, use music, eat together, make finger foods, space meals throughout day
  - Severe* – vigilant monitoring of meals to prevent aspiration, consider palliative feeding options if palliative \*Discourage permanent tube feeds
- Refer to dietitian/SLP/dentist

### **Pharmacological Treatment for Cognitive Symptoms**

\*Note: Following medications are options in treating cognitive symptoms

- Mild-Moderate AD
  - ACEIs: donepezil, galantamine, rivastigmine
    - Review possible adverse effects & therapeutic objectives & benefits
- Moderate to Severe AD
  - ACEI: donepezil, galantamine, rivastigmine
    - Review possible adverse effects & therapeutic objectives & benefits
  - NMDARA: memantine
    - Review possible adverse effects & therapeutic objectives & benefits
- Reassess Q1-3 when starting/adjusting dose of any cognitive changes
- Monitor neuropsychiatric symptoms Q 12 months when on anti-dementia meds
- Assess tolerance & efficacy. Educate the risk for subacute cognitive decline when abruptly stop medication

### **Behavioural & Psychological Symptoms & Management**

- Counsel & assess for BPSs Q 12 months *e.g. agitation, aggresssion, disinhibition, anxiety/depression, psychosis, nocturnal confusion, pacing, wandering, apathy, inappropriate activities, appetite changes*
  - Once BPSs are identified reassess Q 3 months
- Potential psychotherapies. Consider as 1<sup>st</sup> line treatment
 

<input type="checkbox"/> CBT	<input type="checkbox"/> Dance therapy	<input type="checkbox"/> Multi-sensory therapy
<input type="checkbox"/> CST	<input type="checkbox"/> Aromatherapy	
<input type="checkbox"/> Music therapy	<input type="checkbox"/> Pet therapy	
- Refer to psychiatrist or geriatrician for pharmacological treatment when psychotherapies failed, patients/caregivers in severe stress, or harm prevention. *Possible treatments may include 2<sup>nd</sup> or 3<sup>rd</sup> generation antipsychotics, SSRIs, TCAs*
- Assess for underlying cause of BPSs *e.g. delirium, infections, pain, depression, physical health/psychosocial changes, poor communication, or hunger*

**Concomitant Conditions Management**

- Assess for risk of incontinence, HTN, heart diseases, DM, hemorrhagic stroke, seizure Q12 months
  - Refer to specialists as needed
- Screen for depression Q 12 months using PHQ-9
  - Consider treating depression with psychotherapies *e.g. CBT, music, dance, or reminiscence therapy*
  - Consider treating depression with SSRIs *e.g. citalopram*. Avoid TCAs *but may consider mirtazapine or trazadone*

**Support for Caregivers**

- Assess the well-being and needs of caregivers Q 12 months
  - Zarit Burden Interview
  - Assess for risk of depression, psychological disorders, MI, immunosuppression, and sleep disorders
  - Consider arranging home-visitation for evaluation of living conditions
  - Build rapport & encourage caregivers that providers & caregivers are in partnership in managing patient's overall health
  - Provide community resources as needed
  - Refer to available community services/educational programs as needed
  - Potential hand-outs *e.g. daily activities, combativeness, communication, confusion, eating, healthy lifestyle, grief, relaxation, depression, adult day care*
  - Educate on the increasing care demands as disease progresses, the importance of social support & hired assistance
  - Assess need for respite care and home support

**Advance Care Planning and Palliative Care**

*Note: discuss and establish advance care planning within 2 years of AD diagnosis*

- DNR/medical intervention status
- Power of attorney
- Discuss and counsel on end-of-life planning *e.g. end-of-life decisions, ongoing palliation, interventions for symptom management*
- Provide written & online resources on advance care plans and palliative care
- Temporary Decision Maker
- Living will

**Investigations: Lab testing & Neuroimaging**

*Note: Consider when changes in cognitive, functional, or behavioural status*

- Lab requisition: CBC, electrolytes, glucose, calcium, TSH, LFTs, Cr, BUN, EGFR, folate, vitamin B12 level
- Other tests: Urinalysis, ECG, HIV, syphilis serology
- Imaging: CXR, MRI/CT of Head
- Consult neurology re: the path to brain biopsy for potentially reversible condition