Chapter 6
Ethical Challenges in Mild, Moderate, and Severe Stages of Dementia

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Introduction

The population of older adults in the United States is growing at a significant rate. In fact, it is predicted that by the year 2050, the population of individuals aged 65–74 years old will increase from 6% to 9%, and for those who are aged over 75 years, it will increase from 6% to 11% [1]. Dementia is estimated to affect approximately 47 million people worldwide, and it is predicted that by the year 2050, this number will increase to 130 million [1]. Unfortunately, as our population ages, the independence and autonomy of many older adults will be called into question, whether this be due to chronic medical or psychiatric disorders. Older adults are vulnerable to exploitation and abuse due to common cognitive and physical impairments. The changing landscape of increasing life expectancy, advances in the healthcare system, and personal need for autonomy are likely to pose key ethical challenges before individuals, families, and their medical providers. In this chapter, we will use a running case to outline key ethical issues that arise at progressive stages of dementia, following the elegant model adopted by Peter Whitehouse [2]. In the first subsection, we will discuss issues presenting in the early (mild) stages of dementia. These include genetic testing, disclosure of the diagnosis, and the use of cognitive enhancers. This will be followed by discussion of an important issue arising in moderate dementia, namely, the management of behavioral symptoms. Decision-making regarding placement in long-term care facilities will then be described. Finally, issues in end-stage dementia and relevant principles in palliative care will be discussed. For issues on medical decision-making, management of finances, and independent living, readers are referred to the corresponding chapters of this book.

The Case of SR

SR is a 75-year-old man with a medical history of hypertension, coronary artery disease, diabetes, and neuropathy. He has no significant past psychiatric history. He has a family history *of Alzheimer's disease on his maternal side. SR works as a mathematics professor at a local university. He has been married for 45 years to his wife and has 3 adult children. SR presents to his primary care physician with his wife with complaints of gradual memory impairment. He states that in the last 1–2 years, he has noticed subtle symptoms, such as forgetting people's names, as well as frequent difficulties in finding his keys and glasses. He describes that more recently; he has been making errors in his classes, resulting in several complaints that have been lodged against him by his students. SR is referred to a cognitive neurologist, and an extensive work up is done, including a neurological exam, comprehensive neurological testing, laboratory tests, and head imaging. He is diagnosed with early stage Alzheimer's disease. SR's wife asks that his physician not inform him of the diagnosis. His daughter contacts the neurologist the following week inquiring if she should consider getting herself tested for susceptibility to Alzheimer's disease.*

The diagnosis of mild (early) dementia often brings forth several issues to the table. These include genetic testing, whether or not to disclose the diagnosis of dementia, whether or not to prescribe cognitive enhancers, creating advance care directives, and the need to identify a surrogate decision maker. The last two topics are discussed elsewhere in this book, and therefore will not be discussed in this chapter.

Ethical Issues in Early Stages of Dementia

Genetic Testing

There are four well-established disease-associated genes that have been identified, and numerous chromosomal regions are currently under investigation. The first three well-known genes include 3-APP, PSEN1, and PSEN2 [3]. These three genes represent approximately 3.5 % of all cases of Alzheimer's disease. These genes are inherited as autosomal dominant traits, which is linked to the early onset of Alzheimer's disease. Mutations that occur in these genes are deterministic, which means that the affected individual will inevitably develop the disease, if the individual lives long enough. The last established gene associated with disease is ApoE-e4. Mutations of this gene increase the susceptibility to late-onset Alzheimer's disease. Mutations of this gene make up the most common form of this disease [3]. There are some important considerations to make in the discussion of the genetics of Alzheimer's disease. One consideration is predictive genetic testing. In this form of testing, the goal is to predict the future risk of developing Alzheimer's disease in an asymptomatic individual, which is done through the examination of genetic material. This becomes important in the detection of early onset Alzheimer's disease, where family history is negative in 40% of the cases. This is usually due to early death, or failure to recognize the signs in family members. This type of testing is currently restricted to adults from families that show an autosomal dominant pattern with early onset Alzheimer's disease [3]. The second consideration to make is genetic risk assessment. Here, the goal is to identify genetic markers that are known to confer an elevated risk of developing Alzheimer's disease. There is a general consensus that Apo testing has a limited value for predictive testing for Alzheimer's disease in symptomatic people, and therefore the presence of such a marker is neither necessary nor sufficient for the development of Alzheimer's disease [3]. There are opposing arguments as to the merits and demerits of genetic testing. The main merit to this testing would be the ability to prepare for the future. There are several demerits to testing that have been voiced. One is the catastrophic reaction that such testing may bring to the patient and family members. Another demerit is the reality that currently available treatment options have, at best, a modest effect on the disease progression [2]. Finally, there is the possibility of increased healthcare costs, as well as discrimination with employability and insurability. As per the Stanford Program in Genomics, Ethics, and Societies, it is recommended that the "emphasis on development of educational and counseling programs be directed by genetic counselors, informed consent, strict control over the advertising and marketing of genetic tests for Alzheimer's disease, and referral to resources for psychological testing" [2].

Disclosure of Diagnosis

The request from family members to not disclose the diagnosis of Alzheimer's disease to a patient is a common issue encountered in early disease stage. The most commonly cited reasons in the literature that favor not disclosing include the lack of diagnostic certainty, the absence of effective treatments, the potential for adverse psychological reactions, and the inability of persons with developed Alzheimer's disease to understand and/or retain the diagnosis [2]. The most important and obvious reason to inform an individual of the diagnosis of Alzheimer's disease is respect for a patient's autonomy. It is essential if patients are to have an active role in planning for their own care. In the United States and Northern Europe, it is considered best to allow the autonomous individual to have access to this information. In East Asia and Southern Europe, it is considered best to tell the family, and the patient is usually "protected" from the diagnosis [2]. As per the Alzheimer's Association, "As long as a person retains his or her capacity to understand and appreciate the information relevant to a diagnosis, it is important to fully disclose the diagnosis and its implications in a supportive manner" [4]. Early disclosure of diagnosis allows for various decisions. It allows for advanced planning, including the planning for "optimal life experiences in remaining years of intact capacities." It allows for preparing advance directives and power of attorney. It allows for consideration for participation in research. It allows for the participation in support groups. Additionally, it allows for deciding whether to take cognitive enhancers. It has been recommended that disclosure best practices emphasize patient-centered communication techniques in order to minimize psychological distress following diagnosis [2].

Use of Cognitive Enhancers

The use of cognitive enhancers in early stages of illness is often discussed in the geriatric community. Currently, there are four FDA-approved drugs for cognitive enhancers. Rivastigmine, Galantamine, and Donepezil are medications that fall under the class of cholinesterase inhibitors, which are used to improve cognition by inhibiting neuronal acetylcholine breakdown [5]. Memantine is a N-methyl-D-aspartic receptor antagonist, which functions to regulate glutamatergic neurons activities, which facilitates synaptic plasticity, neuronal growth, and differentiation [5, 6]. Currently, the combination of memantine and donepezil is considered the most effective therapy [5, 6]. The use of these FDA-approved medications has been associated with lower rates of dementia progression and cognitive decline in short-term studies. Long-term observational studies have found that persistent use of these medications slows to progression of cognitive, functional, and global decline [5, 6]. Ultimately, the use of these medications delays the need for nursing home placement [6]. Treatment with cognitive enhancers may also reduce total costs of treatment for individuals diagnosed with dementia. For those not treated, there are greater services obtained in hospitals and post-acute care centers, as well as longer length of stays in the hospital. These observations are somewhat offset by the cost in prescriptions, physician visits, and outpatient hospital costs [5, 6]. There are several arguments against the use of these medications. The most important consideration is that these medications provide symptomatic treatment for the disease; however, there is no strong evidence for disease-modifying properties. Another argument relates to the side effects of these medications. The most common side effects include nausea, vomiting, and diarrhea. Less common side effects include anorexia and weight loss, bradycardia, confusion, dizziness, and sleep disturbance [7, 8]. These side effects may present as a safety concern in the prescribing of these medications in the poly-medicated older adult population. Finally, there is a question of tolerability of these medications with relation to quality of life. It is imperative that clinicians engage the patient and families, as applicable, in a comprehensive and careful discussion of the benefits and risks of medications that slow down cognitive decline and help support informed decision-making. For a discussion of advance care directives, readers are directed to the corresponding chapter in this book.

Ethical Issues in Moderate Stages of Dementia

It has been 3 years since SR was diagnosed with Alzheimer's disease. He has just been admitted to the hospital due to paranoia and behavioral issues at home. He believes that his wife has been stealing his money. He has gotten both verbally and physically aggressive toward his wife numerous times, which is a dramatic change from his previous gentle demeanor. In the hospital, SR has refused various forms of treatment, including blood draws and the administration of any medications. SR has undergone psychiatric evaluation, and concluding the evaluation the psychiatrist begins discussing with the family the idea of starting SR on a small dose of quetiapine to target these symptoms. SR's wife is concerned about the idea of "chemically sedating" the psychiatrist and asks if it is truly necessary.

Management of Behavioral Disturbances

As dementia progresses to the mid-stage of disease, cognitive decline becomes more impairing and behavioral issues tend to develop. With progressive deterioration in functioning and decision-making, several ethical issues come into consideration regarding management of the person's health. The most critical issue is the question of a person's capacity to make informed medical decisions regarding their own health. This includes issues of deciding medical treatment, participation in clinical research, and participation in determining the level of care or disposition. This subsection will focus on the ethics of managing behavioral issues associated with dementia using psychotropic medications, in particular, antipsychotic medicines. For a discussion of ethical issues in medical decision-making and participation in research, readers are referred to the corresponding chapters in this book.

Behavioral issues associated with dementia can vary widely, and can include, but are not limited to apathy, depression, mood lability, heightened impulsivity, agitation, paranoia, and even frank psychotic symptoms like hallucinations or delusions. As the disease process progresses, such behavioral symptoms become more frequent and difficult to manage. In fact, up to 50% of people suffering with dementia will at some point experience some degree of psychosis or agitation [9, 10]. It is these symptoms that become the most salient in the management of the illness and raise consideration for use of antipsychotic medications. Both first-generation and second-generation antipsychotics have been studied in the use of managing behavioral issues in dementia. Both classes of medications have demonstrated some benefit in managing symptoms of agitation and psychosis, but large-scale studies and meta-analyses have shown that these benefits are modest overall [11, 12]. These medications are commonly associated with adverse effects, including sedation, extrapyramidal side effects (particularly with the first-generation agents, such as haloperidol), and most concerning-increased risk of cerebrovascular events and death with the second-generation antipsychotics [11, 12]. Thus far, there is actually no FDA-approved use for antipsychotic medications in the management of behavioral issues in dementia. The FDA has issued a black box warning against the use of antipsychotics in dementia-related psychosis due to the significantly increased mortality associated with their use [11].

With consideration of the above-stated risks, it is understandable for SR's family to be concerned about the idea of "chemical sedation." It is necessary that as clinicians we recognize and acknowledge such concerns. Perhaps even more importantly, it is imperative that the surrogate decision maker be clearly informed of the risks associated with using these agents since the patient typically cannot make the decision for themselves. Discussion of such risks with these medications is typically quite frightening for families and caregivers, and may deter the consideration of their use. But it is prudent that the clinician frame the potential utility of these medications from both the perspective of the patient's wellbeing and that of the caregivers. In some cases, the administration of antipsychotic medication may be a necessary measure to alleviate the distress of frightening psychotic symptoms, thereby improving the patient's quality of life. In such situations, it becomes imperative to carefully weigh issues of mortality with quality of life. Alternatively, the use of antipsychotic medications may be necessary to manage the patient's aggressive behavior thereby facilitating the viability of the caregiver still being able to care for the patient in their own home. Should these agents be employed in dementia management it is recommended that the lowest effective dose be used to minimize risk of adverse effects.

Ethical Issues in Moderate—End Stages of Dementia

It has been 6 years since SR developed Alzheimer's disease. SR has been experiencing recurrent falls in his home, as well as repeated episodes of urinary tract infections. He has required three hospitalizations this year, each of which has been complicated by delirium. SR was started on quetiapine during one of these hospitalizations due to behavioral disturbances related to delirium. After the third hospitalization, the decision was made to move SR into a nursing home. SR's wife and daughter visit him regularly, though recently he has been withdrawn and has limited interactions. The patient is refusing placement. His family shared emotional challenges and decisional conflicts with respect to nursing home placement.

Placement in a Long-Term Care Facility

As dementia continues to progress, patient needs escalate. New and difficult challenges arise, such as consideration for placement in long-term care facilities and utilization of advance care directives. Advanced care directives will be discussed in depth in the corresponding chapter of this book. For high-income countries, the transition of people with progressive dementia into care homes is a relatively common process, particularly in the last 10 years as the "baby boomer" generation has reached old age [13]. This reflects the high level of care often required for people afflicted by advanced stage dementias. The need for nursing home placement is multifactorial, including issues of medical comorbidity, various psychosocial issues, and neuropsychiatric complications, such as behavioral problems which are focused on in this chapter.

Managing behavioral complications of dementia reaches much further than the bounds of easing the patient's individual experience. Eventually, there comes a point where these symptoms compromise the patient's safety interfere greatly exceed the capabilities of family caretakers. This becomes particularly important in the case of patients who demonstrate wandering behaviors and overt aggression. Behavioral problems in dementia have been consistently shown to be a primary factor associated with caregiver stress [14]. The major conflicting factor with nursing home placement is the idea of separating a person from their own home and family. Patients with mild to moderate dementia have been found to demonstrate awareness of the possibility of future placement and often wish to postpone placement for as long as possible [13]. This raises the ethical dilemma of weighing the patient's own autonomy against the principle of best serving the patient's health needs, i.e. beneficence. But even in more severe cases of dementia when behavioral issues become common and severe, consistency and familiarity of surroundings, routine, and people remain significant factors in preventing behavioral complications [15]. Discussion regarding the need for long-term level of care is, therefore, a critical conversation for clinicians to have with patients' families. As with the discussion of starting antipsychotic medications, it is necessary to frame the conversation of placement from both the perspectives of maintaining autonomy and basic safety. In some cases, such as SR's, nursing home placement may be necessary to meet the needs of a patient's medical comorbidities, or to ensure continued monitoring necessary to maintain safety. But in other cases, separating the patient from their home environment may actually cause unjustified psychological harm and worsening of symptoms.

The autonomy of the patient should be respected as much as possible even in the midst of declining cognition, so determinations of placement should carefully weigh the desires and expectations of both patient and family.

Ethical Issues in End-Stage Dementia

It has been 10 years since SR was diagnosed with Dementia of Alzheimer's type. He has spent the last 4 years in a nursing home. He is now bed bound, has minimal speech output and is completely dependent on nursing care for his ADLs. Family members have raised concerns about SR's declining appetite and weight loss. He has difficulty swallowing and developed pneumonia once this year. They request a consult for feeding tube as they cannot see SR "starve to death". SR does not have a living will on file.

Management of end-stage dementia is complex from both clinical and ethical standpoints. In this section, we will first describe the process of prognostication in dementia. This will be followed by care of commonly encountered end-stage conditions, such as pain, agitation, pneumonia, and weight loss. Identification of distress, empathic communication, and education of families and suitable incorporation of a palliative approach form the cornerstones of good clinical care in end-stage dementia.

Prognostication in Dementia

Dementia is a terminal illness. The long-term prognosis is heterogeneous and variable. However, patients inevitably have a progressive deteriorating course with complications like pneumonia being the most common cause of death. Mean survival time of patients with dementia has been analyzed in cohort studies and case series, ranging from 3 to 11 years [16–18]. The prognosis is determined by the age at diagnosis, gender, and the presence of comorbidities [19]. There are multiple markers of poor short-term survival which include aspiration, recurrent urinary tract infections, pressure ulcers, fever, weight loss, and sepsis. One study found that in nursing home residents with advanced dementia, 6-month mortality for those who developed pneumonia, reduced, eating and fever was 47%, 45%, and 39%, respectively [20]. Not perceiving dementia as a terminal illness can lead to protracted suffering and poor quality of life at end of life. In nursing homes, healthcare professionals have been noted to have overly optimistic prognosis of advanced dementia. A study found that only 1% of patients were perceived to have a life expectancy of less than 6 months but 71% died in that time period [21]. Only 43% of family members perceived dementia as a terminal illness [22]. A US study in nursing home patients with advanced dementia showed that if families had limited understanding of the poor prognosis and clinical course of advanced dementia, patients were more likely to undergo burdensome interventions [23].

Palliative Care in End-Stage Dementia

In contrast to those dying from cancer, those dying from dementia are significantly more likely to receive non-palliative treatments, such as feeding tubes or invasive studies as well as be restrained in the last 30 days of life [21]. As mentioned earlier in this section, prognostication is challenging and many patients can have a "prolonged dwindling" course with severe disability that can persist for years [24]. In the United States, Medicare hospice eligibility criteria for dementia are based on FAST staging [25]. Only patients who are stage 7 with one associated complication (either aspiration, upper urinary tract infection, sepsis, multiple stage 3–4 pressure ulcers, persistent fever, or weight loss of more than 10% in last 6 months) qualify for hospice. However, reliability of the FAST staging is questionable because some patients do not follow a sequential course in FAST.

In 2004, Mitchell et al. developed a 12-item scale which predicted risk of mortality at 6 months in dementia. This scale incorporated an individual's demographic data, comorbidities, such as cancer, heart failure, and the need for oxygen therapy, symptoms like dyspnea, malnutrition data, the presence of intercurrent acute processes, as well as performance data, such as fecal incontinence or bed rest [26]. In 2010, the same researchers revised this scale and published another 12-item prognostic tool: The Advanced Dementia Prognostic Tool (ADEPT) [27] which was consequently validated through a prospective study [28] and found to be superior to the Medicare hospice guidelines in identifying patients with a high risk of death within the next 6 months. The next subsection describes the management of common symptoms encountered in end-stage dementia.

Behavioral problems change qualitatively and quantitatively as dementia progresses. For example, delusions and hallucinations might be less common in the last few months of life, whereas resisting care is more common. Almost any behavioral change is indicative of underlying distress, such as pain, dyspnea, fear, or unmet needs. An optimal approach would be to identify and remove the source of distress. This is best accomplished when multi-disciplinary care teams suitably involve families [15]. Pain is a common cause of suffering and behavioral disturbances in patients with advanced dementia. Due to impaired ability of individuals with dementia to communicate their needs, pain assessment, and management is especially challenging. Nursing home residents with dementia reporting pain are 50% less likely to be treated, when compared to their cognitively preserved counterparts [29]. Hence, observational tools for caregivers that focus on pain associated behaviors like agitation in relation to posture changes and essential personal care, noisy breathing, nonverbal vocalizations (screams and grunts), facial expressions or changes in usual behavior (aggressiveness, refusal to eat, alteration of sleep rhythm, changes in level of activity, etc.) need to be implemented and caregivers need to be educated whether in the community or institutions. As a general rule, it is best to prescribe scheduled analgesics rather than on a needed basis [29].

Autopsy studies have determined that the main causes of death in advanced dementia are pneumonia, cardiovascular diseases, pulmonary embolism, cachexia, and dehydration [30]. When the patients with dementia develop pneumonia, they are commonly hospitalized and treated with antibiotics, primarily parenterally. However, it is important to be aware that the benefits of antibiotic treatment and hospitalization are not well established in this population [31, 32].

Survival after any of these complications is reduced. The burden of hospitalization may far outweigh any benefits. Relevant data must be used to inform and educate families and healthcare professionals, that infection and nutrition problems are to be expected and that their presence usually indicates that the end of the patient's life is near [20]. Weight loss and anorexia are commonly observed in end-stage dementia, and multiple factors such as impaired swallowing reflexes, apraxia, and anosmia contribute to them. One of the most emotionally demanding decisions for families and physicians is the decision about artificial nutrition and hydration. Religious values also determine the beliefs on withholding artificial nutrition. Tube feeding and artificial nutrition may be requested by families due to concerns of their loved one being "starved to death". They often feel they have no choice but to authorize placement of a feeding tube in absence of clear and explicit advanced directives. A study of physicians and nurses found that almost half of them believed that even if all forms of life support are stopped, nutrition and hydration should be continued [33].

As many as 44% of nursing home residents with advanced dementia have feeding tubes placed [34]. There is compelling evidence that artificial feeding does not improve life expectancy or quality of life, nor does it prevent aspiration pneumonia in advanced dementia [35]. When tube feeding is used as permanent substitute to oral feeding, patients are deprived of the pleasure derived from eating. The most serious consequence of tube feeding is the need to restrain some patients. Peck et al. observed that a whopping 71% patients with dementia who had feeding tubes had been restrained [36]. Growing literature from hospice settings indicates that patients in end stages of dementia do not experience more than transient hunger and thirst which can be alleviated with the use of ice chips and mouth swabs [37].

Defining optimal palliative care in dementia has been a focus of research and development by multiple experts. In 2014, the European association for palliative care published a framework to provide guidance for clinical practice, policy, and research. This framework covers aspects such improving quality of life, maintaining functioning, and maximizing comfort throughout the disease trajectory, adequate treatment of behavioral and psychological symptoms of dementia, comorbid diseases and inter or concurrent health problems, person-centered care, communication and shared decision-making, proactively setting care goals and advance planning, prognostication and timely recognition of dying, avoidance of overtly aggressive, burdensome and futile treatments, provision of psychosocial and spiritual support, education of the healthcare team, and societal and ethical issues [38]. In the United States, the use of hospice services for end-stage dementia has increased from 19.3% to 48% from 2000 to 2009, which is an encouraging trend. However, a vast majority of patients continue to be hospitalized in their last 90 days of life leading to burdensome interventions, and multiple transitions of care [39]. The use of hospice is associated with improved patient and caregiver outcomes, improved pain management, less aggressive care, and greater satisfaction among family members [40].

Conclusion

Dementia brings to the table, numerous ethical challenges at every stage of the illness. It is imperative that clinicians consistently emphasize on a model of care that is patient-centered, even when an individual with dementia become less capable of communicating one's needs. Toward this, one must engage in regular and timely communication, education of patients and families, and engage them empathically in a process of shared decision-making. Research focusing on ethical issues in dementia must encompass not only clinical outcomes but also subjective experiences of patients and families.

References

1. Alzheimer's Disease International. World Alzheimer Report 2015. https://www.alz.co.uk/research/world-report-2015. Accessed 18 Apr 2018.
2. Whitehouse P. Ethical issues in dementia. Dialogues Clin Neurosci. 2000;2:162–7.
3. Leuzy A, Gauthier S. Ethical issues in Alzheimer's disease: an overview. Expert Rev Neurother. 2012;12(5):557–67.
4. Alzheimer's Association. https://www.alz.org/. Accessed 18 Apr 2018.
5. Rountree SD, Atri A, Lopez OL, Doody RS. Effectiveness of antidementia drugs in delaying Alzheimer's disease progression. Alzheimers Dement. 2013;9(3):338–45.
6. Fillit H, Hill J. Economics of dementia and pharmacoeconomics of dementia therapy. Am J Geriatr Pharmacother. 2005;3(1):39–49.
7. Tampi R, Tampi D, Lavakumar M. Pharmacology and psychopharmacology. In: Rajesh R, Tampi D, Boyle L. Psychiatric disorders late in life, A comprehensive review. New York: Springer; 2018. p. 279.
8. Pataki C, Sussman N. Psychopharmacological treatments- cholinesterase inhibitors and memantine. In: Sadock B, Sadock V, Ruiz P. Synopsis of psychiatry. Wolters Kluwer; 2015. p. 963–4.
9. Treloar A, Crugel M, Prasanna A, Solomons L, Fox C, Paton C, et al. Ethical dilemmas: should antipsychotics ever be prescribed for people with dementia? Br J Psychiatry. 2010;197(02):88–90.
10. Jeste DV, Finkel SI. Psychosis of Alzheimers disease and related dementias: diagnostic criteria for a distinct syndrome. Am J Geriatr Psychiatry. 2000;8(1):29–34.
11. Schneider LS, Tariot PN, Dagerman KS, Davis SM, Hsiao JK, Ismail S, et al. Effectiveness of atypical antipsychotic drugs in patients with Alzheimer's disease. N Engl J Med. 2006;355(4):416–8.
12. Sink KM, Holden KF, Yaffe K. Pharmacological treatment of neuropsychiatric symptoms of dementia. JAMA. 2005;293(5):596–608.
13. Smebye KL, Kirkevold M, Engedal K. Ethical dilemmas concerning autonomy when persons with dementia wish to live at home: a qualitative, hermeneutic study. BMC Health Serv Res. 2015;16(1):21.

14. Sörensen S, Conwell Y. Issues in dementia caregiving: effects on mental and physical health, intervention strategies, and research needs. Am J Geriatr Psychiatry. 2011;19(6):491–6.
15. Kales HC, Gitlin LN, Lyketsos CG. Assessment and management of behavioral and psychological symptoms of dementia. BMJ. 2015;350:h369.
16. Fitzpatrick AL, Kuller LH, Lopez OL, Kawas CH, Jagust W. Survival following dementia onset: Alzheimer's disease and vascular dementia. J Neurol Sci. 2005;229–230:43–9.
17. Dewey ME, Saz P. Dementia, cognitive impairment and mortality in persons aged 65 and over living in the community: a systematic review of the literature. Int J Geriatr Psychiatry. 2001;16(8):751–61.
18. Knopman DS, Rocca WA, Cha RH, Edland SD, Kokmen E. Survival study of vascular dementia in Rochester, Minnesota. Arch Neurol. 2003;60(1):85–90.
19. Xie J, Brayne C, Matthews FE, Medical Research Council Cognitive Function and Ageing Study Collaborators. Survival times in people with dementia: analysis from population based cohort study with 14-year follow-up. BMJ. 2008;336(7638):258–62.
20. Mitchell SL, Teno JM, Kiely DK, Shaffer ML, Jones RN, Prigerson HG, et al. The clinical course of advanced dementia. N Engl J Med. 2009;361(16):1529–38.
21. Mitchell SL, Kiely DK, Hamel MB. Dying with advanced dementia in the nursing home. Arch Intern Med. 2004;164:321–6.
22. van der Steen JT, Onwuteaka-Philipsen BD, Knol DL, Ribbe MW, Deliens L. Caregivers' understanding of dementia predicts patients' comfort at death: a prospective observational study. BMC Med. 2013;11:105.
23. Caron C, Griffith J, Arcand M. Decision making at the end of life in dementia: how family caregivers perceive their interactions with health care providers in long-term- care settings. J Appl Gerontol. 2005;24:231–47.
24. Lunney JR, Lynn J, Foley DJ, Lipson S, Guralnik JM. Patterns of functional decline at the end of life. JAMA. 2003;289(18):2387–92.
25. Reisberg B. Functional assessment staging (FAST). Psychopharmacol Bull. 1988;24:653–9.
26. Mitchell SL, Kiely DK, Hamel MB, Park PS, Morris JN, Fries BE. Estimating prognosis for nursing home residents with advanced dementia. JAMA. 2004;291(22):2734–40.
27. Mitchell SL, Miller SC, Teno JM, Davis RB, Shaffer ML. The advanced dementia prognostic tool: a risk score to estimate

survival in nursing home residents with advanced dementia. J Pain Symptom Manag. 2010;40(5):639–51.

28. Mitchell SL, Miller SC, Teno JM, Kiely DK, Davis RB, Shaffer ML. Prediction of 6-month survival of nursing home residents with advanced dementia using ADEPT vs hospice eligibility guidelines. JAMA. 2010;304(17):1929–35.
29. Won A, Lapane K, Gambassi G, Bernabei R, Mor V, Lipsitz LA. Correlates and management of nonmalignant pain in the nursing home. J Am Geriatr Soc. 1999;47:936–42.
30. Keene J. Death and dementia. Int J Geriatr Psychiatry. 2001;16(10):969–74.
31. Van der Steen JT, Ooms ME, van der Wal G, Ribbe MW. Pneumonia: the demented patient's best friend? Discomfort after starting or withholding antibiotic treatment. J Am Geriatr Soc. 2002;50(10):1681–8.
32. Van der Steen JT, Ooms ME, van der Wal G, Ribbe MW. Withholding or starting antibiotic treatment in patients with dementia and pneumonia: prediction of mortality with physicians' judgment of illness severity and with specific prognostic models. Med Decis Mak. 2005;25(2):210–21.
33. Solomon MZ, O'Donnell L, Jennings B, Guilfoy V, Wolf SM, Nolan K, et al. Decisions near the end of life: professional views on life-sustaining treatments. Am J Public Health. 1993;83(1):14–23.
34. Teno JM, Mor V, Desilva D, Kabumoto G, Roy J, Wetle T. Use of feeding tubes in nursing home residents with severe cognitive impairment. JAMA. 2002;287:3211–2.
35. Finucane TE, Christmas C, Travis K. Tube feeding in patients with advanced dementia. JAMA. 1999;282:1365–70.
36. Peck A, Cohen CE, Mulvihill MN. Long-term enteral feeding of aged demented nursing home patients. J Am Geriatr Soc. 1990;38(11):1195–8.
37. McCann RM, Hall WJ, Groth-Junker A. Comfort care for terminally ill patients: the appropriate use of nutrition and hydration. JAMA. 1994;272(16):1263–6.
38. Van der Steen JT, Radbruch L, Hertogh CM, de Boer ME, Hughes JC, Larkin P, et al. White paper defining optimal palliative care in older people with dementia: a Delphi study and recommendations from the European Association for Palliative Care. Palliat Med. 2014;28(3):197–209.
39. Teno JM, Gozalo PL, Bynum JP, Leland NE, Miller SC, Morden NE, et al. Change in end-of-life care for Medicare beneficiaries:

site of death, place of care, and health care transitions in 2000, 2005, and 2009. JAMA. 2013;309(5):470–7.

40. Shega JW, Hougham GW, Stocking CB, Cox-Hayley D, Sachs GA. Patients dying with dementia: experience at the end of life and impact of hospice care. J Pain Symptom Manag. 2008;35(5):499–507.