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Non-Pharmaceutical Interventions for Alzheimer's Disease and Related Dementias: A Review of Medicaid Coverage

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By

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ABSTRACT

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The growing population of individuals age 65 and older has brought about an increased demand for healthcare services; particularly interventions targeting the effects Alzheimer's disease and related dementias. The traditional care model for those diagnosed with Alzheimer's disease consists of drug therapies to combat undesirable behaviors and eventual residency in a long-term care facility; a model that incurs considerable expense to Medicaid. This literature review seeks to examine the benefits of various nonpharmaceutical interventions currently utilized with individuals diagnosed with Alzheimer's disease, and the Medicaid policies of community-based services and durable medical equipment that could be utilized to cover their expense. Current articles were collected using Wiley Journals, Sage Journals, PubMed, OneSearch, JSTOR, and Google Scholar using the key search terms: Medicaid coverage of Alzheimer's treatments, Medicaid policy Alzheimer's treatment, costs of Alzheimer's disease, Alzheimer's pharmaceuticals, nonpharmaceutical treatment of Alzheimer's, Medicaid durable medical equipment, Money Follows the Person Program, Medicaid In Home Support Services,

and Program for All-inclusive Care for the Elderly . Government websites for CMS, Medicaid, and the state of California were searched for information regarding Medicaid policies. Studies showed that non-pharmaceutical interventions such as music listening, time in nature, and use of technology were effective against undesirable behaviors such as apathy, disordered sleep, and agitation in patients with Alzheimer's; however, Medicaid/Medicare provides no direct coverage for these types of therapies. Medicaid policies of providing community based services to assist with activities of daily life, acute and primary care, and even transportation have been implemented in an effort to decrease beneficiary transitions to long term care; however barriers such as housing and limited personal support prevent some individuals from having sufficient access to the benefits of these programs. More research is necessary to determine if greater use of community-based services, coupled with implementation of alternative therapies, results in decreased use of pharmaceuticals for treatment of adverse behaviors and transitions to long term care; both of which would result in financial savings for Medicaid.

INTRODUCTION

According to the Alzheimer's Association, someone in the United States is diagnosed with Alzheimer's disease every 65 seconds (Alzheimer's Association, 2019). Alzheimer's disease is a degenerative brain disease that is the most common cause of dementia. Symptoms of dementia include difficulties with memory, language, problem-solving, and other cognitive abilities, and can significantly impair a person's ability to function independently in day to day life. As the population of the U.S. continues to age, the incidence of Alzheimer's and other dementias will become more and more common. One in ten people aged 65 years or older has Alzheimer's dementia, and the rate of occurrence increases with age (Alzheimer's Association, 2019).

Care for Alzheimer's patients is often provided by family members or other unpaid caregivers who can tend to the daily needs of the patients that are typically not covered by health insurance (Merrilees, et al., 2018). In the later stages of the disease, when constant care is necessary, many patients are moved to long-term skilled nursing facilities. Insurance coverage for the medical treatment of the disease is often limited to pharmaceuticals, as the duration of degeneration can be in excess of twelve years. Medication is used to treat a variety of Alzheimer symptoms, including aggressive behaviors and disordered sleep. Coverage for Medicaid beneficiaries is often superior to coverage by private insurance; however, these individuals are limited to facilities that accept third party insurance.

Alternative treatments have been used in conjunction with and in lieu of traditional pharmaceuticals (Yang, 2019). Herbal remedies, healing gardens, and music therapy are a few examples of alternative treatments utilized in an effort to combat the effects of this debilitating

disease. There is no cure for Alzheimer's, nor any known way to permanently slow its progression; current treatments can only hope to improve patient's quality of life and perhaps provide an improvement of symptoms (Yang, 2019). The efficacy of any treatment cannot be predetermined, so access to any and all treatment options would be beneficial for patients experiencing Alzheimer's disease and related dementias.

Current insurance coverage for therapies to Alzheimer's patients is limited to services determined to be medically necessary by a physician. Long-term care coverage by private insurers is typically inadequate for the duration of the disease and is non-existent for Medicare recipients. The brunt of the considerable costs associated with care of patients living with Alzheimer's disease and related dementias is felt by the taxpayer funded Medicaid/Medicare system (Blank, 2018). Medicaid provides the most comprehensive coverage for long-term Alzheimer's care; however, those covered services are almost exclusively pharmaceutical for the treatment of disease symptoms and the attempted slowing of disease progression. As disease incidence steadily increases, costs associated with disease management will also increase.

Statement of Purpose

A qualitative evaluation of peer reviewed journal articles will be conducted to explore the benefits of nonpharmaceutical interventions for Alzheimer's disease and related dementias and current Medicaid policies including coverage of durable medical equipment, Home and Community Based Adult Services, In Home Support Services, Programs of All-inclusive Care for the elderly, and the Money Follows the Person Program; that would facilitate beneficiaries access to alternative treatments. Recommendations from the findings of the literature review will guide policymaking to expand coverage of nonpharmaceutical interventions for Medicaid and Medicare beneficiaries living with Alzheimer's disease and related dementias. This

increased accessibility to intervention options can promote patient residency in the community and reduce Medicaid costs associated with institutional long-term care.

Background

The United States is currently experiencing an Alzheimer's epidemic. As the Baby Boomers grow older, the incidence of Alzheimer's disease and related dementias is expected to continue to increase and projected to double by the year 2050 (Alzheimer's Association, 2019). Many of these individuals will receive their primary medical insurance benefits from Medicare and Medicaid. Medicare limits skilled nursing facility benefits to 100 days, while Medicaid has no set limit for skilled nursing facility coverage; however, skilled nursing facilities only provide care to patients who have recently been discharged from the hospital. For patients with Alzheimer's disease, care would likely be provided by a nursing facility. Medicare provides no coverage for long term nursing facility services; while Medicaid and private insurance offer limited coverage for nursing facility and home health services. Services to Medicaid beneficiaries are often also provided by federally funded, state managed community-based adult services (CBAS) organizations. In California, community-based adult service centers provide "a package of health, therapeutic and social services in a community-based day health care program. Services are provided according to a six-month individual plan of care (IPC) developed by the CBAS center's multidisciplinary team (MDT) in collaboration with the CBAS participant or authorized representative(s). The services are designed to prevent premature and unnecessary institutionalization and to keep participants as independent as possible in the community" (Community-Based Adult Services, 2019).

Keeping patients out of long-term nursing institutions is financially beneficial to Medicaid (Blank, 2018). The utilization of alternative treatments for Alzheimer's disease and

related dementias could assist patients in maintaining an independent lifestyle with the help of CBAS and delay the need for transition to a costly nursing facility. Pharmaceuticals are often prescribed to combat cognitive decline and the troublesome behaviors associated with dementia. The problematic behaviors associated with dementia are the primary cause of caregiver burden which can lead to patient institutionalization (Riffin, Van Ness, Wolff, & Fried, 2018). Studies have shown there are some non-pharmaceutical interventions that successfully mitigate dementia behaviors; however, there is currently no way to currently bill Medicare/Medicaid for these alternative therapies independently. Access to these treatments would have to be included within the broader scope of services provided by participating community-based adult service organizations or nursing facilities. Medicaid programs such as In Home Support Services (I.H.S.S), Program for All- inclusive Care for the Elderly (PACE), and the Money Follows the Person Program (MFP) provide for services such as daily-living assistance and medical transportation; with the goal of prolonging the necessity of an individual's admittance to a long-term care facility.

Methodology

This study is a qualitative analysis of peer-reviewed journal articles. Six scholarly databases were searched for English language articles published between January 2015 and May 2020, including Wiley Journals, Sage Journals, PubMed, OneSearch, JSTOR, and Google Scholar. The key words used include Medicaid coverage of Alzheimer's treatments, Medicaid policy Alzheimer's treatment, costs of Alzheimer's disease, Alzheimer's pharmaceuticals, nonpharmaceutical treatment of Alzheimer's, Medicaid durable medical equipment, Money Follows the Person Medicaid, Programs of All-inclusive Care Medicaid, and Community and Home-based programs Medicaid. The filters "gerontology & aging" and "health & healthcare"

were utilized to further narrow search results, and the sorting tool "relevancy" was applied resulting in 1,818 journal articles. Articles whose focus was not inclusive of the key search terms, as determined by the article's title or abstract, were excluded from further review. 92 articles remained that were more closely examined to determine relevancy to this study.

Review of the remaining articles resulted in exclusion of those whose focus was on a non-pharmaceutical intervention not reasonably available within a home or community-based setting, such as dog therapy, as well as those that did not involve the Alzheimer patient population, the elderly, or both. Articles containing primary research conducted in the United States were preferred; however, international articles that were particularly relevant were considered. Following this inclusion/exclusion criteria twenty-six peer reviewed articles were selected for this study. Government websites such as CA.gov, Medicaid.gov, and CMS.gov were also searched for pertinent information on Medicare and Medicaid policies of coverage.

LITERATURE REVIEW

Costs of Alzheimer Care

In 2019, over 5.8 million people had a diagnosis of Alzheimer's disease, 5.6 million of whom were over the age of 65 and Medicare eligible (Alzheimer's Association, 2019). Zissimopoulus et al. (2015) project that by 2050, the number of patients over the age of 70 diagnosed with Alzheimer's will increase by 153%, thereby increasing costs associated with care from $307 billion (in 2010) to $1.5 trillion, with approximately 75% of the formal costs paid by Medicare and Medicaid (Zissimopoulos, Crimmins, & St. Clair, 2015).

The informal costs of Alzheimer care must also be acknowledged. Informal costs refer to the non-professional caregiving performed by a patient's friends and family. It is estimated that more than 16 million Americans act as unpaid caregivers for someone with Alzheimer's disease and related dementias, totaling an estimated 18.6 billion hours of unpaid labor valued at nearly $244 billion (Alzheimer's Association, 2020). In addition to caregiving hours, families of Alzheimer's patients can face substantial out-of-pocket costs for their loved one's care. Jutkowitz et al (2017) calculated the lifetime costs of care for dementia as $321, 780 of which $89,840 constituted patient out-of-pocket costs (Jutkowitz, et al., 2017). Their multifactorial study on determinants of caregiver burden found dementia to be the only patient characteristic impactful of caregiver burden (Jutkowitz, et al., 2017).

Medicare paid expenses for individuals with a diagnosis of Alzheimer's dementia are on average $3489 higher for hospitalizations and $97 higher for all-cause emergency department visits annually than individuals without a dementia diagnosis (Coots Daras, Feng, Weiner, & Kaganova, 2017). The real-world costs of Alzheimer's Disease were further investigated by

Pyenson et al. (2019). They utilized Medicare 5 Percent Limited Data Set claim files for the years 2006-2015 to track the medical claims of beneficiaries with a diagnosis of Alzheimer's Disease compared to beneficiaries without an AD diagnosis. The authors found that an Alzheimer's diagnosis added nearly 11% in Medicare costs per patient per year of life post diagnosis, and further concluded that Medicaid coverage of treatments that delay onset of Alzheimer's disease and promote use of home and community-based services could reduce Medicaid Alzheimer-related expenditures overall through a reduction in beneficiary use of long-term care (Pyenson, et al., 2019).

Pharmacological and Nonpharmacological Treatments

Pharmacological and nonpharmacological treatment are utilized for several Alzheimer's symptoms as well as in an attempt to slow disease progression (Yang, 2019). Kronos et al (2016) found that of the 67% of individuals residing in long term care with a documented diagnosis of Alzheimer's disease, 78% were treated with medication for dementia symptoms (Kronhaus, Fuller, Zimmerman, & Reed, 2016). It is possible that pharmaceutical intervention for dementia has benefits beyond behavior modification. Lin et al (2019) investigated the mortality rates of Alzheimer's patients treated with antidementia medication in Taiwan. They found that the mortality rates of those receiving medication was 26% lower than the mortality rate of those that did not even after adjusting for confounding variables (Lin, Lin, Hou, & Lan, 2019).

Theleritis et al. (2017) investigated the effects of both pharmacological and nonpharmacological treatments on Alzheimer's patients exhibiting apathy. Treatment of this behavior was determined to be of importance because apathy has been associated with reduced daily functioning, functional disability, self-neglect, behaviors evoking embarrassment, caregiver distress, and poor disease outcome. Treatment plans included administration of Donepezil,

Galantamine, Memantine, Tacrine, Metrifonate, Rivastigmine, Ginkgo Biloba, Methylphenidate, Modafinil, Deanol, antidepressants, and antipsychotics, all of which showed some effectiveness in the treatment of apathy, though some of the medications had side effects that prevent them from being viable long-term solutions. Data on the use of nonpharmaceutical therapies were also compiled. Activity based interventions using music (both live and recorded) and cognitive stimulation therapy were administered and found to be effective in significantly reducing apathy (Theleritis, Siarkos, & Politis, 2017).

Music Intervention

Music listening falls into the cognitive stimulation category of nonpharmacological interventions for Alzheimer's disease (Alzheimer's Association, 2019). Music listening has been associated with not only improved mood, but also decreased levels of agitation, making it a viable and cost-effective method for managing the behavioral problems associated with Alzheimer's disease and other dementias (Eggert, et al., 2015). Their 2015 study consisted of measuring the effects of exposure to chosen music and nature images on patient engagement using the Individualized Dementia Engagement and Activities Scale tool, Montreal Cognitive Assessment, and Cohen-Mansfield Agitation Inventory. A total of thirteen individuals residing in the Memory Care unit of an assisted living community consented to participate in the study. Eleven participated in a sorting process to select preferred nature images, and six participated in a selection of preferred music. The chosen image/music was then utilized in one on one intervention sessions with the patient, with the patient being encouraged to interact with image/music (i.e., look at the image and discuss how it makes you feel, sing along with the music, etc.). All participants showed improved engagement and a reduction of disordered behaviors regardless of which intervention the patient was exposed to. Eggert et al. (2015)

believe that these interventions hold promise as viable options in reducing need for use of medications to modify undesirable behavior, which would in turn reduce costs to Medicaid. Both interventions are simple and inexpensive enough that they could be easily implemented after minimal caregiver training (Eggert, et al., 2015).

Therapy could be easily conducted in the patient's home or community setting via use of a personal music device, such as an iPod, that can be loaded with a patient's preferred music choice. The positive benefits of reduced depression and agitation gained through a music listening session have been shown to remain with a patient for a period of up to two weeks post intervention (Ray & Mittelman, 2017).

Time in Nature

The previously referenced study investigated the benefits of a preferred nature image on the behaviors of Alzheimer's patients, while Liao et al. (2018) studied the beneficial effects of physically being in nature on Alzheimer's patients in nine dementia care facilities with gardens in Illinois. Forty-two staff members in those facilities participated in the study. The facilities varied in the level of organized garden usage as well as resident's ability to access the garden at will. A questionnaire completed by participating staff members was used to determine the benefits of garden use on patients with dementia. It consisted of questions regarding cognitive abilities, behavioral problems, activities of daily living, appetite, mood, and social interaction. The data obtained from the questionnaire underwent one-way analysis of variance, as well as text analysis.

The most improved resident characteristic as reported on the questionnaire was mood. The staff expressed that they "thought that garden visits allowed the residents to fell independent

and made them happier" (Liao, Ou, Li, & Ko, 2018, p. 8). The second most improved resident characteristic was for social interaction. Staff reported that this was likely due to the garden giving residents more novel topics of discussion. Staff also reported a reduction in residents' behavior problems, depression, anxiety/agitation, and aggression. To a lesser extent, though worth reporting, were staff who reported that garden visits improved resident's attention, orientation to time, and sleep behaviors.

Time in nature is an enjoyable experience for many. The chirping of birds, beautiful colors of a sunrise, the feeling of sunshine and a cool breeze, as well as the smell of wildflowers offer stimulation of one's senses (Liao, Ou, Li, & Ko, 2018). The use of natural environments has been shown to improve some of the undesirable behavior symptoms of Alzheimer's disease and related dementias that are typically managed with medication.

Limitations of this study include that it was performed in a nursing home environment as opposed to a home or community-based setting. Also, the use of a questionnaire completed by facility staff allows for the possibility of bias, as those who agreed to participate may feel an obligation to report positively.

Technology

Recent technological innovations have sought to simplify the responsibilities of everyday life. More than convenience, technology can play a role in improving both the quality of life for patients living with Alzheimer's disease and related dementias, as well as serve as a therapeutic tool to alleviate symptoms. The use of technology to administer Reminiscence therapy to Alzheimer's patients is long standing and well documented (Asiret & Kapucu, 2016).

The range of possible technological interventions for Alzheimer's symptoms is broad. The benefits of music therapy have been previously discussed; however, GPS enabled devices such as smart phones can assist with navigational support to alleviate patient disorientation, and virtual reality devices can make exercise accessible to patients who have difficulty leaving the home (Astell, et al., 2019). Personalized technological interventions have been shown to be a useful tool for assisting those receiving care in the home, as well as their care givers, in coping with the symptoms of Alzheimer's disease (Kerssens, et al., 2015). Applications on touch screen devices, such as smart phones or tablets, can encourage socializing, promote well-being and improve cognition, as well as support patient independent living through remote monitoring (Mitchell, et al., 2020). Smart home technology can be used to enhance patient safety through fall detection sensors and storage of patient activity data that can be reviewed by caregivers (Turjamaa, Pehkonen, & Kangasniemi, 2019). Technology has been utilized to improve the physical health of Alzheimer's patients as well. Simple technology-aided programs have been used successfully by patients with severe Alzheimer's disease to promote physical activity and exercise (Lancioni, et al., 2017).

Technology studies are inherently limited by the rate at which technology advances. These articles demonstrate the usefulness of technological devices in overcoming a myriad of Alzheimer's symptoms; however, the specific devices and methods of use in any given study might be deemed obsolete by the time the study is published.

There are many alternative therapies that have proven to be beneficial in decreasing symptoms when used against Alzheimer's disease and related dementias, particularly in the area of elevating mood and decreasing agitation. A large limitation of all these studies is not knowing

if these interventions will remain effective over the long-term and with repeated use on the same individual, or if the patient's positive response will fatigue.

Durable Medical Equipment

For the alternative therapies that utilize a device to administer or assist with treatment, the question of payer responsibility is first and foremost to patient access. Medicaid beneficiaries' coverage of Durable Medical Equipment (DME) is limited to devices that have been determined to be medically necessary by a physician (Medi-cal, 2019). California Medicaid (MCAL) defines medically necessary as "those necessary to protect life, to prevent significant illness or significant disability, or to alleviate significant pain". The regulation further details that "DME items may be covered as medically necessary only to preserve bodily functions essential to activities of daily living to prevent significant physical disability" (Medi-cal, 2019). Household items, items of a primarily educational nature, and items that are not generally used primarily for health care are some of the specifically listed exclusions to Medicaid DME coverage. Devices, such as the i-Pods utilized for music therapy or smartphones and tablets used in conjunction with apps to promote socialization, currently fall into this category of devices not covered by Medicaid.

Home and Community Based Adult Services

"Home and community-based services (HCBS) provide opportunities for Medicaid beneficiaries to receive services in their own home or community rather than institutions or other isolating settings. These programs serve a variety of targeted population groups, such as people with intellectual or developmental disabilities, physical disabilities, and/or mental illness" (Centers for Medicaid & Medicare Services, 2020). Services are coordinated through state Medicaid and provided to individuals in lieu of institutionalization into a long-term medical

facility. In addition to ensuring that medical needs are met appropriately, enhancing the recipient's quality of life is a goal (Community-Based Adult Services, 2019). Coverage includes licensed professional services, such as nursing, home health, and social work, as well as unlicensed professional services by approved individuals or agencies.

In Home Support Services

In Home Support Services (IHSS) is a program operated through the Department of Social Services via Medicaid funding. The program seeks to serve as an alternative to out of home care (i.e., care facility), and provides funding for daily living needs, such as housecleaning, meal preparation, laundry, grocery shopping, personal care services (such as bowel and bladder care, bathing, grooming, and paramedical services), accompaniment to medical appointments, and protective supervision for the mentally impaired (CA Department of Social Services, 2020). It is also the only program that allows compensation of family member in-home caregivers.

Participants are evaluated by a social worker and assigned a rank from 1-5 (rank 6 can only be assigned by a licensed healthcare professional), with 1 indicating the greatest amount of independence and five indicating complete dependence. The social worker then authorizes an amount of time, within the set guidelines, for the paid caregiver to perform the tasks deemed necessary for the beneficiary. Any requirement of additional time must be reviewed and approved by the social worker.

IHSS also compensates caregivers for teaching and demonstrations to beneficiaries that result in greater independence of the beneficiary to complete the task. Teaching and demonstration services can only be authorized for three months, and beneficiary mastery of the

task may result in a reduction of allowed caregiver service hours (CA Department of Social Services, 2020).

Programs of All-Inclusive Care for the Elderly

Programs of All-Inclusive Care for the Elderly (PACE) is a comprehensive elder care program funded through the Center for Medicaid & Medicare Services that "helps people meet their health care needs in the community instead of going to a nursing home or other care facility" (Medicare, 2020). The program establishes a PACE facility that provides participants with access to a team of professionals in the community coordinated to meet the beneficiary's healthcare needs, and the goals of: enhancing quality of life and autonomy for older adults, maximizing dignity and respect of older adults, enabling frail older adults to live in their homes and community as long as medially and socially feasible, and preserving and supporting the older adult's family unit (Centers for Medicaid & Medicare Services, 2020). PACE is implemented as a state Medicaid option, and to qualify beneficiaries must meet the following criteria (Centers for Medicaid & Medicare Services, 2020):

1) Age 55 or older
2) Live in the service area of a PACE organization
3) Eligible for nursing home care
4) Able to live safely in the community

Care services are authorized by an interdisciplinary team of professionals and provided in either the patient's home or in an adult day health care facility, including social services, without deductibles, copayments, or other costs to the patient. Services include those covered by Medicare/Medicaid, as well as those deemed medically necessary by the interdisciplinary team that Medicare/Medicaid does not traditionally pay for. PACE participants also receive Medicare

Part D coverage for pharmaceuticals (Centers for Medicaid & Medicare Services, 2020), as well as round-trip transportation from the patient's home to the day health center, appointments with specialists, and other organized activities.

California PACE participants have proven to have fewer hospitalizations and nursing home admissions, greater levels of satisfaction with care received and a better quality of life than beneficiaries placed in long-term nursing facilities (State of California, 2019). Additionally, the state of California saved $22,600,00 through beneficiary participation in PACE versus beneficiaries in residential long-term care in 2017 (State of California, 2019).

Money Follows the Person

The Money Follows the Person Rebalancing Demonstration (MFP) is designed to support the transition of Medicaid beneficiaries out of long-term care facilities and back into the community (Robinson, Shugrue, Porter, & Baker, 2020). Federal grants provide the states with funds allocated to state Medicaid programs who employ or contract with professionals in the community to assist MFP participants with the transition back to a home setting, provide long-term care services, and sometimes primary and acute care services all within the community setting (Denny-Brown, Hagen, Brandnan, & Williams, 2015). The program's stated goals are:

1) Increase the use of home and community-based services (HCBS) and reduce the use of institutionally based services

2) Eliminate barriers in state law, state Medicaid plans, and state budgets that restrict the use of Medicaid funds to enable Medicaid eligible individuals to receive support for appropriate and necessary long-term services and supports in the settings of their choice

3) Strengthen the ability of Medicaid programs to provide HCBS to people who choose to transition out of institutions

4) Put procedures in place to provide quality assurance and improve HCBS

(Centers for Medicaid & Medicare Services, 2020).

Program participants must be eligible for state Medicaid, have resided in an institutional health facility for greater than 90 days, and be moving to a qualified residence. A qualified residence is defined as "a home owned or leased b an eligible Medi-Cal beneficiary or their family member…with sleeping, bathing, and cooking areas over which the beneficiary or the beneficiary's family has domain and control, or another residence in a community-based residential setting that meets the requirements of the federal home and community-based settings rule.." (State of California, 2019). MFP facilitates not only the transition back into the community, but also care planning/coordination, enrollment in social services, and post-transition follow up to be sure that the patient's needs are being met. Beneficiaries can receive services from their state's MFP organization for a period of up to one year.

FINDINGS/ANALYSIS

The population of individuals age 65 and older is expected to continue to increase, and with that population growth will come an increased demand for healthcare services; including care for Alzheimer's disease and related dementias. Current treatment for Alzheimer's disease typically consists of prescription drugs; however, there are nonpharmaceutical interventions that have been found to have comparable success in modifying undesirable behaviors. Music listening decreased agitation and improved overall mood, time in nature decreased aggression and supported healthy sleep patterns; technological devices can be utilized by caregivers to monitor patients remotely and to assist Alzheimer's patients with activities of daily living.

As the largest insurer of people in this age group Medicare/Medicaid is responsible for a large portion of the expenses associated with Alzheimer's care. Policies of coverage for community and home-based services have been implemented to offset much of the costs connected with long-term care by allowing Alzheimer's patients to remain in their homes for the duration of care. By delaying patient transitions to long-term care, Medicaid has saved millions of dollars annually.

The home and community-based programs funded by Medicaid provide specific benefits to program participants. Recommendations for care can only be made by those with state approval, and delivery of care can only be performed by a state approved facility. Any alterations to the services provided by these programs would require amendments to CMS legislation.

Policy Implications

Early diagnosis and treatment of Alzheimer's disease and related dementias leads to better clinical outcomes (Yang, 2019). Primary care physicians are typically the first step in a diagnosis of Alzheimer's disease; however, the current workforce cannot sustain the ever-increasing demand. Incentivizing the additional training necessary to adequately meet the needs of early onset Alzheimer's patients could increase the number of physicians qualified to identify and treat patients at the first sign of Alzheimer symptoms. A special report by the Alzheimer's Association recommends federal and state programs that provide scholarships and loan forgiveness aimed at increasing both the number of physicians who practice in rural areas and "directly influence the decision of osteopathic medical graduates to become primary care physicians" (Alzheimer's Association, 2020). Federal funding of family medicine departments at medical schools, federal and state support of tele-monitoring programs, and expanded coordination and collaboration of care programs which often rely upon non-specialists were also recommended (Alzheimer's Association, 2020). As the gatekeepers of patient care, physicians hold primary agency over the patient's treatment plan and recommendations, be it pharmacological therapies or use of durable medical equipment. Increased training on the care of patients with Alzheimer's disease could better inform them of the efficacy of nonpharmaceutical interventions and community-based support programs available to patients via Medicaid funding.

The steady increase of individuals over age 65 with Alzheimer's disease and related dementias makes timely revisions to Medicare/Medicaid's policies extremely important. In 2019 Medicare and Medicaid paid approximately $195 billion in long-term care, health care, and hospice care expenses related to Alzheimer's disease (Alzheimer's Association, 2019). The goal

of community and home-based services is to defer these costs by providing necessary services within the community the patient resides in thereby delaying long term care residency. The benefits of providing dementia care in the home/community include honoring the preference of patients to remain in their homes and communities, delaying permanent transition to a long-term care facility, and increasing patient's quality of life (Samus, et al., 2017). Expanding non-medical in-home support services beyond activities necessary for daily life functions to be inclusive of activities also that support patient quality of life could further assist in delaying long term care transitions by decreasing undesirable Alzheimer symptoms such as agitation and aggression, alleviating sources of caregiver stress.

Unpaid caregivers potentially save Medicaid $244 billion dollars and policies that also promote their well-being should be considered. Vandepitte et al (2019) proposed a respite care program for informal caregivers in Belgium. Their program involved substituting a professional caregiver in for five days every 6 months in order to allow unpaid caregivers a sustained break from caregiving. The study was conducted over a five-year period and resulted in a lower institutionalization rate amongst the experimental group than that of the control, presumably due to a lower level of caregiver stress. The program was also found to be highly cost-effective when compared to the potential costs incurred by patient transitions to long term care (Vandepitte, Putman, Van Den Noortgate, Verhaeghe, & Annemans, 2019). Although the American healthcare system is quite different from that of Belgium, the results of this study show the benefits of considering the challenges faced by unpaid caregivers when formulating policies around Alzheimer care.

Many Alzheimer patients are not able to be cared for in the community, but there are others that do not require nursing home care permanently. Transitioning patients out of long term

care has seen limited success for those that are Medicaid age and diagnosed with Alzheimer's disease; however, the methods that have proven to be effective with those under age 65 who transition back to the community could be implemented to target those over age 65 as well. 2015 data shows that while they accounted for less than 20% of the nursing home population, patients under age 65 made up 40% of those who transitioned back to the community through the Money Follows the Person program (Irvin, Denny-Brown, Morris, & Postman, 2016). Successful individuals had strong peer networks, transition coordination and planning, flexible long term care services, were highly motivated to transition, and had good, supportive relationships to provide informal caregiving (Irvin, Denny-Brown, Morris, & Postman, 2016). Policies that further positively promote community-based services, coordinate health and personal care as well as home modifications, and connect patients over age 65 with appropriate peer groups would be advantageous to transitions out of long-term care facilities.

Durable medical equipment is typically covered by Medicare part B and categorized as devices prescribed by a doctor for use within one's home; however for patients that are unable to afford part B coverage, or those that qualify for supplemental coverage, Medicaid provides coverage as well (Centers for Medicare & Medicaid Services, 2020). Broadening Medicaid's coverage for devices beyond those classified as "medically necessary" would allow devices used for music therapy and technological interventions to be accessible to a larger segment of the Alzheimer's population. California Medicaid (Medi-Cal) expressly limits coverage of durable medical devices to those that are "medically necessary to preserve bodily functions essential to activities of daily living or to prevent significant physical disability" (Medi-cal, 2019). Inclusion of devices that seek to diminish cognitive disability might allow for equipment used in alternative Alzheimer therapies to also be covered.

There are numerous nonpharmaceutical therapies available to alleviate the symptoms of Alzheimer's disease and related dementias, many of which can be administered in the comfort of the patient's home. Changes in Medicaid's policy to expressly cover these therapies could assist in delaying many beneficiaries from residing in long-term care facilities, resulting in significant savings to Medicaid.

Barriers

Medicaid restricts coverage to those services deemed "medically necessary". Many of the interventions cannot be measured objectively in terms of medical necessity (ie life or death) but contribute significantly to a patient's quality of life. Even determining improvements to patient's quality of life can be a challenge, as measures such as these are elicited from patient report which becomes more difficult to obtain with disease progression (McConnell & Meyer, 2019).

Creating a home environment that is able to support the needs of a given Alzheimer's patient can be complicated. The diversity of the affected population and the unpredictability of symptom progression means policies cannot be one size fits all. The collaborative nature of PACE looks at each patient's needs individually; however, it is still limited by the services that are available within the patient's community. Recommended services must also be approved prior to delivery of care, creating a potential for delay of care. All community-based services are further limited by availability of state funding and budget constraints that can inhibit their ability to effectively serve the Alzheimer's population.

There are also factors involved in a patient's successful transition back into the community that are beyond the program's control. Poor physical health, lack of stable housing,

problematic relationships with family members/unpaid caregivers, and significant dementia/cognitive issue are all indicators that a patient's transition out of long term care will not be successful (Robinson, Shugrue, Porter, & Baker, 2020). For patients that do transition back into their homes, maintaining a household environment that is advantageous to an individual with cognitive decline can be a challenge. In Home Support Services list a number of "special circumstance" coverages; however the services that qualify are extremely specific. While the policy of coverage for yard abatement may seem applicable to creating a leisurely outdoor space to permit a patient time in nature, the policy stipulates that the service is limited to one time use for the purpose of eliminating high grass/weeds that are deemed a fire hazard, or removal of hazardous ice/snow from walkways (CA Department of Social Services, 2020). Also listed under special circumstances is protective supervision, coverage described as watching the individual to keep him/her safe and prevent injuries and accidents; however, the policy of coverage does not clarify if remote monitoring, such as through smart home devices or body-worn sensors, of a patient would apply.

If revisions to Medicare/Medicaid's durable medical equipment coverage were made to cover technology driven interventions such as smart home devices, there would still be a question of who would pay for the operational costs of the device. Internet service, security subscriptions, and even a small increase in costs of utility bills may not be a feasible expense for some patients who can benefit from these services. Uncertainty over who will cover additional costs coupled with an inability to ensure that the patient is the sole beneficiary of the device and related service (ie the Internet) makes it unlikely that such devices will be covered by Medicare/Medicaid in the future.

Future Research

Further research providing quantitative data on the rate of transition to long-term care facilities by Alzheimer's patients who have also utilized the home and community-based programs mentioned in this review, as well as analysis of the costs associated with program participation versus long-term care residency is necessary to discern any overall savings to Medicaid. More studies that explore the rate of use of pharmaceuticals by Alzheimer's patients before and after implementation of non-pharmaceutical interventions would be beneficial in further determining the efficacy of those interventions; as would a study measuring outcomes of patients who receive non-pharmacological interventions through participation in home and community-based programs against patients who receive only traditional Alzheimer therapies. Further research in these areas could ultimately determine if both non-pharmaceutical interventions and participation in community-based care reduces overall Medicaid costs.

CONCLUSION

The current number of Americans requiring care for Alzheimer's disease and related dementias is staggering, and it is only expected to increase. As a large segment of our population ages, they will require more and more care; care that will most likely be provided by Medicaid programs. As a long-term, chronic condition Alzheimer's disease commands a significant portion of the Medicaid budget. Much of the expense in providing care to patients with Alzheimer's is related to pharmacological treatment and long-term care facilities. Exploring alternative therapies for symptom management could reduce the use of pharmaceuticals as well as the duration of stay in long-term care, while still providing effective treatment to patients.

Many of these therapies can be provided to individual's in their own homes through coordination with existing home and community-based programs. Personalized technology, music intervention, and time in nature are just some of the alternative treatments that have been shown to be effective in increasing independence and improving the mood and behaviors of Alzheimer's patients. Greater self-sufficiency, improved mood and fewer incidences of undesirable behavior lead to a better quality of life for the patient, as well as less caregiver stress, which assists in delaying the transfer of patients from in-home care scenarios to long-term care facilities resulting in a reduction in Medicaid expenditures for Alzheimer's care.

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