

Alzheimer's disease

CME Resources

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INTRODUCTION

Affecting more than 4 million people in this country and 22 million people worldwide, Alzheimer's disease (AD) is the most common form of dementia. Three percent of people 65 years of age or older are diagnosed with Alzheimer's; the incidence doubles every 5 years thereafter. Forty-seven percent of the population 85 years of age or older has the disease [1]. Thirty-five to seventy-five percent of residents in long-term care facilities have been diagnosed with Alzheimer's or another senile dementia, for which there is no cure.

The number of adults over 65 years of age is steadily increasing; by the year 2030, adults over 65 years of age are expected to constitute approximately 20% of the U.S. population [2]. In 1997, more than half of the older population reported having at least one disability, and one-third reported limitations in activities due to chronic health conditions. More than 14% of the older

adult population report difficulties in carrying out certain activities of daily living (ADLs), such as bathing, dressing, eating and getting around the house; 21% report difficulties with other instrumental activities of daily living (IADLs), such as preparing meals, shopping, managing money, using the telephone, doing housework and taking medications [3].

Because of global population aging, Edward Truschke, president of the Alzheimer's Association, says "we have an imminent worldwide epidemic if a cure is not found."

Although the disease was identified and named in the early part of the twentieth century, little was known about Alzheimer's until the last decade. There is no specific treatment and no magic potion for the management of its victims.

However, there is much that can be done to increase and maintain a quality of life throughout the disease. To accomplish this, caregivers must have a thorough knowledge and understanding of the disease. Successful management involves the "use of self" and application of behavioral interventions. Professional caregivers must be willing to accept the family as contributing members of the team. Nurses come in contact with clients in hospitals; long-term care facilities, in the client's home and in the physician's office.

This continuing education course can increase the skills of nurses in all areas who are called upon to care for people with Alzheimer's disease. The term "caregiver" is used throughout the text and refers to any person interacting with the client whether it is a professional healthcare provider, nursing assistants, other members of the interdisciplinary team or family members.

DESCRIPTION OF THE DISEASE

Alzheimer's disease was first identified and named in 1906 by Dr. Alois Alzheimer, a German neuropathologist. He had been treating a middle-aged female client who presented symptoms of memory loss and disorientation. Five years later the patient died after suffering hallucinations and symptoms of dementia. The manifestations and course of the disease were so unusual that Dr. Alzheimer was unable to classify the disease into any existing category. Postmortem examination of the brain revealed lesions and distortions, including neuritic plaques and neurofibrillary tangles.

It has been almost a century since the disease was identified but it has been only within the last two decades that it has received the recognition it deserves. In the past, symptoms were attributed to the "senility" of old age and victims were cared for at home. The problems of dementia were gradually recognized as an issue associated with the older population, but the nature of the disease and how to treat it were still a mystery. In the 1970s, researchers determined that people with AD had a neurochemical deficiency. This enabled scientists to separate dementia from aging and to study the disease the same way that Parkinson's and other neurological disorders are studied.

Scientists began meeting with family members of AD patients, leading to the founding of the Alzheimer's Disease and Related Disorders Association, now the Alzheimer's Association. This group has been responsible for advancing research, public awareness, education, family support

and public policy changes [4]. Healthcare professionals now know that while there is a strong and as yet incompletely understood relationship between aging and Alzheimer's, they are not the same condition [5]. The disease is recognized as a family, social and economic problem.

AD is characterized by severe cognitive impairment that causes problems both for the client and the caregivers. The disease is insidious, progressive, irreversible and eventually fatal. AD accounts for roughly 60% to 80% of all dementia patients in the United States [5]. It proceeds in stages, gradually destroying all cognitive functions. AD generally affects older men and women, with 75 the average age of onset. While the age range for onset is from 52 to 89 years, the disease is also seen rarely in younger people [6]. The risk increases with age. The death rate for people with AD is twice as great as the rate among those of the same age without the disease [1]. And while there is no cure, new therapies, particularly pharmacological, have been identified to aid in treatment of the devastating illness. Research, especially genetic, continues to try to find a way to prevent this most devastating disease.

DEFINITIONS

Organic brain syndrome (OBS) organic mental syndrome (OMS), chronic brain syndrome (CBS) and senile dementia are diagnoses that are still used by some physicians for people with symptoms of cognitive impairment. None of these terms is recognized in The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) of the American Psychiatric Association. These terms formerly referred to groups of cognitive disorders including delirium and dementia. Senile dementia or senility was once used as a diagnosis for any form of dementia that occurred after the age of 65.

Dementia is a general term that includes many diseases, characterized by a decline in intellectual functioning severe enough to interfere with a person's usual activities and social and family relationships. Cognitive deficits are the major manifestation. Memory loss is required to make a diagnosis of any dementia. A dementia may be the result of chronic or infectious disease, head trauma or it may be substance induced. Dementia may be progressive, static or remitting depending upon the underlying pathology. Some forms are reversible with early and effective treatment. Roughly 60% to 80% of all dementias are due to dementia of the Alzheimer's type, generally called Alzheimer's disease. It may be subdivided into dementia of the Alzheimer's type with early onset when the client is under 65 years and Alzheimer's type with late onset when the client is over 65 years [7]. Overlap disorders, other dementias that may occur independently but mimic AD and/or co-exist with AD, include vascular dementia (VaD), dementia with Lewy bodies (DLB) and frontotemporal dementia (FTD) [5].

Age-associated memory impairment should not be confused with the memory loss associated with a dementia. Age-associated memory impairment, also called benign senescent forgetfulness, sometimes accompanies aging. Unlike AD it does not progress to other cognitive impairments.

IMPACT OF ALZHEIMER'S DISEASE

The impact of Alzheimer's disease is similar to tossing a pebble into a quiet pool - the ripple of the initial toss is just the beginning. In that manner, a diagnosis of AD affects the patient first, moving on to touch family members and other caregivers. The disease has wide reaching consequences personally, sociologically and economically.

Demographic Impact

Approximately 360,000 new cases of AD are diagnosed each year. As our aging population increases, so will this number. More than 34 million people - 13% of the total United States population - are now age 65 or older. This percentage will increase to 18% by the year 2025 [8]. Statistics show that Asia has the greatest number of patients with dementia [9] and some studies have indicated a higher risk for African-Americans and Hispanic Americans than Caucasians, but not all studies show similar results [8]. More than 100,000 AD patients die every year, and the symptoms of AD combine to make it the fourth leading cause of death in adults, after heart disease, cancer and stroke.

Economic Impact

The economic impact of AD is staggering. It is estimated to cost more than \$50 billion nationwide and \$100 billion worldwide annually to care for AD patients. The annual cost is more than \$18,000 to care for a client with a mild impairment, more than \$30,000 for a client with moderate AD and more than \$36,000 for someone with severe AD. Indirect costs also vary considerably and include loss of wages on the part of the patient, spouse or other caretaker [10]. If the onset of the disease could be delayed for even one year, there would be an annual savings of nearly \$10 billion after 10 years.

Because Medicare does not cover the cost of institutional long-term care or at-home assistance with activities of daily living, patients and their families are forced to shoulder the financial burden on their own. Long-term care insurance is available from third-party insurers and Medicaid is available for those who meet income guidelines. For acute episodes related to Alzheimer's, Medicare Part A (hospital services) covers a portion of medically necessary hospital stays, skilled nursing facility care, home healthcare and hospice care. Part B (medical insurance) will help pay for doctor's services, outpatient hospital care and some other medically necessary services that Part A does not cover, such as physical and occupational therapy, either at home or in a medical facility [11].

One-fifth of caregivers have annual incomes of less than \$15,000 and only 11% have annual incomes of more than \$75,000. As a result of costs not covered by insurance or Medicare, and unexpected expenses, caregivers spend an average of \$260 per month of their own income [8].

Impact on Family and Significant Others

The client is not the only victim of AD. Interventions that assist caregivers to cope and prevent caregiver burnout are as essential as interventions for the client. One in 10 families has a relative with AD; of the 4 million in this country, 70% live at home [1].

A typical married couple, each with two parents, has a 70% chance of having at least one parent develop AD [1]. Spouses, adult children, other relatives or friends, many of them single women, care for a little more than half of these clients at home. The remainder are in different types of healthcare facilities. The client endures a continuing loss of mental powers while the family witnesses the slow deterioration of their loved one. There are devastating mental, emotional and physical changes that result in the total dependence of the client, and the need for care never stops.

In the earlier stages the client may wander and get lost or get up frequently during the night. The client feels the "self" slipping away but is helpless to do anything about it. Familiar routine tasks become monumental chores causing frustration and humiliation when they cannot be completed. In the later stages maximum assistance with all activities of daily living is required.

Family members experience the same roller coaster ride of emotions as they too become frustrated, sometimes resentful and often fatigued as they try to provide for the needs of their loved one. Marriages suffer as adult children with children of their own try to care for aging parents, or one aging spouse feels responsible to meet every need of his or her increasingly demented partner. Role reversals are common within a marriage or between parent and child. The caregiver has to take on the responsibilities previously assumed by the client in addition to providing the care for the person. Caregivers need to be strong, to anticipate problems and be patient. The support and care of friends may gradually subside as the situation goes on and on and on.

THE PHYSIOLOGY OF ALZHEIMER'S DISEASE

The brain is composed of billions of neurons that release chemicals called neurotransmitters that form the foundation for a complex communication system within the body. Neurotransmitters dwell in tiny sacs at the ends of axons. Any of these neurons can have hundreds of thousands of connections with other neurons. When a neuron receives a message from any of the other neurons, an electrical charge builds up in the cell. The charge travels through the cell until it reaches the end of the axon where the release of the neurotransmitters occurs. These chemicals move across a gap (synapse) between the cells, then bind to a receptor (molecule) on the receiving cell. The neurotransmitters then either break down or pass back into the first neuron, while other substances inside the second neuron take up and relay the message.

CAUSES OF ALZHEIMER'S DISEASE

The cause of Alzheimer's disease is unknown, but the excessive deposition of extracellular beta amyloid in the form of neuritic plaques in the perineural space in parts of the central nervous system is believed to be a primary pathophysiological mechanism [6]. Paired helical filaments consisting of abnormally phosphorylated tau protein that form intraneuronal neurofibrillary tangles are another prominent finding. There is a loss of neurons and an even more significant

loss of synapses in the hippocampus, entorhinal cortex and related areas of the neocortex, with evidence of a local inflammatory response and oxidative stress [6].

Although scientists know what occurs in the brain of people with AD, it is still not clear why these events occur in certain individuals. There are two types of AD. Familial AD (FAD) follows an inheritance pattern while sporadic AD has no known inheritance factor. AD can be further classified as early-onset when it occurs in people under 65 years or late-onset when it affects people over 65. Early onset only occurs in about 10% of cases, usually affects people aged 30 to 60, is sometimes inherited and runs in families. This form progresses faster than late-onset AD.

There are nongenetic factors related to AD. Researchers are investigating these factors to determine the development of new theories about the processes involved in triggering the onset of the disease and the continuing disease process.

One area of exploration is a theory of aging. This theory proposes that certain types of molecules called free radicals are a product of normal metabolism. These substances may assist healthy cells by fighting infection but an overabundance of free radicals can injure cells. The oxidative damage due to free radicals may contribute to the development of AD. Because brain cells have a high rate of metabolism and a long life span, they are vulnerable to oxidative stress.

Another area of investigation has to do with inflammation of the brain. Certain genes produce an inflammation promoting protein made by the immune system. Studies provide indirect evidence that frequent anti-inflammatory agent use is correlated with a decreased prevalence of AD. Direct evidence reveals that various compounds involved in the inflammatory process can be found in the plaques of AD [8].

The relationship between brain infarction and AD that occurs when neurons are deprived of oxygen and glucose is another area of investigation. It has been suggested that some brain infarcts may not be sufficient to cause dementia, but may play a role in increasing the severity of AD's clinical signs [8].

BRAIN POWER

Genes are made up of four chemicals, each of which directs the manufacture of a different protein. Even slight changes in a gene's DNA sequence can produce a faulty protein, which can lead to cell breakdown and eventually disease. Current genetic research shows there are at least four genes involved in the transmission of Alzheimer's, including the amyloid-beta precursor gene (APP), the apolipoprotein E4 susceptibility gene (ApoE) and the presenilin 1 and 2 genes [12]. Genetic mutations on chromosomes 1, 12, 14, 19 and 21 have been found to be more common in AD clients than in the general population. The mutations on chromosomes 1 and 14 account for about half of all cases of early-onset familial AD. The mutation on chromosome 21 may have an amyloid precursor protein (APP) gene mutation that has been shown to be the cause of AD in a few families with the early-onset form of illness [6]. APP is a protein from which beta-amyloid, the chief component of plaques seen in the brains of AD patients is formed [8]. Chromosomes 12 and 19 may help determine increased susceptibility [6].

ApoE helps transport cholesterol in the blood. Every person inherits an ApoE gene with one of four alleles (1-4) from each parent. ApoE3 is the most common allele found in the general population, but ApoE4 is found in about two-thirds of the cases of late-onset AD. A person with two copies of the allele has a 98% risk of developing AD. One copy of the allele drops the risk to 60%, while the person without the allele has at a 25% risk of developing AD [13]. It is possible to test family members with no symptoms of the disease to determine whether they carry the mutated gene thus ascertaining their risk for developing AD. Researchers are currently studying whether the ApoE2 allele is actually protective against Alzheimer's [12].

With the help of motor and sensory nerves, the brain integrates, regulates, initiates and controls functions in the whole body. These processes rely on successful chemical and electrical interactions. Thinking, remembering and learning do not occur in one single place within the brain. These processes are shared by many structures especially the cerebral cortex or "gray matter" that covers the cerebral hemispheres and directs the most intricate and complicated functions of the brain. The longitudinal fissure divides the cerebrum into two hemispheres. The central and lateral fissures divide each hemisphere into four lobes: the frontal lobe, parietal lobe, temporal lobe and occipital lobe.

At the forehead, the frontal lobe is responsible for voluntary motor activity and higher intellectual functions involving conscious thought such as planning, judgment, decision making and problem solving. This lobe is the organizer and classifies information. Damage to the frontal lobe results in inhibition of information processing. One section controls discrete body movements, while the centers for speech and smell are found in others. Lesions in the orbitofrontal section are linked to impulsiveness and hyperactivity. Broca's area governs verbal language skills and is located in the left frontal lobe.

The parietal lobe, at the side of the brain, processes sensory input related to taste, position sense, touch, shape and consistency of objects. The synthesis of auditory, visual and somatic input into thought and memory is accomplished by the temporal lobe. Wernicke's area, which is responsible for comprehension of written and verbal language, is located in the left temporal lobe.

At the temple, the temporal lobe contains auditory receptive areas. Impaired memory for verbal material is linked to damage of the left temporal lobe and the inability to remember nonverbal material (faces, for example) is associated with damage to the right temporal lobe.

The reception and processing of visual information through the retina is controlled by the occipital lobe, found in the back of the skull.

All dementias can be categorized as one of two patterns of brain deterioration, cortical or subcortical. Cortical types of dementia are characterized by marked memory disturbances. AD is a result of cortical disruption and all lobes are affected to some degree [14].

THE ROLE OF THE HIPPOCAMPUS

The entire brain is involved in the process of memory. Researchers believe that the hippocampus (located deep in the brain above the brain stem) and the amygdala (situated under the temporal lobe) are critical to the formation, storage and retrieval of memory. These structures are part of the limbic system.

The hippocampus, connected by afferent pathways to sensory areas of the cortex, is responsible for the acquisition and temporary storage of declarative memory. Declarative memory enables individuals to organize their world. For example, one learns the route to work and after traveling the route a few times is able to get there even though there may be a detour. The hippocampus maintains the directory for all of these memories so that when they are needed they can be retrieved. Individuals with bilateral loss of the hippocampus can only register incoming stimuli until the next stimulus arrives. Memories cannot be called up when needed such as during learning experiences. Some believe the hippocampus helps associate affective characteristics of various sensory signals, thus helping to control the kinds of information a person will or will not remember.

The amygdala receives input directly and indirectly from the sensory system. All endocrine, visceral motor and somatic motor effectors are affected by the output of the amygdala. The sexual and emotional aspects of human behavior are also controlled by the limbic system.

Parkinson's disease and Huntington's disease are examples of dementias related to subcortical dysfunction. Subcortical structures include the basal ganglia, thalamus and brain stem. Motor coordination, vital functions and central nervous system arousal, timing and sequential activity are controlled by the subcortical structures. Movement disorders (tremors, rigidity, chorea) are a prominent and early manifestation of subcortical dementias. In cortical diseases such as AD, impaired motor function occurs late in the course of the illness [14].

PATHOPHYSIOLOGY RELATED TO ALZHEIMER'S DISEASE

Until recently, scientists thought that once the human body had its full complement of neurons formed before and for a short time after birth, it could not create new ones. Researchers at the Institute of Neurology in Sweden and at the Salk Institute in California discovered that the human brain retains the ability to generate new neurons throughout life [8]. More research is needed but these findings suggest an enormous impact on future approaches to the prevention and treatment of neurological disorders.

Symptoms seen in clients with AD are the result of damage to the hippocampus and the cerebral cortex, reflected in memory loss, impaired cognition and atypical behaviors. The presence of neurofibrillary tangles and plaques are the hallmarks of AD. Unfortunately, the formation of tangles and plaques can only be identified at autopsy. Beta amyloid and tau are two proteins that participate in this formation.

Clients with AD show a decreased activity of the choline acetyltransferase enzyme in their brains. This enzyme is responsible for the production of acetylcholine. The sharp drop in acetylcholine is linked to memory impairment.

Two other abnormalities of the brain are evident. Twisted nerve cells called neurofibrillary tangles are found in the cell body of neurons. A form of tau, A68, is the major component of these tangles. In healthy neurons, the internal structures (called microtubules) are formed like long parallel tracks with crosspieces that carry nutrients from the body of the cells to the ends of the axons. In AD, the structure has disintegrated. The crosspieces formed from tau are twisted like two threads wound around each other. Amyloid plaques, made up of beta amyloid mixed with dendritic debris from surrounding cells, are found in areas of the brain associated with memory. It is not known why beta amyloid causes neuron death, but it is known that the normally soluble amyloid becomes insoluble when the ApoE4 protein latches onto the beta amyloid. The deposition of beta-amyloid into plaques is the primary event in AD, triggering a cascade of downstream changes in the brain [8].

The damage seen in AD can be caused by changes in three major processes. The first process is based on the communication between neurons. Successful communication relies on the reliability of the neuronal functions and the production of neurotransmitters. Any disruption of this process interferes with the normal function of cell-to-cell communication. The second process involves metabolism, the breakdown of chemicals and nutrients to generate the energy necessary for replenishing the building blocks of neuronal function. Sufficient blood circulation is required to supply the cells with oxygen and nutrients such as glucose. The third process is the repair of injured neurons. Neurons have the capacity to live more than 100 years. They must continuously maintain and adapt themselves in order to survive. If this process slows down or stops for any reason, the cell cannot function properly.

Aluminum, a toxic metal, has been linked with Alzheimer's disease. High concentrations of aluminum have been found in the brains of many of those with AD, although the exact nature of the correlation is not known [15]. The aluminum accumulation might cause the changes with the brain, or it might be secondary to whatever problem is causing the Alzheimer's.

RISK FACTORS ASSOCIATED WITH ALZHEIMER'S DISEASE

The risk of AD rises with age, doubling every 10 years after age 65. Other well-established risk factors include family history of dementia and the presence of Down's syndrome. There is also some evidence that people suffering prior head trauma involving loss of consciousness have a higher risk of developing AD [16].

SIGNIFICANCE OF MEMORY

AD is characterized by cognitive impairment. Cognition includes all of the mental processes that are acquired over a lifetime. These processes provide humans with the ability to learn, to think, to make judgments, to use logic and reason and to have insight. Memory is a major antecedent

for developing mastery in these intellectual functions. Memory deficits are an early and progressive sign of AD. In order to understand the behaviors of individuals with AD, it is necessary to understand the significance of memory, the process of remembering and recall and the types of memory.

Memory is dynamic, developing in stages and constantly changing. Memory and learning are not separate functions. Both depend on the storage of data that can be retrieved at a later date. The ability to remember simplifies life so that minimum energy needs to be expended on routine activities. For example, arising in the morning and completing the activities of daily living requires little conscious thought. The tasks are performed by rote. However, the person with memory deficits may not recognize the bedroom, be unable to find the bathroom, is unaware that teeth need to be brushed or where the items are that are used to complete these tasks.

Remembering and Recall

The acquisition of a memory depends on several mechanisms. Information is received from the environment, the senses perceive it, interpret it and respond to it. There are three stages involved in this process.

Information is acquired during the first stage; the information is taken in through the senses, perceived and understood. If the information is visual, it enters the brain through electrical impulses coming from the retina, traveling through the optic nerve and into the cerebral cortex [17]. A limited amount of this information is retained in short-term memory. Like a clipboard on a computer, the contents of short-term memory are constantly being lost and replaced with other information unless the contents are restored through repetition. For example, you look up a telephone number and remember it long enough to complete the call. This information will soon be forgotten if you never have to use it again or if you do not use it for several days or weeks. However, if the number is dialed every day or several times a week for several weeks, it becomes firmly entrenched in the brain as long-term memory for the duration of use. There is a limited storage capacity for short-term memory.

The second stage of memory is retention. Important information is placed in long-term memory where the storage involves associations with words, images or other experiences. This information can be recalled days, weeks or years later. For a memory to be retained, it must be transferred from short-term memory to long-term memory. Physical changes take place in the brain to facilitate this transfer.

Retrieval of information occurs in the third stage. Information is stored at an unconscious level and is later recalled, bringing it into the conscious mind. The accuracy and availability of the memory depends on how well the information was processed in stage two (retention). Some memories are easily recalled, others seem temporarily unavailable and some seem to disappear from the mind completely.

Types of Memory

There are many types of memory. How the information is used depends on how the memory was formulated. Episodic memory pertains to remembering specific events associated with a particular time and place. Everyone who is old enough has perfect recall on where he or she was and what he or she were doing when they received the news of President Kennedy's assassination in 1963. Episodic memory requires no effort at learning. Remembering the details of a child's birth, one's wedding and the first day of one's first job are other examples of episodic memory.

Semantic memory requires the conscious involvement of the learner. The knowledge is not associated with a particular time or place but is learned at some point in time. Skills, such as using a telephone book, balancing a bank statement, cooking from a recipe and reading a road map are examples of semantic type memories.

Implicit memory is information learned without the conscious involvement of the individual. Memories are established through early and frequent repetition. Reciting the Pledge of Allegiance and singing Happy Birthday are the result of implicit memory. Social customs and manners, such as saying please and thank you, develop through implicit memory.

Motor memory is required for tasks utilizing motor skills such as riding a bicycle, jumping rope and dancing. Once learned, these skills are rarely lost even if not used for some time.

Affective memory refers to feelings and emotions. Listening to a song may evoke memories of a person, place or event. The aroma of a certain perfume may bring to mind a specific person. Cooking odors may elicit the memory of family holiday meals. Meeting a person for the first time may bring forth feelings of dislike until one realizes that the person resembles someone from the past.

Semantic memory is the first affected in the person with AD. The individual may notice that tasks that were once simple to perform are causing increasing frustration. Motor memory is eventually lost as activities requiring fine and gross motor skills become more and more difficult to access. Implicit memory often remains intact as long as the individual can communicate. Anyone who has worked with AD clients has experienced the surprise of hearing a person in the later stages singing a favorite hymn during church service or an old song during a sing-a-long. There is evidence that affective memory remains far into the disease. Although unable to verbally communicate, a female client in the last stage of AD who had been severely abused by her father became visibly upset whenever a male caregiver entered her room.

NORMAL AGING, ALZHEIMER'S DISEASE AND MILD COGNITIVE IMPAIRMENT

As people age they may notice changes in memory and may express concern that they are developing AD. The Alzheimer's Association lists 10 warning signs that distinguish normal aging events from those due to AD (*Table 1*).

Ten Warning Signs of Alzheimer's Disease	
Normal	Possibly Alzheimer's Disease
Temporarily forgetting a colleague's name.	Not being able to remember the name (or person) later.
Forgetting the carrots on the stove until meal is over.	Forgetting a meal was ever prepared.
Unable to find right word, but using fit substitute.	Uttering incomprehensible sentences.
Forgetting for a moment where you are going.	Getting lost on your own street.
Talking on phone, temporarily forgetting to watch child.	Forgetting there is a child.
Having trouble balancing checkbook.	Not knowing what the numbers mean.
Misplacing wristwatch until steps are retraced.	Putting wristwatch in sugar bowl.
Having a bad day.	Having rapid mood shifts.
Gradual changes in personality with age.	Drastic changes in personality.
Tiring of housework, but eventually getting back to it.	Not knowing or caring housework needs to be done.
<i>Source: [18]</i>	
<i>Table 1</i>	

Mild cognitive impairment (MCI) is characterized as mild but persistent memory loss that lies between normal age-related memory loss and diagnosed AD. The memory deficits are beyond that expected for the person's age. The individual has persistent problems forgetting meaningful information that he wants to remember. Other cognitive functions are normal and there are no other clinical signs of dementia. Researchers believe these people have a greater than normal chance of developing AD. Investigation is being done to determine if early diagnosis of MCI can identify people at risk for AD and to develop ways of preventing or delaying the onset of the disease [19].

For purposes of management, AD is staged as preclinical, early, middle, late and terminal. Eventually, most patients develop amnesia, aphasia, apraxia and visuospatial deficit and may exhibit apathy, depression or psychosis. The model of the progressive cognitive and functional decline in AD as "childhood development in reverse" from the functional capacity of a 10-year-old to that of an infant is one that is easy for nonmedical family members and caregivers to understand [6].

Each stage brings with it additional mental, emotional or physical losses. Eventually, the client is dependent on caregivers for meeting even the most basic, physical needs. The onset of the disease is insidious. Symptoms may be present for several months before the family realizes the severity of the problem. In some situations, a spouse may shelter and cover up for the client so that even children and friends are unaware of the problem. Sometimes it is the death of the healthy spouse that causes other family members to recognize the changes that have occurred in the living parent. The first two stages are especially painful for the client as he realizes that he is slipping away and is unable to do anything about it.

PRECLINICAL DISEASE

The goal of management of susceptible patients in the preclinical stage is to prevent and/or delay the onset of the disease. Those with a strong family history of early-onset disease should take measures including protection against head injury or repeated concussions and protection from toxic exposures such as aluminum (e.g., avoiding excessive use of aluminum-containing antacids). Postmenopausal women should consider using estrogen-replacement therapy because estrogen has been shown to reduce the likelihood of developing AD. Because estrogen has been shown to reduce the likelihood of developing AD, female patients at risk could consider estrogen replacement therapy after menopause. Twin studies showed that nonsteroidal anti-inflammatory drugs used for more than two years of continued use during a person's lifetime delay the onset or reduce the likelihood of developing AD. Taking antioxidants, particularly vitamin E, should be considered to reduce the oxidative stresses known to play a role in the evolution of AD [6].

STAGE 1 - EARLY

The most significant manifestation in the first stage is memory loss. The loss may be inconsistent and erratic at first. Because the client is so mildly impaired, the client, family members (and even some physicians) may attribute the signs to old age. As the first stage progresses, it becomes obvious that what is happening isn't normal. Some individuals attempt to compensate for their deficits. Others will withdraw from the environment and the people around them. Many patients also suffer depression in the first stage. Stage 1 may last as long as two years and may include such signs as:

- **Memory lapses:** Events of long ago may be remembered in detail, but events of yesterday and today are forgotten.
- **Loss of spontaneity:** The client has less sparkle, enthusiasm and joy in living.
- **Sporadic loss of words:** Words are easily lost during conversations and inappropriate words may be substituted in an effort to fill the gaps. This is not noticeable at first unless the listener is paying very close attention. Neologism (invention of words to which meanings are attached) may be common.
- **Easy to anger:** Minor issues that would not have previously been a source of irritation may cause quick flare-ups. Some clients may strike out physically as well as verbally.
- **Less discrimination with choices:** This is evident with clothing when a previously well-groomed and meticulous person appears messy and unkempt.

STAGE 2 - MIDDLE

Signs from early Alzheimer's continue to intensify while additional manifestations occur. Memory deficits are interfering with day-to-day living. The client needs much cuing and prompting to complete the activities of daily living. The ability to cope in unfamiliar surroundings is diminishing rapidly. The middle stage lasts from 2-5 years, and includes:

- **Disorientation to time and place:** At some point during the second stage, the patient is unable to determine time (hour, day, date, month, season, year) and place (address). This may be one of the first symptoms to cause alarm to family or friends. Disorientation leads to confusion. The client may get lost in a store that he has shopped in for years. Driving is unsafe but he may attempt to drive anyway. Sometimes a client gets lost while driving and will drive aimlessly for hours, unable to retrace his path or to retrieve a sense of direction.
- **Impaired communication:** Signs of aphasia (language disturbance) are noted when the client is unable to express his thoughts in a manner understood by others. This is frequently accompanied by speech deficits characterized by mumbled, monotone expressions.
- **Difficulty in making decisions and plans:** It may take several minutes to make a simple decision. More complex decisions are almost impossible. Being forced to make a decision may cause frustration and subsequent anger. For example, the client may not be able to answer the question, "What do you want to eat for breakfast?" because he cannot remember what the choices might be. He may be more successful if asked, "Do you want cereal or scrambled eggs for breakfast?" However, eventually even this choice will become too complicated.
- **Loss of impulse control:** The controls and inhibitions that are learned in childhood are lost. Whatever idea comes into the mind may be acted upon without thought of the consequences of the act. This may be evident in conversation when socially inappropriate comments are made. Actions such as pulling a fire alarm may become common.
- **Mistakes in judgment:** This symptom is observed in social situations or in money management. An example of this is the client who subscribed to several thousand dollars worth of magazines from a door-to-door salesman. Another example is the patient who walks fearlessly down the middle of a busy four-lane highway. Errors in judgment together with impulsivity greatly increase the risk for accidents.
- **Decreased concentration:** It becomes difficult to remain at a task or activity for any length of time. The client may not finish a meal because he becomes distracted and loses interest.
- **Increased self-absorption:** There is growing concern for self and less concern for others. This may be noted in questions that reflect these concerns. The individual is in her own little world. The person that was is fading away.
- **Avoidance of new situations:** It becomes increasingly more difficult for the client to manage the unknown. New situations require decisions and the ability to think about what one is doing. By this time, the client is unable to do this and will refuse to participate.
- **Delusions:** A delusion is a fixed, false belief. For clients with AD, the delusion is frequently based on a reality from long ago. The woman who insists she has to stay up to

care for the children may be living out a time that was happier and more fulfilling to her. Some delusions are paranoid in nature when the patient believes that someone is out to do harm. These may also be based on reality when the client is unable to accurately sort out his environment. The delusions of AD are very different from those associated with mental disorders such as schizophrenia.

- **Rummaging and pillaging:** Rummaging is the gathering and hoarding of items beyond what the client will ever need. A client may store hundreds of rolls of toilet paper or save newspapers until it is impossible to walk through the house. Pillaging consists of collecting items that are not his and then misplacing them. The client walks through a room (or in a facility, someone else's room), picks up items and sets them down somewhere else. He cannot remember where the items were put. Someone else may find the items in a very unlikely place, for example, a razor in the refrigerator or keys in the wastebasket.
- **Wandering and pacing:** Wandering and pacing usually begin during the second stage. The client can wander aimlessly for hours without seeming fatigued. The wandering may take the same path day after day. This symptom together with disorientation, loss of judgment and loss of impulse control greatly increases the risk for accidents. Pacing differs from wandering in that signs of anxiety generally accompany pacing and the client appears tense and strained.

STAGE 3 - LATE

Manifestations from both the early and middle stages continue. Short-term memory is nonexistent; long-term memory also begins to fail. It is truly becoming a "36-hour day" for loved ones caring for the client at home. Expressive and receptive language is extremely limited. Fine and gross motor skills are impaired. The client requires assistance for ambulation. The late stage can last from 2-5 years, and is highlighted by sundowning, anxiety and agitation, lack of recognition of family or friends, hyperorality, perseveration, latency, agnosia and apraxia.

Sundowning occurs when the patient is awake and active during a time when he would normally be sleeping. Wandering occurs during the wakeful period. Sundowning triggers a very stressful period for caregivers in the home setting. Sleep is disrupted every night as the client gets up and roams through the house or goes outside in the middle of the night.

Catastrophic reactions are generally preceded with anxiety and agitation. Some event occurs which provokes the behavior. Caregivers may inadvertently generate the reaction by using an inappropriate approach to the client. These reactions may range from the mild, expressed through increased pacing and verbalization, to the violent.

Family and friends are no longer recognized or they may be misidentified. A woman may think her son is her husband or daughter as her sister. If they attempt to remind the mother who they are, more confusion may result because she remembers her son and daughter only as small children.

Hyperorality consists of unexplained movements of the mouth and tongue. The client may chew on her fingers or put other items in her mouth.

Perseveration is manifested by continued activity long after the stimulus is removed. This is frequently observed when the client continues to chew long after the food is ready to be swallowed. Perseveration may also take the form of repetitive motions such as tapping the fingers on the table or in repeated verbalizations.

Latency is the inability to begin an activity. Once the client is given cues, the action can usually be carried out. For example, when given a cloth to wash the face, the patient may not be able to start unless the caregiver places it in the client's hand and lifts the hand to his face.

Agnosia is the inability to identify common items such as table utensils, grooming items, pencils and telephones. The client may pick up a fork and attempt to comb her hair.

Apraxia is the inability to pick up and use an item even if it is correctly identified. The client may know what a fork is and how to use it, but is physically unable to carry out the action to do so, even though there is no physical reason (such as hemiplegia) why the activity cannot be completed.

STAGE 4 - TERMINAL

The terminal stage of AD may last for 5-10 years. Patients often remain physically healthy and with conscientious caregivers, will rarely suffer complications associated with chronic illness. The family will have to make decisions regarding medical care and treatment. Eventually the disease overpowers the client and death ensues.

Communication. The individual is unable to verbally communicate in a meaningful way. However, caregivers should be aware of the client's facial expressions and behaviors that provide clues to the client's feelings and needs. The client who strikes out may be communicating in the only remaining way he has.

No recognition of self or others. Family members may decrease their visits as they realize their loved one seems unaware of their presence.

Total dependence. The patient is dependent on caregivers for every aspect of life. Bowel and bladder become incontinent. The ability to complete any of the activities of daily living is gradually lost. The client must be fed, washed, changed and repositioned. Caregivers need to remember that a gentle touch, massages and soothing voices are still an essential aspect of care.

DIAGNOSIS AND EVALUATION

A definitive diagnosis of Alzheimer's can only be made during an autopsy. The presence of amyloid plaques and neurofibrillary tangles confirm the disease process. Reasons for assessing an individual for dementia include both a decline from previous levels of functioning and impairment in multiple cognitive domains, not solely memory.

A probable diagnosis is made based on the medical history, physical examination, diagnostic studies and assessment for the presence of delirium and depression and following a full mental status evaluation. The observation of signs and symptoms and the ruling out of other disease processes supports the diagnosis even in the absence of pathology reports. The earlier the diagnosis is made, the greater the benefit in managing the clinical course of the illness. There are other medical conditions that present similar clinical manifestations as AD. These conditions may be reversible with appropriate treatment. A person suspected of having AD or any dementia should be given a complete workup by practitioners who are well versed in the diagnosis and treatment of dementias. Someone who has personal knowledge of the client should be available to answer questions that assist in establishing a diagnosis. Knowing the type of dementia is helpful in establishing a prognosis (*Table 2*).

Overview of Major Forms of Dementia			
Disease	Features	Major Clinical Manifestations	Course
Alzheimer's Disease	Involvement of higher brain structures, neurofibrillary tangles, neuritic plaque	Memory deficits Disorientation Cognitive impairment Wandering Aphasia	Onset: 60-80 Slowly progressive
Multi-Infarct Dementia	Multiple cerebral infarctions	Emotional lability Dysarthria, dysphasia Seizures Cognitive impairment	Onset: 55-70 Outcome depends on rate of new lesions occurring
Huntington's Disease	Autosomal dominant disorder	Choreiform movements Dysarthria, dysphasia	Onset: 25-45 Average duration-15 years
Parkinson's Disease	Deficiency of dopamine	Movement disorders Dysarthria, dysphasia Psychotic symptoms	Onset: 55-69 Several years duration
Creutzfeldt-Jakob Disease	Noninflammatory virus Spongiform changes in brain	Cognitive impairment Myoclonus Extrapyramidal movements	Onset: 50-60 Rapidly progressive If younger, consider bovine spongiform encephalitis
Pick's Disease	Abnormal	Cognitive	Onset: 40-60

	accumulation of protein in certain neurons	impairment Depression, apathy Wandering Disorientation	Average of 4 years deterioration
Syphilis	Spirochete	Cognitive impairment Tremors, ataxia Dysarthria	Onset: Paresis 15–20 years > primary infection
Gerstmann Strausler Scheinker Disease	Noninflammatory virus Spongiform changes in brain	Cerebellar ataxia Cognitive impairment	Slowly progressive
Lewy Body Disease	Dense, round formation in neurons in substantia nigra	Rapid decline of motor skills/cognitive abilities	Psychiatric symptoms early in disease
AIDS Dementia	HIV-1 infection	Ataxia, tremors Hypertonia, paraparesis, Myoclonus, apathy	Symptoms sometimes precede diagnosis of systemic AIDS
Dementia due to head trauma	Consequence of head trauma	Memory impairment Behavioral symptoms with or without motor and/or sensory deficits	Nonprogressive-repeated injuries can lead to progressive dementia
<i>Source: [7; 14; 20; 21; 22]</i>			<i>Table 2</i>

The goals of the diagnostic process are to:

- Make a specific diagnosis
- Avoid implementing the wrong treatment as a result of misdiagnosis
- Identify any systemic or psychiatric illness
- Determine the type of dementia, the extent of the impairment or the stage of the disease
- Avoid "labeling" a person with a diagnosis of dementia or AD when it does not exist
- Define the practical and psychosocial needs of the client, the family and the primary caregivers
- Plan for the future

As AD progresses, various mood and behavioral disorders may become prominent in many patients and may require intervention and treatment with medications. Some of these

manifestations should lead to reconsideration of the diagnosis of AD. For example, hallucinations in the presence of evolving extrapyramidal symptoms should lead to consideration of Lewy body disease, whereas development of significant personality alterations in the presence of mild dementia should raise the question of Pick's disease. The most common pathologic behaviors in patients with AD are apathy (70%), agitation (60%), motor abnormalities (pacing, 40%), nighttime behavioral disturbances (30%), delusions (25%), disinhibited behaviors (20%), hallucinations (10%) and euphoria (2%) [6].

HISTORY AND PHYSICAL EXAMINATION

A complete and thorough history is imperative to making an accurate diagnosis. The family history may identify genetic or familial illness. Testing for impaired vision and hearing needs to be included. People with hearing impairments often deny the problem and will answer questions inappropriately, thus appearing confused. Visually-impaired people may have problems controlling their environment and may also appear disoriented. Determine the onset of the disease — whether abrupt or gradual and the progression — do the manifestations fluctuate, are they gradually worsening, is there a stair-step progression?

NUTRITIONAL ASSESSMENT

Instruct the family to keep a food diary for three days so food intake can be evaluated. Altered nutrition is not uncommon among elder adults and may be related to:

- Living alone and having no motivation to cook
- Health problems that diminish appetite
- Functional deficits that affect the ability to purchase or prepare food
- Economic factors

Dehydration may be attributed to the fact that thirst is not sharply experienced by the elderly. Fear of incontinence also hinders the consumption of adequate fluids. Nutritionally related disorders such as anemia, hypoglycemia, hyperglycemia, hypoproteinemia and vitamin deficiencies often present clinical manifestations similar to AD.

DRUGS AND ALCOHOL

The aging process causes diminished liver and kidney function. This loss may interfere with the absorption and metabolism of medications. Adverse effects of drugs such as cimetidine, digoxin and diazepam are often noted through behavioral changes. A thorough assessment of the medication regime (prescribed and over-the-counter drugs) should be included in the history. Question the patient or family regarding the use of:

- All prescription medications
- Over-the-counter medications
- Eye drops, ear drops and topical medications
- Medications prescribed for someone else

- Herbal and vitamin preparations
- Alcohol and other chemical substances

DIAGNOSTIC STUDIES

The Clinical Practice Guideline, Recognition and Initial Assessment of Alzheimer's Disease and Related Dementias [16] suggests that laboratory tests should be carried out only after it has been confirmed that the patient has impairment in multiple domains that is not lifelong and represents a decline from previous levels of functioning. Delirium and depression should have been excluded; confounding factors such as educational level have been considered; and medical conditions have been ruled out. These tests may be included:

- Complete blood count
- Routine analysis and culture and sensitivity
- Erythrocyte sedimentation rate
- Blood chemistries including serum, electrolytes, blood sugar
- Vitamin B12 and folate levels
- Liver function studies
- Kidney function studies
- Thyroid function studies
- Serology
- Enzyme-linked immunosorbent assay for detecting AIDS
- Chest x-ray
- Electrocardiogram
- Computed tomography scan
- Magnetic resonance imaging (MRI)

Investigation is being done that uses MRI to measure the size of various brain structures. The hippocampus for example shrinks early in the course of AD. The MRI may help discover patients in the early stages of AD, to identify people who may later be diagnosed with AD and to distinguish between people with mild cognitive impairment (MCI) and those with no cognitive deficits and between people without AD and those with very mild AD [8].

Positron emission tomography (PET) has been used by researchers to determine if they can detect changes in the way glucose is metabolized in those sections of the brain affected by AD. People in the early stages show differences in glucose metabolism. PET scans are expensive, are still considered experimental and are not usually covered by health insurance. Single photon emission computed tomography (SPECT) evaluates blood flow through the brain and has been combined with genetic and psychological testing to predict which people with memory problems will eventually develop AD [8]. Neither procedure is definitive by itself but with other information may help diagnose early-stage AD.

MENTAL STATUS EXAMINATIONS

Mental status examinations alone are not a diagnostic tool. They provide additional information for developing a more complete clinical picture, a baseline for monitoring the progression of the disease and can be used to reassess mental status in people who have treatable delirium or depression on initial evaluation.

There are several mental status examinations that may be used: Mini-Mental State Examination, Blessed Information-Memory-Concentration Test, Blessed Orientation-Memory-Concentration Test and the Short Test of Mental Status. Mental status tests are being developed that may be used to distinguish between people who might have very early AD symptoms and those experiencing age-related normal memory loss [16].

When administering and interpreting any of these tests, be sure to consider the presence of sensory impairments, physical disabilities and the age, educational level and cultural influences of the client.

FUNCTIONAL ASSESSMENT

Functional assessment is the ability to complete instrumental activities of daily living.

Various tools are available that measure the client's ability to perform IADLs. These tests are also useful in determining whether or not the client can live independently or the degree of assistance that is required. Activities to consider include [16]:

- Food preparation: shopping, making coffee, preparing and cleaning up after a meal, using/turning off stove
- Financial ability: writing checks, paying bills, balancing bank statement, keeping tax records, handling business affairs and documents
- Mobility: able to drive or arrange and use public transportation
- Current events: understands television, books, magazines and newspapers
- Remembers: appointments, family occasions, holidays and medications
- Enjoying: hobbies, playing cards, and games of skill

NEUROPSYCHOLOGICAL TESTING

Neuropsychological testing may be appropriate when the mental status test is abnormal but the functional test is normal, when a family member expresses concern or dementia is suspected and results of mental status tests are within the normal range, or the patient has more than a high school education or an occupation that indicates high premorbid intelligence [16].

When mental status test results indicate cognitive impairment and when any of the following circumstances apply to the client:

- Low level of formal education
- Evidence of long-term low intelligence (more than 10 years)
- Inadequate command of English for the test

- Minority racial or ethnic background
- Impairment in only one cognitive area on mental status tests
- No evidence of cognitive impairment for more than 6 months
- No evidence of functional impairments

The results of neuropsychological testing must be considered with the results of other assessments and the client's history.

DISTINGUISHING DEMENTIA, DELIRIUM and DEPRESSION

Remembering the "3-Ds" (dementia, delirium and depression) during the assessment process can help the practitioner identify the cause of the impairment. Deficits in cognition, memory or physical function can also result from delirium and depression. Any two or three of these conditions can be present at the same time.

Delirium

Delirium is defined as "an acute, reversible change in behavior characterized by a clouding of consciousness, mental incoherence and difficulty maintaining concentration and attention" [23].

Delirium may be related to an acute or chronic medical condition or may be substance-induced. While delirium is often a forerunner of underlying disease, delirium may also have a psychosocial/environmental cause associated with the death of loved ones, sensory deprivation or overstimulation and changes in the degree of personal control [24]. The incidence is highest among the elderly and is often misdiagnosed or missed entirely. In individuals with pre-existing dementia, it may be mistakenly assumed that the signs and symptoms are evidence of natural disease progression. (See *Table 3* for comparisons of dementia, delirium and depression). Knowing the client's history of onset and type of disease progression is helpful in identifying delirium.

Distinguishing Dementia, Delirium, Depression
<p>Dementia</p> <p>Gradual onset, irreversible, chronic, progressive, long duration. Sensorium clear. Shortened attention span. Impaired memory. Difficulty with abstraction, problems with word finding, confabulates. Struggles to remain independent.</p>

Delirium

Acute or subacute onset, reversible or alleviated with prompt appropriate treatment.
Short duration (hours - one month).
Sensorium clouded.
Impaired, fluctuating attention span.
Impaired recent and immediate memory.
Thinking is disorganized, distorted, speech incoherent.
Associated with trauma, disease, chemical intoxication.

Depression

Variable onset, often abrupt, reversible with treatment.
6 weeks to several months to years duration.
Sensorium clear.
Attention span normal but easily distracted.
Selective memory impairment.
Intact thinking but expresses hopelessness, helplessness.
Often coincides with major life changes.

Source: [25]

Table 3

Pneumonia and urinary tract infections are common causes of delirium in the older population. Elderly people do not always present the typical signs of inflammatory response such as elevated temperature and physical pain or discomfort. Confusion may be the only sign of infection. The confusion generally dissipates with appropriate treatment.

These groups of medications may also be a cause of delirium:

- Digoxin
- Antihypertensive agents
- H2-blocking agents
- Antipsychotic agents
- Anticholinergic agents
- Antidepressants

Depression

The diagnosis of depression may be difficult to make in people with multiple medical conditions. Depression is present in 25% of clients diagnosed with AD. Left undiagnosed and untreated, depression results in an earlier onset of behavioral disturbances, cognitive deficits and mental suffering. Depression may also be responsible for earlier admission into a long-term care facility. Depression is often recurrent and thus may be a potentially chronic illness [26]. The DSM-IV criteria for depression are summarized in **Table 4**. Failure to identify the underlying cause of the clinical manifestations may cause a host of problems.

Criteria for Major Depressive Episode	
<p>Five or more of these symptoms have been present during the same two week period and represent a change from previous functioning. The symptoms must be present most of the day, nearly every day.</p> <p>At least one of the symptoms is either depressed mood or loss of interest or pleasure.</p> <ol style="list-style-type: none"> 1. Depressed mood. 2. Loss of interest or pleasure in all, or almost all activities. 3. 5% or greater loss of weight when not dieting. 4. Insomnia or hypersomnia. 5. Psychomotor agitation or retardation. 6. Fatigue or loss of energy. 7. Feelings of worthlessness or excessive or inappropriate guilt. 8. Diminished ability to think or concentrate. 9. Recurrent thoughts of death, suicidal ideation or specific plan or suicide attempt. 	
<i>Source: [27]</i>	<i>Table 4</i>

Misdiagnosing dementia as depression may result in exacerbations of the disease because antidepressants with anticholinergic properties may worsen confusion and memory impairment. In people with coexisting Alzheimer's and depression, failure to identify and treat the depression may cause additional physical and emotional discomfort. Misdiagnosing depression as dementia results in failure to treat the depression. The patient may be labeled with an inappropriate diagnosis and treated accordingly. The clinical interview is the foundation for evaluating and diagnosing depression in older adults. Self-report questionnaires can assist in screening for depression. The Geriatric Depression Scale (GDS) and the Center for Epidemiological Studies Depression Scale (CES-D) have proven reliable and valid [16].

"Memory difficulty, agitation, disrupted sleep-wake cycle and personality changes (e.g., apathy, increased dependence) are classic symptoms of Alzheimer's disease that may be mistaken for

depressive signs of poor concentration, decreased interest, changes in psychomotor activity, sleep disturbance and fatigue" [16].

CONFIRMATION OF DIAGNOSIS

The DSM-IV requires these signs to be present before a diagnosis of dementia is made:

- Memory impairment
- At least one of these cognitive disturbances: aphasia, apraxia, agnosia or disturbance in executive functioning (the ability to abstract, to plan, initiate, sequence, monitor and stop complex behavior)
- These symptoms must be severe enough to interfere with social and occupational functioning/representing a decline in a previously higher level of function.
- Dementia is not diagnosed if the symptoms occur only during the course of delirium. Delirium may be superimposed on a pre-existing dementia in which case both diagnoses are given.

A specific diagnosis of Alzheimer's disease is made only when all other etiologies for the dementia have been ruled out.

AFTER THE DIAGNOSIS

A complete diagnostic workup is lengthy and may take as long as a year or more before a final diagnosis is made. Unfortunately, diagnostic services may also be very costly. Once the diagnosis is made, the family and client may need considerable guidance and counseling. Family members often wonder whether they should tell their loved one of the diagnosis. While it is devastating to learn that one has AD, it is frequently more stressful to be aware of the signs and symptoms and yet have no answer for the problem. Family and client should communicate before the diagnosis is made: "Do you want to know the diagnosis?" so that appropriate actions are taken. Not knowing always presents the risk of the client finding out accidentally. Open and honest communications are usually the best, but some families have their own reasons for choosing a different path.

PLANNING FOR THE FUTURE

If the diagnosis is AD, the family should be encouraged to make long-range plans. When the diagnosis is made early in the course of the disease, the client can and should fully participate. Decisions can be given some thought if they are made before a crisis occurs. Advise the client and family of the need for advance planning as a mechanism for protecting the client's self-determination. The Patient Self-Determination Act (PSDA) legislated in 1990, is legally recognized in all states. The PSDA recognizes advance directives (the durable power of attorney and in some states, the Living Will) as legal documents providing direction when the client is unable to make decisions. In most states, Do Not Resuscitate (DNR) must be written in the medical orders for clients in healthcare facilities even if the advance directives contain this statement. In the absence of advance directives, it may be necessary to initiate guardianship

when the client becomes incompetent. After a competency hearing, the judge decides incompetency based on the criteria of that state. The judge assigns a guardian to oversee the client and/or that client's estate. Guardianship can protect a vulnerable person but the process may be lengthy and costly [28].

In the absence of directives or in controversial situations or institutionalized clients, the facility's bioethics committee may be required to intervene. The bioethics committee can assist the healthcare providers to develop guidelines for decision making.

The family and consultant may wish to consult with an attorney or financial advisor. This is especially important if the client is financially responsible for a spouse or dependents. The family and client may wish to establish a trust or appoint a durable power of attorney. The care of a person with AD is expensive and can bankrupt the individual and impoverish the client's dependents. Most clients will eventually require the services of a long-term care facility. It is a rare family that has the time, energy and emotional constitution to provide continuing care throughout the course of the illness. The cost and method of payment for such services needs to be considered. Knowledge and utilization of community services can delay the need for placement in a long-term care facility.

FACILITATING A THERAPEUTIC PHYSICAL ENVIRONMENT

SAFETY ISSUES

The environment affects the behavior of clients with AD. In addition to cognitive impairment related to the disease process, they are also dealing with the usual changes of aging. This combination of factors places the client at risk for injury. Several risk factors associated with expected aging changes are at play.

Sensory/perceptual alterations that diminish the ability to respond to environmental warning stimuli such as odors (fire, natural gas, spoiled food), sounds (sirens, alarms, telephone, doorbell) and visual cues (blinking or red lights, signs) are impaired. Musculoskeletal, neurological and sensory changes affect mobility and balance. There is a shift in the center of gravity and decreased range of motion of the hips and knees causing a stiffer, shuffling gait. The righting response, the ability to catch oneself when starting to fall, is diminished. Osteoporosis is common, especially in women, and is the cause of falls and fractures in over 200,000 people a year.

Clients with AD have damaged thinking. They cannot rationalize cause and effect because they are unable to predict potential outcomes of their actions or to evaluate the risks involved. A person with AD may go outside during the middle of a winter night clad only in pajamas. The combination of wandering and impaired memory can be especially perilous. The client may get lost, becoming dehydrated and ill from exposure. Clients may suffer thermal injuries related to

fires caused by the careless use of smoking materials or inappropriate use of the stove. Loss of impulse control and hyperorality can lead to medication overdose or the ingestion of poisonous substances such as household chemicals. Lacerations are a risk related to the use of knives and scissors. In the latter stages, clients often have difficulty swallowing, causing the client to aspirate. Driving a car is hazardous and often presents a problem to the family when the client is incapable of safely maneuvering a vehicle in traffic. Clients with AD require an environment that will promote health and safety and maximize independence.

AVOIDING THE USE OF PHYSICAL AND CHEMICAL RESTRAINTS

It may be tempting for a busy and harried staff or family caregiver to rely on the use of chemical or physical restraints in an effort to reduce the problems associated with wandering clients. Restraints are a major cause of immobility in nursing homes and hospitals. The application of physical restraints can impede circulation, inhibit breathing and predispose to pressure ulcers and incontinence. The use of restraints increases disorientation and anxiety in confused clients. Restraints have not been proven to prevent falling and injury, but can cause death by strangulation when used incorrectly.

A physical restraint is defined by the federal government as "any manual method or physical or mechanical device, material or equipment attached or adjacent to the client's body that the individual cannot remove easily which restricts freedom of movement or normal access to one's body" [29]. This definition includes vests, jackets, safety belts, mitts, limb holders, bed sheets when used to restrict movement, geriatric or cardiac chairs and bed side-rails.

Chemical restraints are drugs administered to inhibit movement. Unfortunately the client who reacts to being restrained with anger and hostility may be treated with a psychotropic medication to increase attempts at altering behavior.

Healthcare facilities have traditionally relied on restraints to protect clients and to avoid liability for client injury. In December 1989, the U.S. Senate Special Committee on aging sponsored the national symposium "Untie the Elderly: Quality Care Without Restraints." A statement by Alan R. Hunt, Esq. addresses the issue of liability: "Healthcare institutions may abandon the use of physical restraints without incurring a significant risk of being sued for malpractice. There are few precedents supporting successful malpractice claims against long-term care facilities based upon a failure to restrain. In fact, the striking conclusion from an examination of cases involving restraints both in nursing homes and hospitals is that the use of restraint has produced more successful lawsuits than nonuse" [30]. It is clear that to be restrained severely diminishes quality of life. The federal government supports reduction or elimination of the use of restraints in healthcare facilities. The Omnibus Budget Reconciliation Act of 1987 addressed this issue in the strengthening of residents' rights. Nursing homes across the country have made significant progress in this endeavor.

Discuss with the family and client the facility philosophy regarding the use of restraints. Explain that the nonuse of restraints is a decision based on a consideration of independence and mobility

versus the risk of incidents. Seek the family's support and cooperation to avoid the use of restraints and inform the family of the interventions that will be implemented to maintain the safety of the client. Ask the family to report any accident the client has while in their care. Advise families of clients at home to inform their neighbors and the local police department of the situation.

A knowledgeable staff can plan a therapeutic physical environment that is safe, warm and comfortable. Maintaining such an environment will diminish disruptive client behaviors, thus reducing or eliminating the need for physical and chemical restraints. Caregivers are elements of the environment and must be prepared to participate in the effort to create the appropriate milieu. Educate all staff in the rationale for a restraint-free environment and assist them to implement interventions to prevent falls. Seek staff input in identifying and meeting the needs of all clients. Employees from all departments should be aware of which clients are at risk for falls. All employees must share responsibility for monitoring clients at risk as the clients move about the building.

Alternatives to Restraints

The physical environment needs to be evaluated for potential dangers. This is especially important when the client is at home. A safe environment allows the client freedom to move about, thus maximizing independence as long as possible. Decrease the risk of trauma and injury related to poisoning, thermal injuries, lacerations and falls.

Remove or lock up:

- Knives, scissors and other sharp objects
- Household cleaning supplies, bleach, detergents, spot removers, cleaning fluids, paints, paint thinner, insecticides and any other chemicals
- All medication, prescription and over-the-counter
- Aerosol cans
- Small appliances like toasters or irons that can be plugged in and used inappropriately
- Power tools
- Weapons and anything that may be used as a weapon
- Fragile, breakable or valuable items
- Smoking materials - provide constant supervision if client smokes. Make sure there is an adequate number of working smoke alarms

Place guards over:

- Electrical outlets
- Thermostats
- Stove knobs

Reduce the risk for falls:

- Keep pathways cleared and halls well lighted

- Avoid highly polished floors
- Remove throw rugs and extension cords
- Place furniture around the edge of the room to provide open walkways
- Check stair railings and stair treads or carpet for security
- Remove unstable or lightweight chairs

Remove wheels on beds, chairs and tables. Use wheelchairs for transport, not continued seating. Keep bed in lowest position. Avoid moving furniture in the client's immediate environment. Set up strategically placed seating areas around the facility that are attractive and inviting so clients can sit down when fatigued. Provide safe, attractive, outdoor areas for walking and visiting. An area such as an enclosed courtyard offers freedom to wander.

Reduce risks associated with wandering behavior:

- Control access to the outdoors by using double locks or safety locks on doors and windows.
- Install warning bells or buzzers on doors.
- Control access to swimming pools, ponds, lakes or other natural hazards.
- Provide fenced areas if possible to allow freedom of movement.

Devices used to prevent clients from leaving the building that allow for freedom of movement:

- Door locks with keypads (subject to state regulations)
- Security bands worn by clients that will trigger a warning sound when the client exits the building
- Bed guards that trigger a warning sound when the client leaves the bed
- Television monitoring systems. Clients with memory deficits should be provided with identification bracelets such as Medic Alert®. Have a recent snapshot of the client available and always know what the client is wearing.
- Register the client in the Safe Return Program (1-800-572-8566).

Attend to the Physiological and Psychosocial Needs

Unmet needs can cause the client to become agitated and anxious. The individual may be unaware of the source of discomfort or be unable to respond to the cues resulting from unmet needs. Establish a routine that will avoid client problems resulting from thirst, hunger, lack of sleep and rest, inadequate exercise and irregular elimination patterns. Correct underlying physiological problems such as infections, dehydration, urinary retention, fecal impaction, and hypoxia or blood sugar imbalance. Alert staff if client has taken a laxative or is on diuretics. Monitor client's reaction to other drugs affecting behavior. Provide measure to relieve fear and anxiety. Avoid situations that can trigger emotional outbursts. Correct sensory deficits with glasses and hearing aids. Plan varied activities appropriate for client's abilities and interests. Give positive reinforcement to the client at every opportunity.

Provide Safe and Appropriate Clothing

Clothing, grooming and personal appearance can affect the self-esteem of clients even though they are disoriented. Poorly fitting attire can cause the client to fall. Assist the client to wear clothing that is familiar and comfortable. The woman who has always worn a dress and hosiery or a man who wore dress shirts and ties every day may react negatively to being dressed in jogging suits. Provide the client with well-fitting shoes with nonslip soles. Shufflers need nonslip shoes that glide well on the floor. Avoid shoelaces if possible. Check pants for length and shorten if necessary. Check socks and nylons for proper fit. Prevent the client from ambulating in a long robe. Assist the client with the activities of daily living to maintain a neat, attractive appearance.

Control Environmental Stimuli

Avoid an over-stimulating environment to prevent agitation. Minimize noise and commotion. Television can be disorienting to clients who cannot distinguish between television and reality. Lower the volume on telephones and communication systems.

Provide bright, diffuse lighting without glare. Older people in general need increased illumination. People with AD become frightened by shadows produced by inconsistent light sources. Nonglare glass should be used on all pictures and artwork. Draw the blinds or drapes at sundown to prevent reflections from the glass at night.

Maintain an inviting environment with judicious decorating. Utilize artwork that is familiar and objective such as still life, landscapes or seascapes. Abstract patterns may further confuse the disoriented person. Avoid patterns on floors and walls. Clients may try to "pick" flowers off the wallpaper or may try to walk around or jump over "holes" in the floor created by different colors in the pattern. Mirrors may frighten some clients who are no longer able to recognize themselves. Other clients find comfort in the reflection.

Provide orientation clues for clients who are able to utilize the information, such as clocks and calendars with large numbers, activity boards, reminders of special events, seasonal and holiday decorations. Redundant cuing with pictures, words and colors are helpful. A picture with the name of the client on the door may help the client find the right room. This idea can also be used for bathrooms.

Create areas of small, comfortable seating groups that draw clients in and encourage them to reach out and touch objects. Place safe, familiar objects around that may promote reminiscence. A client may be happy using an old time carpet sweeper or browsing through a catalog of old objects.

CARE AND MANAGEMENT OF CLIENTS WITH ALZHEIMER'S DISEASE

There are no medications or treatment plans specific for clients with AD. However, AD is not a hopeless condition for which nothing can be done. Clients and families can be helped with interventions designed to diminish the manifestations of the disease. The disease and its progression are evaluated by the behaviors exhibited by the client. Care planning is directed toward the management of the identified behaviors. Although there are many commonalities seen, each person is unique and requires distinctive approaches based on an assessment that identifies the specific problems of each individual client.

THE INTERDISCIPLINARY HEALTHCARE TEAM: ROLES AND RESPONSIBILITIES

Nursing management of clients with AD requires the support and contributions of the interdisciplinary team. The membership of the team is dictated by the needs of the client and family and by the setting in which the services are rendered. Education provides caregivers at all levels with the knowledge and skills that are needed to increase the client's quality of life. Often, the nursing assistant or housekeeper spend more time with the client than does professional staff. Nursing assistants are the direct caregivers in skilled nursing facilities. The nurse can enhance the assistants' performance by knowing their capabilities, their interests and their past work experiences. Many of them have special talents for working with AD clients. Include the nursing assistants in the care planning process. Create an atmosphere of trust and communication by listening and acting upon their observations and suggestions. They need to know they are valued team members. Seize opportunities to teach nursing assistants and encourage their attendance at in-service education offerings [31].

The nurse is the liaison and coordinates services to meet the psychological, social, spiritual and economic needs of the client and family. The nurse collaborates and consults with other team members in the assessment and identification of client/family problems. Conferences attended by team members are useful strategies for planning interdisciplinary interventions for the resolution of problems and goal setting.

Clients and their families are vital members of the team. Invite them to participate in planning and caregiving to the extent they wish to be involved. This process helps build a trusting relationship between client/family and caregivers. Family members have often cared for the client for several years. They can share their ideas and provide valuable information. Knowing the client's history, characteristics, interests and philosophies helps the team to individualize the care of the client. The interdisciplinary team focuses on outcomes. For clients with AD, outcomes are related to the management of behaviors, maximizing independence by maintaining abilities for as long as possible and preventing complications.

COMPONENTS OF CARE

The Alzheimer's Association has developed the ACE (Alzheimer's Care Enrichment) philosophy of care. The cornerstones of the ACE philosophy are individualized care, compassion and concern, enrichment of life and promotion of autonomy [32].

The care of clients with AD is based on supportive and comfort measures, restorative care, prevention of complications and management of coexisting illnesses.

Support and Comfort Measures

The concept of supportive/comfort (palliative) care encompasses both symptom control and maximization of physical and emotional comfort. It utilizes the "low-tech, high-touch" approach. Behavioral symptoms are rarely the result of the disease alone, but are often precipitated by the environment or the approach of the caregiver [33]. For the client with AD, palliative care is centered on the alleviation of agitation and anxiety, the prevention of catastrophic reactions and the management of delusions and hallucinations. Comfort may be extended to the client in a number of ways. Members of the interdisciplinary team work together to develop interventions that will facilitate the client's physical and emotional comfort.

Preservation of Dignity and the Quality of Life

The concept of dignity is subjective and may have different meanings for each person. It is beneficial to have an understanding of what the client was like before the illness. Consider:

- The identity of the person. How does the client wish to be addressed? Is there a title such as Doctor that is appropriate?
- Respect for privacy. A person who has always disrobed in private may react negatively to being undressed by a stranger.
- The appearance of the client. Attending to grooming and personal hygiene improves self-esteem.
- The client is an adult. Even though there are cognitive deficits, the client has experienced the crises and challenges of several decades of living. To treat the client as a child is inappropriate and demeaning. Use words and touch so the client feels valued as an individual. People with AD still have a need to make contributions and to feel that they have some control over their lives. They are more content when they are encouraged to remain active and involved, using their remaining strengths and abilities.
- Physical and psychological comfort. People with AD have the same needs that everyone has. Unmet needs will be reflected in the patient's behavior. The behavior will not change as long as the need remains unmet. Meeting the physical need of the client can prevent discomfort related to hunger, thirst, restlessness, constipation and the need to void.
- When people do not feel safe they become anxious. If they feel threatened they may strike out verbally or physically. Clients with AD may feel unsafe much of the time because they do not understand the environment and what is going on around them.
- Clients with AD also need to love and be loved. They have positive and negative feelings. They need to be touched, to be hugged, to have eye contact with caregivers. Converse with clients on their level without being condescending. Compliment them on their appearance. Provide quiet, private areas for visits with loved ones. Let spouses know that is acceptable to express affection.
- Plan activities compatible to the abilities of the client so that the client will experience success.
- Listen to the client. What you hear may not sound rational to you but it does to the client.

Do No Harm

Family and staff need to consider the wishes of the client before initiating a treatment that may prove to be more harmful than beneficial. For example, starting an IV for feeding to administer antibiotics for an infection may not be in the best interests of the patient if he must be restrained to prevent dislodging of the needle. Acknowledge the client's autonomy. When he is too demented to make decisions, stress to the family that they must consider what their loved one would have wanted rather than what they themselves want.

Use Integrity

Be honest with AD patients. Be truthful but optimistic when answering questions. Let them know that although the disease is progressive and there is no cure the condition can still be treated. Honesty from caregivers often encourages clients to consider the future and to make decisions about what they want when they become disabled.

Restorative/Rehabilitative Care

Restorative nursing is based on the premise that quality of life is dependent on need fulfillment and self-determination. It is concerned with maintaining the individual's sense of dignity and self-worth. The concepts of restorative care are based on a philosophy that is directed towards maintaining functional levels in the activities of daily living and to preventing complications [34].

Aggressive rehabilitation techniques are usually not appropriate for the management of AD. However, rehabilitation specialists may serve as consultants and provide nursing staff with suggestions for interventions that will delay the onset of self-care deficits. Conflict about the appropriateness of rehabilitation may arise between members of the healthcare team when a secondary problem occurs. For example, if a client with AD fractures a hip, there may be reluctance to provide physical therapy after surgery. The attitude may be "Why do anything? The client has AD." The diagnosis of dementia should not be an obstacle to appropriate treatment. In this case, if the client was ambulatory before the fracture, physical therapy should be considered. The potential for achievement is partially dependent on the degree of cognitive impairment and needs to be considered.

Maintaining Functional Levels

The manifestations related to AD have a profound effect on the client's ability to perform the activities of daily living. The rate at which those skills are lost varies from person to person. The degree to which function diminishes depends on the complexity of the task. Once a client loses a skill, it generally cannot be regained. Interventions are based on maintaining a skill for as long as possible. Basic self-care activities can usually be managed through the first two stages of the disease with varying degrees of assistance. The ability to complete IADLs such as financial planning and driving disappears early in the process. Disability associated with self-care deficits can be exacerbated by many factors other than the disease. Other illnesses, medication toxicity,

increased fatigue, sensory deprivation and inadequate support from the environment and caregivers can hasten the onset of functional loss.

Completing a functional assessment of AD clients serves several purposes. The selected tool can identify existing self-care deficits at the time of admission, allowing the care team to establish appropriate goals and interventions. Assessment data can be used to determine placement of clients in programs fitting their capabilities. The strengths of the client can be identified and utilized to delay the onset of deficits.

Preventing Complications

AD predisposes the client to a number of complications. In the early stages of the disease, risk factors are highest for injury and trauma related to wandering, inability to recognize sensory cues for danger, impaired judgment, impulsiveness, memory deficits, altered nutrition related to shortened attention span, apraxia, agnosia and excessive energy expenditures due to wandering.

In the later stages there are increased risks for pressure ulcers related to impaired mobility, incontinence and possibly undernutrition and aspiration related to impaired swallowing.

The client should be evaluated for these risks with appropriate interventions implemented. Validated assessment tools may be used upon admission to determine the risk for pressure ulcers and altered nutrition so preventive measures can be undertaken. These also serve as a baseline for future assessments. A speech pathologist can evaluate for aspiration risk and give nursing staff ideas for successful intervention.

Managing Coexisting Illness

Many elderly people have multiple medical diagnoses and those with AD are no exception. Clients may have coexisting chronic illnesses such as diabetes mellitus, cardiovascular problems, osteoarthritis or depression. Complications associated with these disorders may not be readily apparent. Manifestations of hypoglycemia or digitalis toxicity may be mistakenly attributed to progression of the disease. The client with pain related to osteoarthritis may not be able to verbally communicate the discomfort to caregivers. Increased agitation, confusion and body language may be the only clues. Ongoing monitoring and evaluation is therefore required in order to identify potential or existing problems.

Clients with AD are also not immune to acute illness. Elderly people in general do not always present with the typical signs and symptoms associated with acute illnesses. Changes in behavior are often the only manifestation of the onset of complications related to coexisting disorders or to acute illness. Investigate any sudden or recent change, including:

- Changes in appetite
- Increased confusion
- Changes in sleep pattern
- Falling in a normally steady walker
- Change in elimination patterns

- Elevated temperature
- Increased restlessness
- Agitation and anxiety

There are four basic assumptions to rule out when behavior changes are noted: constipation, pneumonia, urinary tract infection and medication. If the evidence is inconclusive, further investigation is warranted.

GENERAL MANAGEMENT TECHNIQUES

General management techniques are based on consistency, focusing on the client's abilities, task breakdown, cuing and the use of distraction.

Consistency

Consistent caregivers know:

- The client's strengths and disabilities
- How to approach the client to avoid triggering catastrophic reactions
- The client's usual behavior and responses
- When a client is exhibiting behavior that is unusual for him
- The safety risks applicable to specific clients
- How to maintain a consistent routine and environment

Task Breakdown

Each activity of daily living requires a number of steps that must be completed in sequence in order to accomplish that particular task. The functional assessment identifies the steps of an activity of daily living that the client can and cannot perform. Using this information, an approach can be developed that allows the client the opportunity to do the steps that he is capable of performing. During bathing, the client may be able to brush her teeth if all the needed items are set out. It is possible for well-intentioned caregivers to enforce dependency upon a client by over helping. When a client begins to have problems completing a task, the approach will prevent premature deterioration.

Cuing

Cuing is a process of giving hints or clues to facilitate independence. Verbal cues require the use of simple instructions given with each step of a task. For example: "Please put on your shirt" (while handing the shirt to the client). After the shirt is on, "Please button your shirt," demonstrating the action by buttoning the first button provides an additional cue. Redundant cuing uses several methods such as colors, words and pictures to communicate information. A facility may have all bathroom doors painted the same color with the word bathroom on the door and a picture of a toilet.

Distraction

Brief attention span and memory deficits can be helpful in the use of distraction techniques. Looking through a picture book may distract the client, who complains of not having dinner, even though he has just eaten. If the client has his hands full while shopping, he cannot pick up items from the shelves.

COMMUNICATION

Communication is a process used for sending and receiving messages. It provides a means for utilizing information and it facilitates social interaction. The brain integrates and processes information that is received through the senses. Messages are sent by means of speaking, writing or gesturing. People constantly send and receive messages without conscious awareness. Body language may send a more accurate message than words.

COMMUNICATION PROBLEMS

Communication becomes impaired as AD progresses. The left brain functions of language, reasoning and calculation are diminished while the right brain functions of feeling and intuition increase [35]. Aphasia is a major manifestation of AD and both receptive and expressive aphasia eventually occur. Aphasia is a language impairment involving all modalities including speaking, reading, writing and arithmetic.

Letters, numbers, signs and gestures are utilized for language. To use language, one must know what the symbols mean before the information can be interpreted and understood. Speech is a motor act involving movement of the muscles of respiration and the lips, tongue, jaw, palate and larynx. The client has problems concentrating on what is being said, comprehending what was said and formulating a response. The client will have a flat affect and difficulty in expressing emotions. This does not mean the client has an absence of feeling.

In the first stage of AD, the client's vocabulary shrinks and he has difficulty with word finding. Word substitution may be used as the client uses a word with similar meaning in place of the forgotten word. Pencil may be used for pen or truck for car. The client may try to describe an object that he cannot name, "that thing I write with" or "what we ride in." Pseudo-words or inappropriate words may be used to fill the gap. The client makes a "word salad" as several unrelated words are tossed together to compensate for lost words. Speech may be repetitious because the client cannot remember what he has already said. There is occasional logorrhea, which is the rapid flow of speech, often incoherent. During the first stage, the client can comprehend most messages when they are received, but quickly forget the message due to memory deficits [36].

As the disease progresses, there is decreasing ability to comprehend both written and oral language. The client may be able to understand one or two words but is unable to comprehend an

entire sentence or complete thoughts. Simple commands can be understood and followed. The client is unable to abstract and all messages are interpreted as literal. The client who is instructed to "hop into bed" will attempt to do just that. For the client with AD, a "wet floor" sign on a freshly mopped floor may be a command to urinate on the floor. The client begins to confabulate; that is, invent fictitious details about past events in order to disguise the inability to remember. Confabulation is the result of memory deficits but affects communication. Social phrases such as "please," "thank you" and "how are you" may be retained for a surprisingly long time [36].

Eventually the client becomes mute because he is unable to use language in either written or oral form. Preservation of speech may be evident as the client repeats the same word over and over. Although there is no verbal exchange between client and caregivers, communication is taking place. It is helpful for caregivers to remember that clients often understand more than we think they do, but they are unable to verbally express this understanding. Clients can "read" the people around them and will respond accordingly. In spite of the words coming out of the mouths, the body language, facial expression and "touch" of the caregiver may be sending conflicting messages to the client. They are very sensitive to the emotional climate and environment. In the early stage, clients may make statements that seem to make no sense to caregivers. Frequently these expressions represent the clients' experiential history being given in a fragmented and illogical sequence. Asking key questions about the statement helps develop a sense of trust between caregiver and client. For example, Mrs. C frequently made comments about her students. She was happy and content when a caregiver followed up on her comments. By asking questions, such as, "What subject did you teach?" or "Can you tell me about some of your students?" the interest expressed by the caregiver acknowledged and validated Mrs. C's worth. When caregivers discredit a statement by correcting the client or pointing out that it is untrue, alienation and distrust occur [37]. In the last stage, the client has little ability to communicate. Excessive mumbling, striking out or resisting care may be the only avenue left by which to express mental or physical discomfort.

INTERVENTIONS FOR EFFECTIVE COMMUNICATION TECHNIQUES

Use of effective techniques can facilitate the communication process and will avoid caregiver and client frustration.

Always acknowledge the client as an adult person with the same feeling and emotional needs as any adult. Keep communication on an adult level, avoiding the use of jargon, demeaning expressions or baby talk. Be positive, confident and hopeful. Give praise for small achievements and successes. Identify and respond to feelings rather than facts. For example, if the client says, "I'm going Christmas shopping in the middle of April," respond by asking questions, such as, "What kind of gifts did your children like?" Identify and acknowledge emotions and comments, such as, "This must be really frustrating to you" or "It's okay to feel angry."

Tell the client what you are doing and prepare him for what is happening. "I'm going to move your wheelchair over by the table," or "I will walk with you to the dining room."

Time has little meaning. Saying, "Your son will be here after lunch" is preferable to saying, "Your son will be here at 1 p.m." Ask questions requiring yes/no answers as opposed to open-ended responses. Instead of asking, "What do you want to wear today?" ask, "Do you want to wear the green dress or the blue dress?" as you hold up both dresses. The client will eventually become frustrated when asked to make even a simple choice.

Make sure the client can see and hear you. Place yourself at eye level. Identify yourself and call the resident by name when beginning conversations. Use eye contact and place yourself at the client's level. Use facial expressions, touching, pointing or showing items as cues to augment verbal communication.

Eliminate all environmental distractions. Turn off the radio and television. Take the client to a quiet place if necessary. Limit the number of people converging at one time. The client cannot keep track of the topic and who said what.

Processing messages takes longer. Give the client time to hear you and to formulate a response. If the client is stuck, help him find the right word through association. Fill in the right word if you know what it is.

Resist attempts to use "logic" or to "reason" with the client. Cognitive deficits associated with AD have erased the client's ability to be logical and reasonable. Phrases such as "I just told you that" or "this is the last time I am going to tell you" are humiliating and frustrating to the client. Remember that AD clients are easily distracted. If the client repeatedly says he has to go to the bank, for example, distract the client by looking at pictures with him or asking him to assist with a simple task.

Be aware of the impact of body language. Studies have found that throughout the course of dementia, clients remain responsive to nonverbal emotional messages. Clients react positively to a warm smile, friendly voice tone and gentle touch. They may become anxious when approached by a stern face, impatient voice tone and firm grasp of the wrist [38]. Anxiety leads to agitation and possibly catastrophic reactions. Words and actions need to match. Words may be caring and kind but the client will pick up on tension reflected in facial expressions, body movements and tone of voice.

Be aware that there are differences in the meanings of words. Dinner for one client may be the noon meal and for another the evening meal. Carbonated beverages are called "soda" in some parts of the country and "pop" in another section. In Britain, a face cloth is called a "terry" and gasoline is called "petrol" [39]. Be selective in the use of healthcare terms that have ambiguous sounds to the client, such as, "I'm going to take your vitals now" or "It's time to go to therapy."

Avoid giving choices for situations in which a choice may not be reasonable. For example, asking, "Do you want to take a bath now?" implies a choice. If the bath really needs to be given now, say, "It's time to take a bath now. I will help you."

Touch the client gently on the arm or hand if necessary, to get his attention. Speak slowly and softly in a low, calm voice. Stay about a handshake distance away. Use short, specific, familiar

words and simple sentences. Give only one direction at a time. For example: hand the client a washcloth and say, "Please wash your face."

Avoid asking questions that the client may not be able to answer. In the early stages, the client will be embarrassed and frustrated with yet another reminder that his abilities are diminishing.

Listen carefully. If you do not understand, say so. Never assume that comments are the result of confusion or delusions. The client may be reliving experiences from years ago. Listen to stories even if you have heard them several times before.

Remember that "white lies" are permissible. The physical safety and emotional feelings of the client are priority. When the client says, "I'm waiting for my husband to come for supper," responding with, "don't you remember your husband died five years ago" is cruel and unnecessary. Respond with a question, "What did your husband like for supper?"

Humor is always beneficial when used at the appropriate time. Clients with AD enjoy the camaraderie that evolves when people laugh together. Teasing, sarcasm or laughing at the client are never appropriate.

COMMUNICATING WITH TOUCH

When used judiciously, touch is very effective when working with clients who have AD. The need to touch and be touched may increase with age as other senses such as vision and hearing tend to diminish. "Skin hunger" may occur when there is lack of human physical contact with others and researchers compare lack of touch to malnutrition [40]. All forms of touch convey a message that is either positive or negative. Touch can be therapeutic and give the most pleasure of all senses. The significance of touch is often overlooked in this age of technology. Touching can build the client's self-esteem when it implies acceptance of the client as he is. It can prevent feelings of rejection and loneliness. Touch can be functional or affectionate. Touch can be comforting and soothing. Gently rubbing the client's temples or giving a back massage has a calming influence. Nurses use functional touch when they give a bath, take a pulse or perform other nursing duties. Holding a client's hand or giving a hug reflects affection and caring. Touch can say, "I care about you." It builds trust and a feeling of security. Caregivers also touch clients with their voices, eyes and facial expressions. Nonphysical touch occurs when caregivers enter a client's personal space. The response of the client depends on the situation. The client may respond with verbal or physical violence if he is agitated or experiencing a catastrophic reaction.

Touching may not be appropriate for all clients. Be sure the client sees you first. If the client is startled by your presence, he may react by striking out. Know the client - some people just do not like to be touched. Others may associate all touching as a prelude to sexual activity. A client who has been physically abused may connect touching with pain and respond accordingly.

COMPANIONSHIP, INTIMACY, SEXUALITY AND COMMUNICATION

For reasons that are not yet understood, changes in sexual behavior may become apparent in people with Alzheimer's disease. Psychological reactions such as depression and anxiety that affect the general population may also result in sexual dysfunction in the person with AD. Structural changes in the brain and nervous system may also account for sexual dysfunction. Coping with memory deficits may be so stressful that there is little energy or desire left for sexual activity.

The impaired partner may not remember the spouse as a sexual partner. The healthy spouse may be too physically and emotionally fatigued to be interested in sex [41]. Spousal caregivers sometimes find it difficult to view their partners as sexual beings when they must provide for all the physical needs of the client. Healthy partners may feel that it is not proper to expect the spouse with AD to participate in sexual activity. People with AD and their partners are often reluctant to discuss sexual matters. Support and counseling, especially for the healthy person may be needed in order to cope with the changes brought about by the disease. Sexual intercourse is only one aspect of sexuality. Many couples find renewed meaning in companionship and intimacy. They often experience fulfillment in keeping the commitment to "love for better or worse, in sickness and in health" [41].

Client sexuality raises additional issues among clients in long-term care facilities. Staff members are concerned about legal issues, client's rights and the family. In some situations, staff members have received little education about sexuality and may react to clients' sexuality with inappropriate responses. Sexual functions are closely linked with physical and psychological well-being; ideally a sexual assessment would be completed for every client and used in planning care [40]. In the residential setting, a client may initiate a relationship with another client. When one or both clients are married, the reaction of the healthy spouse is a legitimate concern for staff members. Assessment and care planning regarding sexual activity is necessary to determine whether both parties are aware of the relationship, if either party is being exploited or exploiting the other party, and if both parties are aware of any risks that may be inherent in the relationship.

In the early stages of AD, the client may be capable of making decisions regarding sexuality. Staff may need to adapt a viewpoint that asks, "What would we do if this person was living in the community?" For example, a person may not approve of homosexuality or an affair between two married people but that person does not assume responsibility for forcing those values on the involved parties.

Partners of clients need to be given privacy when they visit. Remind staff members not to enter a room with a closed door. Assure the partner that it is acceptable behavior to be intimate with the client if this is the desire of both people.

Interventions may be required when sexual behaviors are carried out in public. The behaviors may not necessarily be rooted in sexual feelings. The person who disrobes at inappropriate times or in unsuitable settings may be feeling uncomfortable because the clothing is too tight or too warm and does not realize that clothes should not be removed in public. Exposure may also mean the client has to go to the bathroom or want to go to bed. A change of clothing may avoid future situations. It may be necessary to dress the client in dresses that zip up the back or in pull-on pants without a zipper so they cannot be easily removed. Clients who wander at night may

crawl into bed with another client. The person who has slept with a spouse for half a century may be looking for the comfort derived from sleeping with another person in the same bed. Lead the client from the room and try to distract with another activity.

A client may become jealous and suspicious, accusing the spouse of having an affair. Arguing or trying to convince the client otherwise will only escalate the client's anxiety. Patiently distract the client with another activity.

Masturbation is not uncommon behavior for people residing in long-term care facilities. It is an acceptable and therapeutic method for relieving sexual tension. Clients who masturbate in public areas need to be taken to their room and provided with privacy. Staff members must observe the client's right to privacy. A client may make sexual advances to a staff member. The person may resemble a former spouse or lover. Calmly removing the client's hand or giving the client something to hold while care is being rendered may resolve the situation.

MAINTAINING NUTRITIONAL STATUS

Healthy elderly people require 1500-2000 calories a day to maintain nutritional status. The person with AD may require an additional 600-1600 calories a day to prevent weight loss due to constant walking or pacing. A person out of bed requires 1.3 cal/kg, while a person who is walking all day requires 1.5-1.6 cal/kg. Fluid requirements are 30 ml/kg of body weight [42].

Several studies have linked AD to nutritional deficiencies. Clients with AD tend to have decreased body weight and different fat composition, neither of which is explained by dietary intake, activity or malabsorption. Several studies report that clients with AD have vitamin deficiencies. A diet high in nutrients and vitamins has been shown to be of benefit to some clients [43].

IDENTIFYING ALTERED NUTRITION AND DEHYDRATION

The nutritional and fluid intake of people with AD must be closely monitored. Weigh the client at least monthly. Weight loss is considered significant if:

- There is a 5% weight loss in one month and is considered severe if greater than 5%.
- There is a 7.5% weight loss over a three-month period or severe if the loss is greater than that.
- There is a 10% weight loss over a six-month period and anything greater is considered a severe weight loss.

Laboratory tests provide reliable data about nutritional status.

Normal values:

Men Hematocrit: 40% to 54%
Hemoglobin: 14-18 g/dl

Women Hematocrit: 37% to 47%
Hemoglobin: 12-16 g/dl

Blood urea nitrogen (BUN): 8-20 mg/dl

Total protein: 6-8 g/dl

Albumin: 3.2-4.5 g/dl

Globulin: 2.3-3.4 g/dl

The Nutrition Screening Initiative has identified the warning signs of people at risk for unintended weight loss [44]:

- Needs help to eat or drink
- Eats less than half of meals/snacks served
- Has mouth pain
- Has dentures that don't fit
- Has a hard time chewing or swallowing
- Has sadness, crying spells or withdrawal from others
- Is confused, wanders or paces
- Has diabetes, COPD, cancer, HIV or other chronic disease

Undernutrition may be identified by pale, scaling skin with dark areas on the cheeks and under the eyes. The tongue may be swollen and discolored and covered with sores. Spongy, bleeding gums and dental cavities are other signs. Lack of subcutaneous fat and weak, wasted muscles may also be noted. Disorientation is common with undernutrition. Signs of dehydration include dry oral mucous membrane orthostatic hypotension, increases in pulse and respiration, decrease in blood pressure, disorientation and diminished skin turgor [44].

FACTORS AFFECTING NUTRITION AND EATING PATTERNS

There are many factors that interfere with food consumption and absorption in the AD client. The person who lives alone may lack the cognitive resources to shop for, plan and cook a nourishing meal. A loss of coordination may make it difficult to pick up utensils and to get food and drink to the mouth. Spilling food may embarrass the person in the early stages of AD. In the later stages, loss of oral control and hyperorality may make it difficult to get adequate nourishment.

Cognitive deficits related to short attention span, disorientation and memory loss all contribute to the inability to complete a meal. Food may be hidden or thrown away. The client may be

unaware of or unable to respond to hunger and thirst sensations. Sensory-perceptual deficits interfere with eating skills. The client with agnosia (inability to identify common objects) is not able to identify eating utensils and may try to comb his hair with the fork. The client with apraxia (inability to use an item) may know what the fork is and how to use it, but is unable to pick it up and bring food to the mouth. A client may perseverate during eating, chewing the same mouthful of food over and over. The client may tire of eating or lose interest before the meal is completed.

Poor positioning impedes the eating process. The table may be too high and the food too far away. Poor oral hygiene can predispose the client to problems that cause loss of appetite, difficulty in chewing and pain from oral lesions. In the later stages, impaired swallowing (dysphagia) obstructs nutritional intake. The client is unable to feed self and may refuse to eat. Decisions may need to be made regarding aggressive nutrition and dehydration measures.

Food texture needs to be adapted to the diminishing skills of the client. Barring other medical conditions, the client can be placed on a regular diet, avoiding tough, stringy meats and foods that are difficult to chew such as caramels. A mechanical soft diet with ground or chopped foods may become necessary. Eventually a pureed diet is usually required. Commercial thickeners added to fluids facilitate swallowing.

INTERVENTIONS - MAINTAINING NUTRITION AND ENHANCING MEAL TIME

Periodic functional assessments will identify problems related to nutrition and food intake. Interventions are altered to correlate with the present problems. In the first stage, the client may need only a tray "setup" with liquids poured, food cut up and bread buttered. As the disease progresses, the client may continue to self-feed when appropriate assistance and cues are given. By the terminal stage, the client is dependent on caregivers for all fluid and food intake.

There are many ways to add additional calories to the client's diet. Since the client may not eat much, it is especially important that their food be nutrient-dense. Protein powders such as those used by athletes can be added to a number of foods. Calorie-rich "shakes" or bars such as Ensure™ or Boost™ are a tasty way to add both extra calories and protein. Nutrient supplementation may be needed and nutrient levels should be assessed periodically. Nutritious oils such as flax oil, fish oils and uncooked olive oil can be added to food in small amounts; these provide both calories and nutritional value. Seasonings can help to stimulate a fading sense of taste. Serve finger foods for snacks, such as crackers with peanut butter or cheese spread, small sandwiches, small pieces of peeled fruit and vegetables, raisins or other dried fruit, or small pieces of cheese. Cooking meat or chicken with vegetables, then straining or pureeing together, can make broth or creamed soup.

Establish a Regular Routine

Serve meals at the same time each day and in the same place. In the long-term care facility, have a specific seating arrangement. Make sure all clients are seated before serving begins.

Remove items such as extra silverware and condiments from the table. It may become necessary to place only one food at a time in front of the client. Too many foods can be confusing and frustrating.

Toilet the client before each meal and assist with handwashing. Make sure the client's mouth is clean, that dentures are in and that they are in good condition. Note whether the client wears glasses or a hearing aid. Make sure the client is in a comfortable position, in good body alignment with feet flat on the floor. In the last stage, pillows or supportive devices are often needed to support the client's head. Transfer clients from wheelchairs to dining chairs for eating.

Instruct caregivers to use the same method of assistance; verbal cues, hand-over-hand techniques or demonstration. Light pressure on the lips may remind the client to open his mouth. Monitor clients at each meal. The client's ability often fluctuates. He may be able to eat independently for one meal and require assistance or feeding at the next meal.

Environment

Avoid distractions. Turn off radios and televisions. Maintain a calm, quiet environment. Establish a cheerful dining room conducive to social interaction. Use tables for 4 to 8 people. Place a clear, plastic tablecloth over a colorful cloth or use plastic place mats. Having their snapshots at the table may help ambulatory clients find their table. Set a small centerpiece in the middle of the table. Remove it if the client thinks it is edible.

One study at a nursing home in Sweden noted significant improvements in behavioral symptoms (irritability, anxiety, depression) and increased nutritional intake when soothing music was played during meals [45].

Dinnerware

Use plain dinnerware. Plates with patterns can be confusing. Use dishes that are a different color from the tablecloth. Avoid the use of plastic eating utensils that can break in the client's mouth. A spoon may work better than a fork. Use cups for soup to facilitate the client's independence.

Use assistive devices to expedite mealtime. Plate guards prevent food from being "scooped" onto the table. Dycem or a wet washcloth under the plate prevents sliding. Convalescent feeding cups avoid dribbles and spills.

Food

Serve familiar foods prepared in the usual way. Check the temperature of foods before serving them to the client. Debone all meats. Cut food into bite-sized pieces. Remove all wrappers, open all cartons, and pour beverages. Add condiments if the client desires, then remove them from the table. Avoid tough, stringy, dry foods. Crumbly foods such as hamburger are difficult to control in the mouth and may cause choking. Dry cereal in milk or soups containing pieces of food are confusing; the client does not know whether to chew or to swallow.

Meeting the nutritional needs of the client requires an interdisciplinary approach throughout the progression of the disease. Consult with the dietician for suggestions for appealing, nutritious, easy to handle foods. The speech-language pathologist can conduct a bedside swallow evaluation and instruct staff on feeding techniques for the dysphagic client. The benefits of assistive-eating devices can be evaluated by the occupational therapist. With accurate assessment and knowledgeable planning, the client can maintain adequate nutritional status throughout the course of the illness.

ACTIVITIES OF DAILY LIVING

Activities of daily living (ADLs) are skills learned in childhood that are completed without conscious thought throughout adulthood. Physical and cognitive disabilities can interfere with the mastery required for these skills. The adaptation of the environment and simplification of the task can enable the client to function with minimal assistance throughout the first stages of the disease. The diminishing abilities of the client are often the impetus for admission to a long-term care facility. Instrumental activities of daily living (IADLs) are lost early in the course of AD because proficiency in judgment and problem solving skills are required. Money management, use of a telephone, driving and household management are examples of IADLs.

INDEPENDENCE - LETTING GO

Adults take their independence for granted. Caring for oneself, running a household and managing money are tasks that are carried out daily. People in the initial stages of AD are no different. The individual may still go to work every day, drive a car, pay the bills and balance the checkbook. As the disease progresses, the client's capabilities are gradually lost, resulting in total dependence. This stage is particularly difficult for both client and family. The client is still aware enough to realize that his abilities are ebbing away. It is difficult for family members to suggest to the client that it may be time to retire from a job or to give up driving. The client experiences difficulty with financial planning and driving first.

Money Management

Determine whether the client still writes checks with legible handwriting, adds and subtracts in order to balance a monthly statement, handles cash-paying for purchases and receiving change or comprehends the routine of paying taxes. Does the client have an awareness of the family's overall financial status?

As the client begins to lose the ability to handle financial matters, family caregivers need to gradually assume responsibility for these tasks. The client may make accusations of "stealing" from him. Allow the client to keep small sums of money in his pocket. Consultation with an attorney may be needed to assure fairness to the client and to the family.

Driving

Losing a driver's license causes a major loss of independence. According to the National Institute of Aging, even mild AD greatly increases the risk of auto accidents. If the client does not agree to voluntarily give up driving, you may need to ask his physician to report to the Department of Motor Vehicles that the client has an illness that impairs his driving. Other suggestions include taking away the car keys, disabling the car or selling the car.

Employment

It is wise for the client to inform his employer of the diagnosis. It may be possible for the client to switch to a simpler job or one with fewer responsibilities. Investigate the availability of counseling through an employee assistance program or a social service agency. The family needs to determine whether or not any benefits like a pension or health insurance will be available to the client. The family should also contact the local Social Security office to find out whether the client is eligible for benefits.

ETIOLOGIES OF SELF-CARE DEFICITS

A functional assessment will identify which tasks or which steps in the task the client cannot complete. Monitor the client while he is attempting an ADL to gather data upon which to formulate an appropriate intervention. The etiology for a self-care deficit cannot usually be reversed. However, an understanding of the etiology will result in setting reasonable goals.

Memory Loss

The client does not remember that he has to take a shower, brush his teeth or shave, or how to find the bathroom, how to turn the water on or where his toothbrush is when he gets there, or how to get toothpaste onto the brush or how to use the razor.

Shortened Attention Span

Even with reminders, the client cannot attend to a task long enough to complete it. He may start shaving and quit before he is finished.

Sensory-Perceptual Deficits - Agnosia and Apraxia

The client may also have a figure-ground deficit, which means that when a number of items are laid out (toothbrush, toothpaste, razor, etc.), he is unable to distinguish one from another. The client who perseverates may wash the same side of his face over and over, unable to move on to another part of the body. Sequencing deficits are common in AD; the inability to complete the required steps in the correct order. This is a problem with dressing and the client may put underwear on over outer clothing or try to put a sock on over a shoe.

Some clients may suffer excess disability. This is defined as disability beyond that expected by the disease process itself. Treating the excess disability is a priority for people with AD. The condition may be caused by medication toxicity from drugs such as digoxin or dilantin; other

diseases such as arthritis, cardiac disease or coexisting mental illness; increased level of fatigue or stress and vision or hearing impairments. Caregivers may unwittingly contribute to or hasten the onset of dependence by decreasing their expectations of the client. Caregivers "overhelp" because of their desire to "spare" their loved one, out of impatience at the client's decreasing abilities, a lack of understanding of the disease or because it is just easier to do it for the client.

INTERVENTIONS FOR DELAYING THE LOSS OF FUNCTIONAL SKILLS

Although the changes resulting from AD cannot be reversed, abilities in ADL may be maintained for a longer time if the client receives personal and environmental support. However, caregivers need to remember that once a skill is lost, it is lost forever.

General Guidelines

Develop a plan of care that includes specific interventions and goals based on the functional assessment. Include appropriate communication techniques.

Inform all caregivers of the care plan to ensure that a consistent approach is used. Lack of consistency or differing expectations of caregivers can impede success. Make sure that caregivers understand the ramifications of the etiologies for the self-care deficits. Maintain the client's dignity and perform all ADL in privacy. Minimize distractions.

Identify the client's strengths and focus on remaining abilities. Maybe the client can no longer cut the meat on his plate, but if he can still butter the bread, then allow and encourage him to do this.

Do not expect the client to perform an ADL when he is fatigued or agitated. Let it go for the time being and attempt it later when the client is rested or calmed down.

Break down the task into its separate components (*Table 5*). Develop interventions based on the steps of the task that the client is unable to perform.

Steps of Activities of Daily Living
Bathing <ul style="list-style-type: none">• Gets to tub/sink/shower• Gathers items needed for task• Regulates water• Washes/rinses upper body• Dries body

Dressing/Undressing

- Obtains/selects clothing
- Puts on/takes off slipover top
- Puts on/takes off cardigan top
- Manages buttons, snaps, ties, zippers
- Puts on/takes off skirt/pants
- Buckles belt
- Puts on shoes/socks

Eating

- Gets to table
- Uses spoon, fork, knife appropriately
- Opens, pours
- Brings food to mouth
- Chews, swallows
- Uses napkin

Toileting

- Gets to commode/toilet
- Manipulates clothing
- Sits on toilet
- Cleans self
- Gets clothing in place
- Washes hands

Mobility

- Gets self to side of bed
- Maintains upright position
- Comes to standing position
- Places self in position to sit in chair
- Locks wheelchair brakes
- Turns body to sit
- Lowers self into chair
- Propels wheelchair
- Repositions self in chair
- Raises self from chair
- Places self in position to sit on edge of bed
- Walks alone/with assistance

- Uses assistive device

Source: [34]

Table 5

Include the use of cues in the care plan and instruct caregivers how and when to use verbal or nonverbal cues, demonstration, hand-over-hand techniques or physical guidance. Verbal cues consist of brief, simple instructions to the client: "Please drink your milk" while handing the client the glass of milk. Nonverbal cues consist of touching or pointing. Touch the client's hand and point to the milk. To demonstrate, pick up the glass of milk and raise it to your mouth. To use hand-over-hand techniques, place the glass of milk in the client's hand then place your hand over his and raise the glass of milk to the client's mouth. Handing the client the milk provides physical guidance. A combination of cues may be utilized for an ADL.

Simplify the task. It is easier to fasten shoes with a Velcro closure than it is to lace and tie.

Remember that disruptive behavior during personal care may be triggered by:

- Misinterpretation of environmental cues
- Intrusion of the caregiver into the client's personal space and territory
- Poor communication between caregiver and client
- Feelings of poor self-esteem due to increasing dependence
- Feelings of insecurity
- Changes in routine, in environment or in personnel
- Physical discomfort

Bathing and Grooming

Bathing procedures are often beset with disruptive behavior. Bathing can be a positive experience for both client and caregiver if approaches are individualized for each client. First, find out the client's bathing habits. Did he take a tub bath, a shower or did he stand at the sink and take a sponge bath? A person who has never taken a shower will be understandably upset

when the water streams down over his face. Is the client used to bathing in the morning or evening? In long-term care facilities, bathing is usually done on both day and evening shifts. However, the client who always took a shower upon arising may not adapt to having a shower after lunch. Did the client bathe every day or only once or twice a week?

Know the client's personal history. Nursing assistants dreaded taking Mrs. B for her shower. While she walked willingly to the shower room, once inside she became agitated, hitting and scratching the nursing assistant. Upon questioning the family, it was learned that she was a Holocaust survivor. The long, dark, green-tiled shower triggered horrible memories of gas chambers for Mrs. B. Giving a tub bath solved the problem.

Check the bathroom before the client enters to be sure that all the necessary supplies are available. Approach the client in a positive manner, saying, "It is time for your bath (shower) now and I will help you." Asking, "Do you want your bath now?" is likely to elicit a "no" answer. With some clients, it may be easier to start walking with them toward the bathroom and when ready to enter, tell them it's time for the bath. If the client refuses, regardless of the approach used, avoid forcing the issue; wait and try later. A bath or shower may need to be omitted, giving a sponge bath instead. Tell the client in brief phrases what is happening with each step of the procedure. To start the shower without warning, for example, is quite likely to disturb the client.

Pay special attention to body areas where skin surfaces rub together such as under the breasts, the underarms, genitalia and thighs. The caregiver must wash and dry these areas if the client cannot. Avoid the use of powders and cornstarch as they tend to "pill," causing even more skin irritation.

People with AD will frequently grab the caregiver's hands during the bath. Give the client a washcloth during the bath and a towel while drying. Never leave the client unattended in the bathroom. Use the time to inspect the skin for rashes, bruises, pressure ulcers and growths. Clients may feel less vulnerable if towels are placed over the body, thereby avoiding total exposure.

Encourage staff to think creatively and to relinquish rigid ideas of how procedures should be performed. Mrs. K always became agitated when the nursing assistant attempted to remove her clothing, whether for a bath or shower. After the client was seated in the shower chair, the nursing assistant decided to forego undressing and to use the handheld shower to gently begin wetting Mrs. K's hands and arms. Upon feeling the water, Mrs. K immediately began taking her clothes off. This approach was written into the care plan.

Avoid the use of lotions, oils or anything that may make a tub or shower slippery. Towel and lotion baths that can be completed in bed may be an acceptable substitute for some clients. Saturate towels with warm lotion (so they are damp, not soggy) and place over the body, one area at a time, gently patting. Use washcloths for the face and perineal care. Cover the client with a bath blanket during the procedure. Rinsing and drying are not required [46].

Evaluate the bathing environment from the client's perspective. Most facility bathrooms are large and cold, very different from a private home. Extra equipment is often stored in the bathroom, making it look ugly and scary to the client. Check the temperature of the water and of the room (most elderly people are easily chilled), the lighting (bright without glare) and the color. Green or blue walls look gray and muddy to elderly eyes. While it may not be possible to renovate bathrooms, a few simple changes can improve the environment:

- Hang artificial plant and pictures that might cue the resident to bathing
- Have the walls painted or papered in shades of pink or yellow
- Add a colorful privacy curtain around the tub or across the end of the shower to enclose space
- Add towel racks and hang colorful towels. These are only for décor; infection control policies forbid their use for clients

Evaluate the shower chair for comfort and safety. Consider adding grab bars and providing waterproof shoes for clients who prefer to stand.

It may be more efficient to shampoo the client's hair during the bath or shower. A simple wash-and-wear style is easier to maintain. In many cases, the client continues to go to the hair stylist well into the disease. An attractive hairstyle increases self-esteem in all women. If a female client has always worn make-up, encourage her to continue. Supervise the task so that it is applied appropriately and looks attractive. Fingernails need frequent observation. File and trim nails regularly to prevent injuries from scratching. Trim toenails straight across. The services of a podiatrist may be needed for some clients. Volunteers in long-term care facilities may be willing to give manicures for women who enjoy having their nails polished.

Shaving is a daily task for most men and adds to a well-groomed appearance. Most men can handle an electric razor with supervision until the later stages of the disease. Applying aftershave can increase self-esteem. Provide assistance for clients with beards and moustaches. Keep the beard free of food particles that may become imbedded during meals. For women who are used to shaving, cream depilatories may be used for legs and underarms. Perform a skin patch test first to determine if the client is sensitive to the product. Some older women develop hair growth on the upper lip and chin. These areas can be shaved or waxed regularly [47].

Dressing

Dressing is a complex ADL. To dress one must have fine and gross motor skills, balance for putting on pants, the ability to sequence and be able to tell right from left and top from bottom. The task can be overwhelming to the client. If the client can make choices, take him to the closet and ask him to pick out the clothing. If this is too complicated, hold out two garments and ask him to choose one. When the client can no longer cope, the caregiver must make the choice. Dressing is easier if the clothing is large enough and made of a soft, slick, stretchy fabric. Try to maintain the client's dressing style. As the client becomes more dependent it will be necessary to adapt clothing to his needs. To facilitate dressing/undressing, follow the guidelines that are appropriate for the client's abilities:

- Remove clothing from closets and drawers that is out of season or no longer fits. This simplifies decision making and avoids the problem of choosing inappropriate attire.
- Hang complete outfits together; pants, shirt, jacket, etc.
- Place pictures on dresser drawers to indicate the contents.
- Provide privacy for dressing.
- Provide duplicate outfits or arrange for daily laundering for clients who insist on wearing the same clothes every day.
- Lay out clothes in the order they are put on. Make sure the clothes are right side out.
- Remember that putting on an article of clothing like underwear requires the client to distinguish back from front, which foot to put in first and in which opening and how to pull underwear up.
- Adapt clothing to the client's abilities as the disease progresses. Elastic waistbands and Velcro closures are easier to manage. Cardigan style tops may be easier than pullover styles for caregivers to handle.

Oral Care

Preventive care will decrease the risk of needing extensive dental treatments later. Give the dentist complete information regarding the client's medical history and current status. Clients need oral care at least twice a day for two minutes each time if possible. Do the last brushing after the evening meal. Oral care is a complex task. The client may be unable to open the toothpaste or to apply paste to the brush. He may forget to spit the toothpaste out or to rinse the mouth with water. Supervision is needed early in the disease to ensure that oral care is adequate. Flossing is recommended but may be difficult for the client or caregiver to complete. A "proxbrush" may be used to clean between the teeth. A fluoride toothpaste and fluoride rinses (available without prescription) will protect from decay. A soft toothbrush can be used to clean the mouths of clients with dentures. Inspect the dentures regularly for fit and for condition. Evaluate the client's medication to regime to identify potential oral problems resulting from their use. Assess the client for dry mouth (xerostomia), which may be a side effect of Haldol or other medications. Artificial saliva may need to be administered.

Bowel and Bladder Elimination

Incontinence does not usually occur until the later stages of AD. As the disease progresses, the client experiences a number of physical and cognitive changes that inhibit the ability to toilet independently. A sudden change in urinary elimination habits needs to be investigated to rule out other causes such as infection [48].

There are several types on incontinence. Functional incontinence is usually associated with AD. The involuntary passage of urine is related to cognitive, physical or psychological functioning or to environmental barriers. The client with AD may be functionally incontinent due to the inability to:

- Recognize the signs of a full bladder due to changes in the brain that affect urinary control
- Comprehend directions to the bathroom

- Articulate the need to void
- Find the bathroom due to disorientation
- Manipulate clothing for toilet use due to perceptual and fine motor control deficits
- Walk to the bathroom

Environmental reasons for functional incontinence:

- Bathroom is too far from the client's room
- Bed is too high/has side rails so client cannot get up and out
- Client is restrained, making mobility impossible
- Client is not able to identify the bathroom due to lack of cues
- Poor lighting makes it difficult to find the bathroom
- A lack of color contrast between toilet seat and the floor causes confusion
- Client mistakes the sink or wastebasket for the toilet

Incontinence can also have a psychological basis. The client may receive behavioral messages from caregivers that incontinence is acceptable. The client is rewarded with attention and touch when caregivers remove soiled clothing. By this stage of the illness, the client has relinquished control over many body functions and incontinence may be a means of exerting control over a bodily function [48].

There may be physiological reasons for other types of incontinence. Prostatic hyperplasia causes over-flow incontinence. Stress incontinence is associated with increased abdominal pressure and urethral sphincter failure. Urinary tract infections, inadequate fluid intake leading to bladder irritation and certain medications are known to cause incontinence.

Interventions for Incontinence

Complete a bowel and bladder assessment to rule out reversible causes of incontinence. Provide appropriate treatment if required. Incontinence resulting from the disease process cannot be reversed. However, adaptations can be made to prevent soiling.

Modify the Environment

- Place a picture of a toilet and the word "toilet" on the bathroom door.
- Increase lighting in the bathroom and hallway if needed. Check room temperature.
- Arrange a warm, comfortable bathroom. Remove clutter from the bathroom that may distract the client.
- Add an elevated toilet seat with arms to increase feelings of security. Install grab bars to facilitate independence.
- Avoid the use of restraints and side rails if possible. Keep the bed in the lowest position.
- Remove mirrors. The client may see his reflection and think another person is already in the bathroom.
- Provide privacy. "Group" toileting in the long-term care facility is not conducive to successful voiding.
- Make sure the toilet seat is a contrasting color to the floor.

- Provide clothing that is easy to manipulate.

Behavioral Interventions

- Monitor the client to identify signs of a full bladder, such as wandering, rubbing the genitals or irritability.
- Ask the family what word the client may use to indicate the need to toilet. Words such as "tinkle," "pee," or "take a leak" may be more familiar to the client.
- Provide at least six cups of fluid daily. Do not assume the client will drink just because fluids are available. Avoid fluids such as coffee and tea that may irritate the bladder.
- Implement a scheduled toileting, prompted voiding or habit-training program. Each program requires caregiver assistance. Scheduled toileting and habit training are suitable for all clients with AD as long as they can sit safely on the toilet.
- Scheduled toileting requires a timed schedule for voiding. Take the client to the bathroom every two hours and implement techniques to facilitate urination, if necessary; run water, dip the client's hand in warm water or pour warm water over the genitalia.
- Habit training is based on the client's individual pattern of voiding. An assessment is required to identify the client's usual voiding times. The client is taken to the bathroom at these times every day.
- Prompted voiding is a supplement to habit training and utilizes social reinforcement for appropriate toileting behavior. The client is checked on a regular basis and asked to report verbally if wet or dry. The client is prompted to use the toilet and is praised for maintaining continence and for attempting to toilet. The client must be able to recognize some degree of bladder fullness or the need to void [48].

Eventually the client will become incontinent regardless of caregiver efforts. The use of adult diapers will prevent embarrassment from soiling clothing. Change the diapers frequently and provide adequate skin cleansing and drying to avoid skin breakdown. Giving the client cranberry juice to drink may help eliminate odor and urinary tract infections.

Mobility

Mobility, like other skills, deteriorates as AD progresses. Most clients remain ambulatory for a surprisingly long time. Eventually they require assistance with getting out of bed and walking. In the last stage, the client is immobile, with little weight-bearing ability. Diminishing mobility increases the risk for falls. Gait disturbances, such as leaning and shuffling, along with balance and coordination deficits, are causes of impaired mobility.

To facilitate mobility:

- Investigate and treat any possible underlying cause of immobility. The client with impaired vision may need glasses; the client with bunions or calluses may require the services of a podiatrist.
- Provide clothing that promotes mobility. Check laces on shoes and make sure the shoes are comfortable, the right size and slip proof. Check the length of slacks. Slacks or skirts that are too large or too long hinder walking.

- Consult with a physical therapist to determine the need for muscle strengthening exercises or for techniques to use for clients with perceptual deficits.
- Implement range of motion exercises twice a day to maintain joint flexibility.
- Avoid the use of restraints. The associated inactivity increases muscle weakness and poor balance.
- Instruct staff in correct techniques when the client is unable to get out of bed independently. A one or two person pivot transfer with a transfer (gait) belt is appropriate if there is weight-bearing ability.
- Use of a mechanical lifting device for clients who have lost weight-bearing ability. Getting the client out of bed provides a change of scene and encourages participation in activities.
- Avoid the use of assistive devices like walker or canes. Most clients are unable to safely use them because of cognitive impairment.

ACTIVITIES FOR THE CLIENT WITH ALZHEIMER'S DISEASE

Appropriate activities are a major component of the total plan of care for clients with AD. The overall purpose of providing activities is to enhance the client's self-esteem and to benefit their emotional well-being. Activities focus on the client's remaining strengths rather than limitations, provided structure and normalize life. Activities can promote physical exercise, stimulate mental activity and help the client maintain religious practices. Activities are used as a behavioral management technique by preventing boredom and reducing agitation and to prolong functional capabilities. Involvement should be voluntary. In the earlier stages, clients may resist participating in activities due to feelings of inadequacy and fear of failure. It may take two or three invitations for the client to feel comfortable in accepting. In the later stages, dependent clients must be taken to the activity. If caregivers know the client, they will be aware of what types of activities the client will enjoy. Clients need to be monitored throughout an activity so agitation and anxiety are quickly detected.

The activities area is a significant factor in the success of the program. Ideally, the room is quiet and free of distractions. Unfortunately, public areas of a facility are often used where staff, visitors and other clients must pass through. A secure environment will allow clients who wander to do so without intervention. People with AD are unable to focus on a task when they are continually responding to the sights and sounds around them. Easy access to bathrooms is a priority. It is less disruptive if clients can get up and go to the bathroom when the need arises and also alleviates the need for a staff member to leave the area. Clients feel safer and more comfortable if activities are held in the same area. While they may not cognitively remember the room, their affective memories influence their feelings about the environment.

GENERAL GUIDELINES FOR ACTIVITIES

Safety

Safety is the first concern when planning activities. Choose nontoxic supplies for activities such as painting or clay modeling. Avoid activities that require scissors or other potentially dangerous tools. Games that utilize many small pieces may be unsafe for clients with hyperorality. Food-related activities are popular but staff members need to be aware of dietary modifications (the use of thickeners or pureed foods) required by a client or any swallowing problems that may occur.

Monitor clients for agitation, signs of discomfort, incontinence and choking. Initiate appropriate action. Utilize in-service opportunities to teach activities staff how to respond to emergencies. They may also need to learn how to safely transfer clients from wheelchairs to dining chairs, how to assist with eating and how to help clients in the bathroom. Clients benefit tremendously when activities staff have participated in Alzheimer's classes and are knowledgeable in behavior management techniques.

Planning

Activities should be dignified, avoiding those that the client may perceive as demeaning or childish. A well-planned and implemented program brings meaning, purpose and joy to the client's life. An assessment done upon admission will identify previous and current pastimes enjoyed by the client; past roles and lifestyles can be validated. However, to ask a client to do a simplified version of a craft he once excelled in may not be successful. For example, an artist who is given a paint-by-number set or a child's coloring book may become frustrated and angry with the reminder that his mastery is disappearing. On the other hand, some skills remain even when the client is severely impaired. Given the opportunity, a client who enjoyed playing the piano may be able to sit down and render a familiar tune he once knew.

Activities that focus on routine daily tasks can improve the quality of life by maintaining these skills for a longer period of time. Combing hair, applying makeup and polishing fingernails improve self-esteem and can delay functional loss. Household tasks are also effective activities. Dusting, folding laundry, using a manual carpet sweeper and simple cooking are success because they are one-step and carry little potential for failure.

Implementation of Activities

Activities should:

- Have a purpose (i.e., making greeting cards to give to family)
- Require voluntary participation on the part of the client
- Be noncompetitive
- Be planned for small groups or on a 1:1 basis
- Be planned for short periods of time
- Require only a few, simple items
- Be geared to the client's present abilities with available staff/volunteers to assist the client
- Be geared to the time of day: bathing and grooming or setting a table for a meal
- Allow for quiet time. The client does not need to be busy all of the time. Over-stimulation causes anxiety and fatigue.

Activities have a greater chance for success when other staff members appreciate their value. Not all clients can attend events, so it may be helpful for activity staff to tell nursing which clients would benefit most from a particular session. These clients can then be dressed and toileted in time to attend. In some dementia special care units, the nursing assistants are trained to plan and present the activities. This simplifies the amount of coordination that is required between departments.

SUGGESTIONS FOR ACTIVITIES

Spiritual Activities

Participation in spiritual activities is very beneficial for clients who were involved in religious activities in the past. The background and faith of the client must be considered so that the services are familiar and comforting. Clergy in the community may rotate their services so that all faiths are represented during the year. Ask clergy to dress in their traditional garments. The environment can promote the feeling of a spiritual setting by holding services in a chapel or by utilizing items appropriate for specific religions such as a cross or a rosary. Clients, who have received strength and reassurance in the past from their spiritual beliefs, may continue to find support from such activities even into the later stages of AD. Religious services are most beneficial when the program is familiar to the clients. Well-known hymns and passages from religious text are comforting.

Music Activities

Singing, listening to music and dancing are entertaining for many clients. Musical programs may be either passive (listening) or active (singing or dancing). Consider the age and era of the clients when selecting the music. Adequate space and safe flooring are needed for dancing. Block out other environmental sounds to avoid excessive stimulation.

Arts and Crafts

Some clients enjoy doing arts and crafts that are within the realm of their abilities. The end product gives a sense of accomplishment and productivity. Much planning and assistance may be required of the staff to avoid clients' frustration. Arts and crafts are noncompetitive. There is no right or wrong and one individual's product is not compared to anyone else's. A group activity provides the socialization and camaraderie of being in a group. For higher functioning clients, consider quilting, woodworking and ceramics. One facility adopted a project whereby the clients made rag dolls for children in a nearby pediatric chronic care hospital. Clients in the advanced stages of AD may enjoy painting with their fingers, a large brush, a sponge or working with clay. Art projects can also serve as communication tools. The client has opportunities for control through art experiences by choosing colors and designs.

Doing an autobiography is satisfying to the client and helpful to staff. The project requires the help of the family. Photos from the client's past, up through the present time, are placed in a scrapbook with names printed underneath. Family members, friends, pets and former homes can

be included. The book should be readily accessible and can be used to help calm clients when they are anxious.

Pet Therapy

The therapeutic use of small animals provides sensory stimulation, encourages movement, reminiscence, social interaction and opportunities for nonverbal communication. Pets provide unconditional affection and approval. Some facilities adopt one or more permanent pets. This requires preplanning and commitment on the part of the staff. Other facilities use an animal visitation program with pets provided at specific times by staff members, volunteers or from a local animal shelter. Everyone who wishes to should have an opportunity to interact with the animal. Kittens or puppies are especially effective in drawing positive responses from clients in the advanced stages. Watching fish in an aquarium or listening to birds is often a pleasant pastime.

Horticulture

Horticulture activities are often familiar to clients and have healing and therapeutic properties. With proper care, plants grow and produce new shoots, giving clients the opportunity for nurturing and caring. Plants provide sensory stimulation when the client feels the soil, sees and smells the blossoms or tastes a tomato fresh from the vine. Plants can be correlated with seasons: tulips and Easter lilies for spring and poinsettias for Christmas. Avoid poisonous plants. Projects should be small and manageable. Hardy, individual houseplants require little attention. Some facilities plant small, outdoor raised gardens for clients who enjoy more involvement. Plants can also be used as a foundation for other activities; reminiscing, used as door prizes for client-sponsored programs or given as gifts by clients to family members. However, it is the process and not the end product that is the important feature of a horticulture program.

Physical/Recreational Activities

Regular physical exercise is beneficial for clients with AD. Consider wandering habits when planning programs to avoid physically exhausting the client. Physical activity facilitates bowel regularity, reduces tension, increases appetite and may prevent complications associated with immobility. Exercise activities may include:

- Going for a walk
- Active range of motion exercises done to music; these can be done by clients in wheelchairs
- Balloon toss
- Horseshoes (with modified equipment)
- Bowling (with modified equipment)
- Exercise trails set up indoors or outside with items such as a finger ladder and exercise wheel
- Water therapy for facilities that have access to a pool. This activity requires a high staff to client ratio.

Intergenerational Programming

Interaction between children and clients can have many positive results for both generations. In one facility, a group of mothers and their preschool children and infants joined the residents once a month for morning exercises. In another facility, elementary school children each "adopted" a client whom they visited weekly. Avoid large groups of children at one time. Give the children prior instruction and encourage the participation of parents or teachers.

Community Activities

Activities outside of the facility require additional staff, a mode of transportation and places to go that are accessible and accepting of the clients. Community activities are well worth the effort and planning. Staff members need to identify restaurants, stores, museums, shopping malls and other public places that will welcome the clients. Plan the outing for the time of day and day of the week that is the least busy. Choose places that have minimal stimulation. Make reservations when a restaurant outing is planned. Inform other staff in advance which clients will be out of the building. For lengthy outings it may be necessary to take clients' medications. Community outings can be very simple; a ride through the country in the spring to see newly planted fields or in the fall to view changing colors, visiting the hometowns where the client once lived, going to a drive-in for an ice cream cone or visiting a park. Going to country fairs, fishing at nearby lakes, picnics or attending theater productions requires more extensive planning, but may be very enjoyable for early stage clients.

Individual Activities

Having items available for individual activities may soothe the client's behavior. Boxes can be filled with objects that meet the client's need to rummage. Picture books, greeting cards, playing cards, balls of yarn and other small, safe items are suggested. Children's toys (abacus, clock, workbench, large strands of beads) may stimulate interest. Rocking is comforting to some clients; the availability of gliding rockers meets this need. Clients may find comfort in stuffed animals or dolls. Some caregivers may feel this is demeaning. It is not the object that is demeaning, but rather the attitude of staff towards clients who are attached to the objects. Whether or not it is appropriate depends on the response of the client.

BEHAVIORAL CONCERNS

Managing behavior is the greatest challenge associated with the care of people with AD. To meet the challenge successfully, caregivers need to be educated about the disease process and its influence on behavior. The physiological changes occurring in the brain affect the responses of the client. The changes are irreversible and cannot be changed. Behavior is beyond the willful control of the client.

ALTERING CAREGIVER PERCEPTIONS

All behavior has a reason, although the cause may not be immediately known. Behavior is a response to the environment, the caregivers or to internal stimuli. Problems may develop when the expectations of the caregiver do not match the abilities of the client. The client has a need for supervision and assistance because of increasing functional disability. The management of behavior is directed toward adapting the environment and the approaches of the caregivers to the needs of the client. Caregivers cannot cure the disease or "teach" patients to remember. They cannot resolve behavioral issues by using logic, by trying to "reason" with the client or by coaxing or using flattery. Caregivers need to have a healthy sense of humor and be flexible, creative and patient. The medical model of care is no longer effective. Rigid routines that require vital signs to be taken at 8 a.m., showers/baths to be completed by 11 a.m. and all clients in bed by 8 p.m. are unnecessary and unworkable. Creativity allows caregivers to agree that sleeping in a bed wearing nightclothes is not necessarily the "norm" for AD clients. Behavioral management is successful when the caregivers can enter the client's reality and utilize techniques that show respect for adult feelings rather than dwelling on childlike behavior. The behavior of a cognitively impaired person is logical within his own frame of reference. A knowledge of history is helpful; it facilitates understanding of the client who is reliving the 1930s, 40s or 50s. An awareness of the client's personal history is essential because it helps caregivers to know where the client is "coming from" when he relives the past.

Avoid the use of labels in describing behavior. Words such as "uncooperative" are subjective and usually mean that the client won't do what we want him to do when we want him to do it. When staff members use labels, the tone is set for all future contacts with the client. Caregivers assume that the client will be difficult and thus will elicit the behavior that is expected.

STRESSORS AFFECTING THE CLIENT

Stress affects the client with AD just as it would any person. The stress is intensified because the client lacks control over himself and his environment. There are many causes for stress. Unmet physical needs such as hunger, thirst, constipation, fatigue and immobility will elicit a response from the client. When anxiety and agitation are displayed, the client may be experiencing discomfort related to pain, nausea or infections. In the early stages, the client feels anxiety associated with the diagnosis and manifestations of the disease. He knows he is "slipping away" and that he is unable to do anything about it. AD clients also have the same emotional needs as anyone else. Family and friends may withdraw as the illness progresses, leaving the client to feel rejected and isolated. The client may be deprived of intimacy and physical closeness with a partner. The environment may produce a number of stresses related to sensory overload, too many changes in caregivers and a lack of personal and environmental space. Cognitive impairment may cause the client to misperceive the environment or to suffer delusions and hallucinations.

GUIDELINES TO PROMOTE POSITIVE BEHAVIORS

Staff members should make every effort to meet the client's physical, safety and emotional needs and to identify and treat health problems. Arrange an environment that is calm and serene, yet provides adequate sensory stimuli. Staff members should be taught how to communicate

effectively with the client. Promote the client's feeling of security by establishing flexible routines and assigning consistent caregivers. Identify the client's strengths and avoid emphasis on skills that have been lost.

MANAGEMENT SKILLS

The problem solving approach can prevent problem behaviors. When behaviors are identified and evaluated, interventions can be established. If the intervention is successful, it is permanently written into the care plan to avoid future problems. If the intervention has not effect on the behavior, further evaluation is needed. Did it fail because of misidentification of the problem or because caregivers did not understand and did not follow through with consistency.

Identifying and Evaluating Behaviors

When a behavior is disturbing to caregivers, the specific actions of the client need to be identified. Using subjective descriptions such as "he became violent" or "she is aggressive" provide no clues as to a possible cause or how to intervene. The statement "Mr. J said he didn't want a shower and bit me when I attempted to take him to the shower room," provides a starting point for problem resolution.

The next step is to evaluate the behavior by further investigation. In this situation the problem may be directly related to the shower or it may be due to other factors:

- What events occurred just prior to the incident? Did the client feel embarrassed because he was incontinent and needed to be changed?
- What was the environment like? Were there too many people around, too much noise and commotion?
- Does the behavior arise from a specific issue (every time a shower is attempted) or does it happen to only one staff member?
- Does the behavior affect only one resident and one staff member?
- Is the behavior symbolic of an unrecognized problem? Flushing dentures down the toilet may be the only way the client knows how to communicate that they are uncomfortable to wear. With this information in hand, interventions can be developed.

There are clear-cut solutions to resolving problems caused by unmet needs or an upsetting environment. Other situations may require more deliberation. It may be helpful to discuss the problem with other staff members. Is the interaction between a client and a particular staff member especially positive? Remember that it may be a housekeeper, a volunteer or other individual who has the most rewarding relationship with the client. Try to identify the reasons and share this information with other caregivers so these approaches can be used consistently. Before establishing interventions, determine whether the safety or health of the client or other individuals is at risk because of the behavior and whether the problem is truly a client problem or is it a staff problem? Sometimes problems are only troubling to the staff and are not hindering the safety or health of anyone. A client masturbating in the privacy of his room is not a problem except to the staff that makes it a problem.

Redirecting Behaviors

Redirecting behaviors uses distraction techniques. Memory deficits and short attention spans ensure the success of distraction. Used correctly, it avoids confrontation and the risk of catastrophic reactions.

The Use of "Self"

The effective use of one's self as a therapeutic medium is the greatest intervention of all. Caregivers who are successful realize that the responses of the client are frequently related to the approach of the caregiver. The caregivers are willing to listen to the client's unspoken messages and to use this information in their interactions with the client. When a disturbing behavior occurs, they view it as a challenge for which they can find a solution rather than placing the responsibility for the behavior on the client. They learn as much as they can about the client and his past through their contacts with families and with clients.

Mr. D was agitated one morning and repeatedly called out saying, "I have to go outside." Because it was a beautiful spring morning, a nursing assistant wheeled Mr. D to a window where he could view the trees and the blooming spring flowers. Mr. D became more agitated and began pounding the table. Another nursing assistant who knew the client suggested that he was upset because for several years he had been a caretaker for a public park. The spring was his busiest time; sitting by the window reminded him that he had to get outside to "get his chores done." The nursing assistant also knew that he enjoyed ball games and moved him to the TV where he could watch his favorite team playing.

Caregivers with the therapeutic touch have the ability to go where the client is at the present time. They can sing Christmas carols in the middle of July if that makes the client happy. They know when a client needs a hug and they sense when a hand massage is in order. Most importantly, caregivers who make use of "self" truly enjoy working with the clients and are proud of their accomplishments.

SPECIFIC BEHAVIORAL INTERVENTIONS

Following the general guidelines above can help in preventing disturbing behaviors. However, disruptive behaviors may occur even in the best of circumstances. Most clients with AD do not have simple, uncomplicated dementia. It is estimated that 25% of individuals also have concomitant depression and another 25% have concomitant psychosis, with a few clients having both diagnoses. Fewer than 10% have frontal lobe syndrome, which is characterized by responsive aggression. This refers to the client's reaction to high levels of stimulation. The behavior becomes increasingly physical if the caregiver does not understand the client's inability to cope with the situation. Psychotic behavioral disturbances include agitation, delusions and hallucinations and aggressive behavior [49].

Pharmacologic treatment is usually required for psychotic behaviors along with the implementation of behavioral strategies. Pharmacologic management, assess all disruptive behaviors to rule out causes such as unmet physical needs, physical discomfort, acute medical

problems, environmental stimuli or caregiver improprieties. The bizarre behaviors sometimes exhibited by clients with AD may be the only remaining methods by which the client can communicate with the world. Vocal and motor activities often viewed as combative, hostile, agitated or aggressive by staff are the client's way of telling caregivers "something isn't right."

Shadowing

Shadowing occurs when the client follows or "hovers" around the caregiver and may persist in talking or asking questions. Safety is not usually a concern related to shadowing. However, it can become irritating and annoying to the caregiver, particularly when clients are at home.

Remember that the caregiver represents security to the client. The shadowing may be accompanied by agitated behavior that needs to be addressed. An assessment of the behavior will help determine if the behavior happens at a specific time of day or if it is triggered by certain people or environments.

Interventions for Shadowing

If certain people or environments trigger shadowing, then adjustments or avoidance is necessary. If the behavior happens at a certain time of day, an activity may be planned to keep the person occupied such as dusting or winding a ball of yarn. The Alzheimer's Association suggests, "gum therapy" or "cereal therapy" if the person can safely chew and swallow. Chewing is another form of distraction and redirection of energies.

Wandering

Wandering is defined as ambulation that may appear aimless but often has a purpose. There are many unproven theories for wandering. The client may be looking for something or someone; it may be a way of coping with stress or of alleviating feelings of loneliness and isolation. The perception of the caregiver, the type of wandering pattern and the environment help determine whether wandering is considered a problem. Purposeful wandering occurs when the client has intent for the movement. He may be walking to escape boredom or because he feels like exercising. Purposeful wanderers are usually predictable and consistently walk the same route. They do not attempt to leave the building and they are "safe" wanderers. This type of wandering should be considered normal unless the client's pattern changes. When mobility skills begin to diminish, falling may become a problem. Aimless wandering is characterized by purposeless movement by a disoriented client who may enter other client's rooms or take their belongings. The escapist usually has a destination, planning on "going home" or to some other familiar place.

Mr. W was determined to leave the facility so he could visit his sister. When all the staff was busy, he managed to get the nurse's car keys from the counter in the nurse's station. He knew which car was hers and drove away from the premises. He was missed some 15 minutes later. When a search of the grounds and building proved fruitless and when the nurse noted her car missing, the police were notified. Following the staff's advice, the police found Mr. W at his sister's house. He had driven 65 miles on an interstate highway without incident!

The most dangerous type of wandering is done by the critical wanderer. This individual tries to leave the premises but is unaware of the hazards involved. The client may wander into the middle of a busy highway or into a pond of water without any comprehension of cause and effect [50].

Not all clients with AD will wander. Clients who may not have wandered at home may do so in the long-term care facility. The first two weeks after admission are critical. The staff needs to monitor the client for specific behaviors. If the cause is unknown, is the wandering a problem? The goal is not necessarily to stop the wandering, but to ensure the safety of the client and to avoid the client's intrusion on others.

Interventions for Wandering

- Create a safe environment so the client can wander without incident.
- Make sure the client has an identification band or bracelet on at all times. In a long-term care facility, provide a list of wanderers to all staff members.
- Always know what the client is wearing. Place his name in all pieces of outer clothing.
- Install gates on stairwells.
- Install alarms on all exit doors.
- Make safe wandering paths; remove clutter, throw rugs, furniture with sharp corners and electrical cords.
- Provide a warm homelike environment.
- Ask family to bring in pictures and other small items from home.
- Provide activities that correlate with the client's abilities and interests.
- Place the client's name and a familiar object on the door of his room.
- Remove items that may activate the desire to leave, such as coats, hats and purses.
- Provide local police with information regarding AD and wandering. They will not usually initiate a search for a missing person for 24 hours. They need to know that for an AD client, this is critical. Have a written procedure to follow in the event a client is "lost."
- Camouflage doors by painting them the same color as the walls.
- Take the client for a walk outdoors, weather permitting.
- Approach a fleeing client cautiously. If the client exits the building, approach him from the front, calmly walk alongside him and gradually angle back toward the door. The client will be overwhelmed if several people attempt to overtake him.

Sundowning

Sundown syndrome occurs when the client becomes restless in the evening or during the night. As with wandering, the cause is unknown. Experts feel it may be due to over fatigue, physical discomfort (urinary tract infection, restless leg syndrome, sleep apnea, arthritic pain), reduced sensory stimulation, too much caffeine, shadows caused by the lighting, disturbing dreams or feelings of insecurity and loneliness during the night.

Interventions for Sundowning

- Evaluate medications, time of administration and their side effects.

- Question family regarding sleep habits. Is client used to sleeping with a window open, with a night light, with soft music playing, with socks on, with two pillows? Incorporate the client's habits into the bedtime routine.
- Avoid caffeine and alcohol.
- Determine whether client is sleeping during the day. If this is the problem, keep up and active. On the other hand, the client may become over fatigued and need a short nap early in the afternoon.
- Determine whether client is getting enough exercise. One or two vigorous walks (unless he is a frequent wanderer) earlier in the day may promote sleep at bedtime.
- Avoid putting clothes out for the next day. The client may think he is supposed to get up and get dressed.
- Evaluate bedtime routine:
 - Maintain a set time and routine
 - Help client to bathroom
 - Avoid exercise or stimulation just prior to bedtime
 - Give a light bedtime snack
 - Give an analgesic if the client has arthritis or other sources of pain and discomfort
 - Give a gentle back or foot massage
 - Place a commode or urinal at the bedside if finding the bathroom is a problem
 - Provide adequate night lighting
 - Close blinds or draperies to eliminate shadows

If these interventions fail and sundowning persists, repeat the bedtime routine; take to bathroom, give a glass of warm milk, etc. If all else fails, allow the client to stay up. Place the client in a recliner or beanbag chair by the nurse's station. The client may willingly return to bed later. In the client's home, the caregiver may need to adapt her sleep/wake schedule to match the client's or a sitter may be hired to remain with the client while the caregiver sleeps.

Psychotropic medications may be needed for agitation, delusions or hallucinations. Sleeping medications are not recommended. The effects are short term and may add to confusion on awakening.

Persistent sundowning is a common reason for admission to the long-term care facility. The caregiver becomes stressed out from lack of sleep. The situation may also become dangerous if the client wanders outside, turns on the stove or turns up the thermostat.

Pillaging and Hoarding

The degree to which pillaging and hoarding is a problem depends on whether the client is at home or in a facility and whether or not the client is infringing upon the rights of other clients. Pillaging refers to taking possessions that belong to someone else. Mrs. J goes from room to room aimlessly picking up items from other clients. She may take the items to her room or she may leave them in someone else's room. This is one of the most disturbing behaviors for other clients in the facility. Hoarding is the accumulation of items for no apparent reason. The family of Miss F noted that she had over 200 rolls of toilet paper in her basement. Mr. P had stacks of newspapers throughout the house, with only a narrow walkway going from room to room.

Theorists believe the client may be searching for something or attempting to maintain control of his environment.

Interventions for Pillaging and Hoarding

- Monitor the AD client so the privacy and possessions of other clients are protected.
- Label every item that all clients bring into the facility on admission and throughout the stay.
- Try to note the client's pillaging habits. Many clients take the same type of items; for example, envelopes and other "mail" type items. Watch what they do with the objects they take. They will frequently take them to the same place. Staff then knows where to find the objects.

In a dementia unit, clients may pillage from one another. This may present more of a problem to family than to the client. In some facilities night-shift staff collect the items and return them to the proper rooms.

Agitated Behavior/Aggression

Agitation is defined as improper behavior that may be verbal or physical and is not explained by an unmet need, confusion or pain. Aggression is a hostile action directed toward other people, toward one self or toward objects [51]. Agitation may be a result or a cause of many other behaviors associated with AD. Agitation may cause sundowning, shadowing and wandering. It may result from delusions or hallucinations. Other causes of agitation include delirium, psychiatric disorders, medical problems, depression, drug side effects, sleep problems and social and environmental factors. As the disease progresses, the client's insecurity increases. The coping mechanisms used earlier to block out awareness of functional losses is no longer effective. Agitation may change to verbal or physical aggression if not managed appropriately. It is estimated that 85% of clients with dementia will exhibit agitation [52].

Interventions for Agitated Behavior

- Assess the situation to identify a possible cause for the behavior.
- Always use a calm, reassuring approach. If several people approach the client or if attempts are made to "grab" or restrain, the client will be overwhelmed and will respond with increasing agitation, possibly striking out in an attempt of self-protection. Be aware of the significance of tone of voice. The client may perceive anger and impatience even though the words are meant to be soothing.
- Remember that even severely demented clients are responsive to the people around them. They can pick up on tension and will respond with agitation. Use a firm, confident approach but avoid sounding authoritative. It is patronizing when the caregiver sounds like a parent scolding a child.
- Avoid trying to use reason or logic or lengthy explanations. Comments such as, "If you are quiet, I will get you some ice cream" or "don't you realize you're keeping everyone awake" are meaningless. This approach denies the client his feelings.

- Avoid trying to force a client to do something he clearly does not wish to do. Agitation will become aggression.
- Distraction may be an effective intervention if the appropriate approach is used.
- Try simulated response therapy (SRT). SRT is based on the belief that family members influence and can stabilize the client's behaviors. The therapy uses audiotapes composed of a family member's side of a telephone conversation and blank spaces that correspond to the client's side of the conversation. The family member reminisces about cherished and loved experiences of the client's life. By utilizing selected memories, SRT creates comfort by altering their environment. Headphones to exclude environmental sounds and a lightweight cassette player are used [53].
- Move the client to a tranquil, quieter setting. A soothing voice or calming touch is often effective.

Harry is seated at the table waiting for breakfast. The dining room is a flurry of commotion. Several call-ins mean the nursing assistants are trying to hurry in an effort to catch up on the day's tasks. Harry is showing signs of agitation. His breakfast has been set up and he is able to feed himself. However, he is not eating. The nurse approaches Harry and urges him to eat. "Come on Harry, you have to eat, this food is good for you, here just take a bite of cereal." At the same time she is attempting to get Harry to drink by holding a glass of juice up to his mouth. Harry pushes the glass away and the nurse responds, "Harry, why did you do that, that wasn't nice. Here, you need to drink this juice." The nurse continues her attempts to coerce Harry to eat. Finally, Harry slaps the glass out of the nurse's hand, spilling juice down the front of her uniform. The nursing assistant approaches Harry when the nurse leaves to clean her uniform. He gently touches Harry on the hand and tells him that he is going to move him to a quieter place. The nursing assistant sits down next to Harry and gains eye contact. He places a bowl of cereal in front of Harry but makes no attempt to coax him into eating. Harry picks up the spoon and begins to eat his cereal. The nurse reports and documents that Harry is "combative."

This scenario is an example of agitation changing to aggression. The interventions for agitation and aggression are the same. If those interventions are implemented during agitation, aggression can usually be avoided. Physical aggression often contains an element of danger. The client may strike out at the caregiver or other clients. Occasionally, two clients will "feed into" one another, causing each person to become aggressive, striking one another if within close range. The only solution is to keep the two parties separated at all times. When a client is physically aggressive, assess the level of danger for the caregiver, the client and other clients. Avoid a "hands on" approach unless the situation is leading to immediate peril.

Catastrophic Reactions

A catastrophic reaction is defined as an overstated emotional response triggered by task failure. The client feels he is expected to perform beyond his capacity and feels frustrated and angry [54]. A catastrophic reaction may have components of agitation or aggression but does not necessarily have violent tendencies. Assess the situation in an effort to determine what may have precipitated the reaction, so further incidents can be avoided. Regularly assess the client's abilities so that staff does not expect more than the client is capable of doing.

Mrs. G was told that she would have a new roommate. The medical condition of her present roommate necessitated a different level of care. After the new client was admitted, Mrs. G began pacing the hallway. She muttered over and over, "I can't do it, I can't take care of her, I can't do it." This continued as various staff members attempted to calm her. Taking her to her room was not a solution. Seeing her roommate in bed only increased her agitation. Her daughter later came to visit and suggested she take her mother out for a ride and some ice cream. This was successful. Upon her return, Mrs. G was calm and went to bed that night without further incident.

Delusions and Hallucinations

Delusions and hallucinations are psychotic symptoms of dementia. Alzheimer's is not considered a psychiatric illness, but the client may have concomitant psychiatric illness with the AD. These manifestations may be triggered by medications, physiological malfunction, environmental stress or emotional feelings or insecurity. Delusions are fixed, false ideas or beliefs. They may result from the client's misinterpretation of a situation; that is, the situation is real, but the client mistakes the meaning. One evening at an activity, Mrs. R kept talking about "the people over there who were having a party." Mrs. R was looking at the reflection in the window of the people in the room but misinterpreted what she saw. Hallucinations are sensory experiences that cannot be verified by anyone else. They may be auditory or visual and are usually disorganized and fragmented. An illusion is a misperception and is common among the general population; one bends over to pick up a piece of foil from the floor, thinking it is a dime.

Delusions and hallucinations may not need aggressive treatment unless they are bothersome to the client who may then respond with aggression, fear or violence [54]. An assessment as described earlier may identify events that trigger these manifestations.

Interventions for Delusions and Hallucinations

Never argue or disagree with the client about what he thinks, sees or hears. He may become agitated and even violent. It is real to him and no amount of persuasion will change his mind. If the client asks you, "Do you see that person over there?" saying, "I know you see something, but I don't see it" does not deny the client's truth. If the client is upset or frightened, be calm and reassuring with statements such as, "I know you are frightened, but we will keep you safe." Respond to the client's feelings.

Check the environment for noises that may be misinterpreted and for lighting that may cast shadows. Assess for impaired hearing and vision. Corrected deficits via hearing aids or glasses may improve psychotic symptoms.

Consider whether the delusion has some basis in reality. It was reported by the nurse that Mrs. S was delusional; she insisted that she was going to California in a few days to visit her daughter. Three days later her son and daughter-in-law came to get her and flew with her to California. The client who claims her son is taking her money may be right. These types of statements may be worthy of tactful investigation.

Consider whether the delusion is based on a past event from years ago. The client who talks about getting home to her children or getting up early to milk the cows may be reliving a happier time of his/her life. These types of delusions are harmless. Staff needn't feed into them, but it is important they understand that these beliefs are filling a need for the client. In these situations, it is not the task of the staff to determine whose reality is appropriate.

Determine whether the delusion may be rooted in television. AD clients cannot distinguish reality from fiction. Witnessing acts of violence on the screen can be frightening and upsetting.

Use distraction for delusions that appear distressful. Music, going for a walk, looking at pictures or quiet conversation may be effective.

Cover or remove mirrors if the client becomes upset when he mistakes his image for that of someone else.

Pharmacologic therapy must be considered when the client experiences frequent delusions or hallucinations that result in further behavior disturbances.

SPECIAL THERAPEUTIC TECHNIQUES

AD is treatable even though it is irreversible. Behavior management, a restorative approach and activities are beneficial and recuperative when planned and implemented effectively. Reality orientation, reminiscence and validation therapy are programs with specific purposes that may be utilized. Reminiscing is a natural process that people of all ages enjoy, but it is also stimulated in the elderly by the realization that life does not go on forever. For clients with AD, reminiscing can be used as an intervention. In the early stage of AD, reminiscing can give a sense of pride and accomplishment to individuals who realize they are losing their grasp on reality.

Reality Orientation and Validation Therapy have been in existence for almost three decades. Whether or not these programs have an affect on cognitive or functional status is controversial. Few scientific studies have been completed to validate or refute their worth.

REMINISCENCE

To reminisce is to think about or relate one's past experiences, especially those deemed personally most significant. Reminiscing may extol the past and berate the present, may enhance one's self-esteem and provide gratification or it may be an obsessive process dwelling upon a particular past situation that resulted in depression and despair. Life review, a form of reminiscence, is a recall of life experiences for the purpose of reevaluating the past, to settle and to integrate past conflicts. It involves the need to justify one's life. Most clinicians use the two terms interchangeably.

Reminiscing can be planned as a structured, group activity for clients in the early stages of AD. To be able to reminisce, one must have the capacity to remember the past; long-term memory may remain for a long time. Attendance is voluntary and no one is expected to talk about memories that he wishes not to share. The group process provides an opportunity for active participants to share memories of the past and to enjoy each other's company. When used correctly, reminiscing can be used as an intervention for anxiety, disturbances in self-concept, impaired adjustment and hopelessness.

Avoid placing clients with AD and mentally unimpaired elders in the same group. Attendance may not be appropriate for clients who have had unhappy lives or who have episodes of paranoia. The group should be no larger than 4 or 5 people, depending on the capabilities of the members. The leader (a staff member) introduces the topic. For clients with AD, reminiscing about general topics is often preferable to specific situations in the members' lives. The leader chooses a subject that reflects the current season, an upcoming holiday or other special events. Weddings are a popular topic in June and clients can be invited to bring their wedding pictures for others to see. Objects or pictures relevant to the topic can stimulate discussion and add to the enjoyment. Pictures of old cars, clothing and household appliances usually trigger memories. Conducting reminiscing sessions with cognitively impaired elders requires sensitivity and vigilance on the part of the leader. The leader should "listen" to the feelings of the individuals rather than just hear the words. Giving positive feedback and asking questions encourages the process and may elicit even deeper memories. Clients who show signs of agitation or anxiety should be gently taken from the group. Lamenting reminisces are past events that the individual interprets negatively. A person who laments frequently about one topic may benefit from counseling by a qualified therapist to resolve feelings about those experiences. The lamenting about many topics from the past may be a reflection of an individual's pessimistic but staple personality [55].

Individual reminiscence may be suitable for a client who has difficulty interacting with a group. Besides the benefits of improved mood and elevated self-esteem, the client may develop a deeper trust in the listener, enabling the listener to achieve success with subsequent behavioral interventions.

REALITY ORIENTATION

Reality Orientation (RO) was first described in the early 1960s by Taulbee and Folsom. RO is a planned, structured process designed to increase an individual's comprehension of a person, place, time and situation. It has been referred to as a method used with people who have moderate to severe degrees of confusion [56].

As it was originally developed, RO consists of two components. Classes for orientation to time, place and person are usually 30 minutes long and take place five days a week. A trained staff member facilitates a group of four to six disoriented people. The classes are complemented by a 24-hour a day, 7-day a week process that requires total participation by all staff members.

Professional articles written in the 1960s and 1970s promoted the use of RO as an intervention that was effective in minimizing or reversing behavioral or cognitive decline. However, there is

little evidence that RO has long-term effectiveness [57]. RO is routinely used in some facilities based on the conviction that clients benefit from reality. Although repeatedly attempted, RO seldom succeeds in correcting the perceptions of the cognitively impaired person [60]. Short-term memory loss is the most significant manifestation of AD. The client is unable to retain information and the use of RO techniques is generally an exercise in futility. The client's questions of time, date and placement should be answered honestly, but to persist in repeating this information is frustrating to both client and caregiver. RO may be appropriate for clients with depression or those who have confusion related to delirium. It may provide reassurance for clients in the very early stages that are aware that they are losing their grip on reality. It does not work with clients with irreversible dementia because they no longer understand reality [58]. Who is the judge of whose reality is most important? The key to appropriate intervention lies in the client's response and behavior.

SCENARIO

Mrs. R had been a businesswoman for several years prior to retirement 15 years ago. She commuted to Chicago every workday for 30 years. For the last five years she has resided in a long-term care facility. Every morning she walks to the nurse's station to "buy a ticket" so she can take the train to work. For several days the staff would intervene with RO. "Mrs. R, you are in the nursing home now. You are retired and no longer work in Chicago." Mrs. R's agitation would sometimes escalate to a catastrophic reaction. One day the nurse gave Mrs. R a "ticket" without comment. Mrs. R took the ticket and walked away contented. This approach was incorporated into the care plan and there have been no further incidents.

Mrs. S waits by the door every night for her husband to come home. Mr. S died 15 years ago but his wife does not remember this. For a staff person to say, "Mrs. S, your husband died 15 years ago" would be upsetting and needless. The staff leave her alone, knowing that in a few minutes she will have forgotten why she is sitting there, will get up and move on to something else.

For the aged person who has perhaps lost a spouse, children, health and home, how important is the present? It is the caring of the staff, the ability to "go with the moment" and to connect with clients by accepting them, as they are that enhances the client's behavior, not constant reminders of a reality that is not so pleasant.

VALIDATION THERAPY

Naomi Feil established Validation in the 1970s. Feil de-emphasizes the significance of orientation and instead utilizes specific techniques to explore the meaning and motivation for confused statements [59]. Validation Therapy is based on the premises that there is logic behind all behavior and there are different stages and levels of disorientation among the aged diagnosed with an irreversible dementia. Validation assists disoriented individuals to restore the past, make closure and justify their lives [60]. The caregiver establishes trust with the client, explores the client's body language, fantasies and communications and thereby helps the disoriented person make sense of his world. The goal of Validation Therapy is to give the person a sense of identity, dignity and self-worth through validation of the person's feelings [61]. Few studies exist upon

which to build a scientific database regarding the use of validation techniques. However, many facilities are utilizing the principles of this therapy by trying to understand the client's feelings and then validating their feelings by comforting and reassuring the client. A structured learning program for staff presented by a qualified consultant would be required in order to fully implement Validation Therapy as an intervention.

CARING FOR THE CLIENT WITH END-STAGE ALZHEIMER'S DISEASE

Every person with AD will eventually reach the terminal stage of the illness. No one can predict the onset or how long it will last. The final stage may last for a few weeks or it may continue for several years. As the client becomes more dependent, physical care requires more of the caregiver's time. Behavior poses fewer problems as the capacity for wandering, pillaging and sundowning diminishes. The client is unable to initiate any interaction but may passively accept the attentions of familiar caregivers.

There are several manifestations of end-stage AD. Vocabulary is limited to 5-6 words or less, the client is nonambulatory, cannot sit up without assistance, has little facial expression, is inconsistent of bowel and bladder, has difficulty swallowing, may be losing weight and may have recurrent infections, frequently of the urinary tract or respiratory tract.

Ten to twenty percent of patients in the late stage of AD experience seizures. Conventional antiseizure medication such as phenytoin may be used, however, they sometimes result in worsening of the cognitive and functional state. If the seizures are rare and the patient is in a safe environment, one may choose not to treat with medication [6].

The primary goal of care during the terminal stage is to prevent complications associated with immobility and impaired physical functioning. Comfort should be paramount, with life extension generally no longer a consideration. Hospice services may be considered, with discontinuation of all life-sustaining measures or medicines. Special care should be exercised to prevent decubitus pressure ulcers, which may become a significant source of patient discomfort [6].

NURSING DIAGNOSES/INTERVENTIONS

Impaired Mobility

At the beginning of the last stage, the client may still be wandering, but will exhibit significant changes in posture, gait and balance. The hips appear to be internally rotated, causing a shuffling, scissor-type gait. Eventually it will take two people to transfer and to walk the client. As mobility skills diminish, the client may be transferred out of bed with an automatic lifting device placed in a recliner type chair. Supportive devices are needed to maintain body alignment and to relieve pressure. Contractures and rigidity will develop without appropriate intervention.

In addition to frequent repositioning and adequate support, passive range of motion exercises need to be completed two times a day, doing each motion at least three to four times.

High Risk for Impaired Skin Integrity

Immobility and incontinence place the client at risk for pressure ulcers. A Pressure Ulcer Risk Potential assessment will identify areas requiring aggressive intervention. As mobility skills diminish, it becomes exceedingly difficult to maintain a scheduled toileting routine. The use of incontinence briefs avoids the soiling of outer clothing and enables the client to participate in activities geared to his cognitive level. The briefs should be checked every two hours and perineal care given with each incontinent episode. A skin barrier provides additional protection. Soaps can be irritating and difficult to remove from the skin. Teach caregivers to carefully and regularly inspect the skin for signs of breakdown.

Adhering to a positioning schedule and doing the range of motion exercises as described above are additional preventive measures. Use a turning sheet to avoid friction when moving the client in bed. High protein supplements given between meals may be necessary to maintain adequate nutritional status. The fragility of the client's skin presents a risk of skin tears and easy bruising. Instruct staff on how to handle the client's body to avoid these injuries.

High Risk for Altered Nutrition, Less than Body Requirements

As AD progresses, nutritional intake becomes a major concern. Ideally, the family and client will have made decisions regarding the use of enteral feeding tubes in the early stage of the disease, should it become an issue. If this is not the case, the nurse may need to encourage the family to consider the possibility so that a mutually agreed upon decision can be made if the need arises.

Eating alterations are made throughout the course of the disease. Adaptive eating devices may allow the client to maintain independent eating skills for a longer period of time. Spoons will replace knives and forks. The client may be able to manage a smaller, plastic glass better than a larger one. A "sippy" type cup often works better than a straw. Providing nourishing finger foods allows the client to self-feed. Adding thickeners to liquids increases ease of drinking and swallowing. By the terminal stage of AD, pureed or chopped foods are usually needed and the client must be fed.

Risk for Aspiration

Diminishing cognitive awareness leads to dysphagia, which increases the risk of aspiration. The visual and olfactory stimulation that activates the swallowing mechanism in the brain stem is no longer effective. An evaluation by a speech-language pathologist may identify specific interventions that staff can implement.

General Guidelines For Feeding Clients At Risk For Aspiration:

- Allow the client to rest before eating. Fatigue increases the risk for aspiration.

- Place client in an upright position at a 60 to 90 degree angle before, during and for one hour after eating whether in bed or chair. Sit facing the client.
- Maintain the head in midline with neck slightly flexed during swallowing. Keep the head in alignment. Use supportive devices if needed.
- Minimize environmental distractions.
- Use a regular metal teaspoon for feeding, giving only ½ teaspoonful of food at a time.
- Allow the client to see and smell the food, giving brief, verbal descriptions.

The manifestations of the terminal stage place the client at risk for urinary tract and respiratory tract infections. Adequate fluid intake is an effective preventive measure for both types of infection. Indwelling catheters are not recommended; their use often agitates the client predisposing to urethral tears. Frequent changes of position and prevention of aspiration may preclude respiratory infections.

Sensory/Perceptual Alterations

Severe cognitive impairment places the client at risk for sensory deprivation. Although the client is minimally expressive, proper amounts of stimulation are needed to prevent continuous sleeping and agitation. The use of recliner type chairs enables the dependent client to be moved out of his room and to participate in appropriate activities. Listening to soothing music, hand massages, quiet talking and olfactory stimulation with familiar odors are examples of sensory centered activities.

HOSPICE CARE

The hospice philosophy is particularly suited to clients with end-stage AD. The client and entire family are considered the unit of care and emphasis is placed on the quality of life rather than the length of life. Death is neither hastened nor postponed; the rendering of palliative care is the premise of hospice care. A client in the last stage is considered terminally ill and similar to any other client with an incurable, fatal disease. Medicare payment is available for covered clients when the anticipated survival time is certified by a physician as being six months or less, if the disease runs its usual course. Should the client live past the six-month time period and his physician still feel he is terminal, he can be recertified to continue receiving hospice care [11].

The hospice philosophy can form the basis for care even though an agency is not involved. If the client is in a long-term care facility, he has probably been there for some months or years. The staff is knowledgeable about the individual and knows the family. A therapeutic relationship nurtured over the years will continue. Occasionally, there is a client who has no significant others left in his life. Family members have predeceased him or have drifted away, emotionally and physically separating themselves from the situation. In these cases, staff members or caring volunteers become family by "proxy," providing the love and attention that the dying client deserves.

Knowledge of the client's status in regard to "heroic measures" is mandatory. By this time, most families realize the futility of prolonging life and seek a peaceful, dignified end for their loved one. In these cases, advance directives and "do not resuscitate" orders are taken care of well

before they become an issue. Some states require that all attempts be made toward saving the life in situations where a legal guardian has been appointed. This statute may sometimes be reversed through the efforts of the ethics committee and the state guardianship office. In any case, if the status of the client is not known, implementing or not implementing lifesaving measures can lead to legal dilemmas for the facility and staff.

SPECIAL CARE UNITS

Admission to a long-term care facility at some point is inevitable for most clients with AD. Few families have the emotional resources and energies to cope with care giving 24 hours a day, seven days a week. Like advanced directives, the topic of nursing home or long-term care facility placement should be discussed at the initial diagnosis. Making the decision for placement at a time of crisis places undue stress on everyone involved. The availability of special care units increases the options for families who must make decisions regarding a loved one.

PHILOSOPHY OF A SPECIAL CARE UNIT

Planning a SCU begins with developing a philosophy of care for clients with AD. Each facility is different; each facility must determine the best approaches to care for the needs of their clients. The written program philosophy describes the approaches to care that will be rendered. It is essential that the philosophy be understood and implemented by all staff members and that it is reflected in their interactions with clients and families.

The National Institute of Aging has completed research at SCU around the country and has developed seven attributes that distinguish these units from other types of care [8]:

- A greater degree of separation between dementia clients and cognitively intact clients in physical space and social activities
- A greater effort to eliminate noxious auditory stimulation
- A greater number of simple activities planned for clients
- A greater tolerance of problematic behaviors
- A greater degree of dementia client participation in organized recreational programs
- Less participation by clients in therapeutic programs aimed at promoting activities of daily living
- More methods used to train staff about dementia care

A study conducted in Canada identified several major characteristics of special care units that contributed to positive outcomes in behaviors [62]:

- Client's feelings of personal space
- Expression of personhood
- An unforced routine
- Allowing clients to choose their own schedule for self-care and daily activities

- Not restricting staff to traditional role boundaries
- Building a fully-equipped unit kitchen
- Enlisting support from administration and family members

ADMISSION AND DISCHARGE CRITERIA

AD clients in different stages have very diverse needs. The purpose of a SCU is to provide individualized quality care. This goal is more readily achieved if the clients require similar management approaches. Admission should be restricted to clients who are in corresponding stages of disease. The unit may be set up to care for clients in either the early or the middle stages of the disease.

Early stage units are designed to care for individuals who are wandering, pillaging, sundowning and exhibiting other behaviors of the stage. Because it takes a great deal of staff time to effectively manage early stage clients, those with heavy physical requirements are excluded from placement. The philosophy spells out the type of client for whom care will be provided. As the disease progresses, the needs of the clients change and transfer out of the unit will be necessary.

Middle stage units are prepared to care for individuals who manifest the behaviors of early stage but who also require more assistance in the activities of daily living. Mutual feelings of trust and friendship often develop between family members and staff. This relationship can be beneficial to the client but it may create resistance from the family when the client's transfer from the unit becomes inevitable. To avoid misunderstandings, written criteria for admission and discharge procedures are essential. Staff and family members must be informed of the criteria and the rationale for these standards.

Admission criteria may require:

- A score on a mental status examination within a certain range
- A medical diagnosis for Alzheimer's or other irreversible dementia
- A specific level of mobility skill
- That the client does not need skilled nursing care
- The expectation (from client's history and assessment) that the client will benefit from placement in the SCU

Before appropriate placement can be made, the following items need to be completed:

- Assessment of client's level of functioning
- Mental status examination
- Review of client's personal medical history
- Review of client's present medical status
- Interview with family and client
- Tour of the SCU by family and client

It may be advisable to write a policy that clearly states conditions for exclusion from the unit. Restrictions may be based upon the client's:

- Lack of background medical data to support need for placement on unit
- History of serious medical problems or needs that require skilled care
- Inability to participate or benefit from the activity focused program planned to meet the physical, cognitive and/or psychosocial objectives
- Inability to respond to other clients, staff, family or the environment
- Behaviors that present serious safety hazards to self or others
- Inability to respond to distraction techniques
- Problems related to substance abuse
- Ability to function at a level that would allow them to reside on a regular nursing unit

Discharge from the unit may be necessary when the client:

- Needs skilled nursing intervention and care
- Requires assistance in mobility (in an early stage unit)
- Is unable to respond to other clients, staff, family or the environment
- Presents serious and/or life-threatening safety hazards to self or others
- Is consistently unable to respond to distraction techniques

OBJECTIVES OF THE SPECIAL CARE UNIT

Delineating the objectives of the SCU and the approaches to meeting these objectives provides staff with guidance in the planning of care.

Objective: To maintain the client's mobility and physical fitness for as long as possible.

Approach:

- Complete restorative assessments regularly
- Implement exercise and restorative programming
- Use physical restraints only when other behavioral interventions have failed and when the life of the client or others is in danger

Objective: To maintain optimal nutritional and hydration status.

Approach:

- Complete nutritional assessments regularly
- Plan food focused activity programs
- Plan activities with in-between meal nourishments
- Use behavioral interventions for food/eating-based problems

Objective: To avoid incontinent episodes.

Approach:

- Complete bowel and bladder assessments regularly

- Develop individualized toileting plans

Objective: To involve clients in the activities of daily living.

Approach:

- Complete rehabilitation assessments regularly
- Plan and implement ADL/restorative programs on the unit
- Assist clients to function at their highest physical level

Objective: To enhance the cognitive well-being of the clients.

Approach:

- Encourage independence by utilizing the client's strengths
- Complete activity assessments regularly
- Use cueing and task simplification
- Use effective verbal and nonverbal stimulation

Objective:

To conserve the psychosocial well-being of the clients.

Approach:

- Complete social service and activity assessments regularly
- Consult with mental health specialists if necessary
- Focus on client's abilities rather than disabilities
- Focus on the socialization skills of the clients
- Support and facilitate a peer community
- Educate staff and family so they understand and have the skills to manage behaviors
- Provide a physical environment that is calm and soothing
- Provide furniture conducive to comfort
- Restrict the numbers of individuals (other than families) entering the unit
- Plan for dedicated staffing on the unit
- Avoid the use of physical and chemical restraints
- Encourage and assist client to continue with previous spiritual activities
- Assist clients to attend church services when appropriate
- Provide one-to-one spiritual activities as required by care plan

Providing Family Support

Objective: To foster the emotional well-being of the families.

Approach:

- Invite families to participate in care plan conferences
- Encourage families to assist in care plan approaches
- Facilitate the formation of family support groups
- Provide educational programs and resources to families

Providing Staff Support

Objective: To nurture the well being of the staff.

Approach:

- Facilitate an interdisciplinary support system
- Invite all staff members on unit to assist in care planning
- Emphasize the importance of the interdisciplinary process
- Provide continuing education for all aspects of care
- Participate in staff meetings

STAFF SELECTION

Choosing employees to staff the SCU is a major task that deserves much consideration. Assignment to the unit should be voluntary with dedicated staffing. The knowledge and commitment of the nurse manager will influence the total milieu of the unit. Ideally, all staff members will have a sincere desire to work with AD clients and will have:

- Patience
- Tolerance of unusual behaviors
- Ability to handle stressful situations
- A calm, quiet demeanor
- The skills to interrelate with clients and families on all levels
- Flexibility and creativity
- Knowledge of dementia and behavioral management techniques

Departments of nursing, activities, social services, rehabilitation and all nondirect staff (housekeepers, dietary and maintenance personnel and administrators) who work with or have contact with clients and families should participate in an orientation program and ongoing training programs. The cost of training is exceeded by the benefits to clients, families and staff.

ENVIRONMENT OF THE SPECIAL CARE UNIT

The impact of environment on the well-being of cognitively impaired people is well documented. Anxiety and aggressive behaviors frequently occur as a result of too much environmental stimuli. On the other hand, physical and mental deterioration set in when there is a lack of stimuli. The special care unit is planned to provide an environment that is safe, soothing and serene with appropriate sensory stimulation.

- Minimum of 20 beds
- Locked unit in compliance with state regulations
- Use of lighting, colors, design and texture to produce a calming effect
- Locked top drawer of dressers for safe storage of hearing aids, glasses and dentures
- Minimal noise: intercom for emergency use only and soundless telephones; eliminate televisions and radios from public areas of the unit
- Tops of dressers and bedside stands free of personal belongings
- Restrictions on people entering unit to reduce turmoil
- Furniture in community areas that is accessible and conducive to physical comfort
- Carpeted halls to reduce noise level
- Use of labels and pictures for redundant cuing
- Locked storage areas
- Wandering trails
- Spaces for activities and dining
- Equipment and space for simple cooking projects
- Access to the outdoors

Continuous Quality Improvement programs can be used to measure the outcomes of Alzheimer's care programming. Potential positive indicators include decreased episodes of agitation and catastrophic reactions and fewer symptoms of depression. Improved mood, continence and sleeping patterns of clients. A happy, relaxed appearance and interactions with staff and other clients are measurable benefits of the SCU. Other hypothesized outcomes include family indicators, cost indicators and staff satisfaction.

TREATMENT MODALITIES

Pharmacologic management of AD is considered only after social, environmental and behavior management approaches have failed. Antipsychotic agents diminish the brain's response to stimuli and are considered chemical restraints when the sedative properties of the drug are used to facilitate client management.

ANTIPSYCHOTIC MEDICATIONS

Antipsychotic drugs may have side effects of sedation, extrapyramidal symptoms and tardive dyskinesia. Anticholinergic effects and orthostatic hypotension are common. The use of antipsychotic medication in selected cases may increase the client's emotional and mental comfort. To deny the client this comfort is as unthinkable as denying pain medication to a terminal cancer patient. Other medications such as antidepressants and anti-anxiety agents may be appropriate for some clients to alleviate symptoms of concomitant depression and anxiety (*Table 6*).

<p>Antipsychotics and Adverse Reactions with the Highest Incidence</p>

Chlorpromazine	1, 2, 3
Clozapine	1
Fluphenazine	2, 3
Haloperidol	2 (severe), 3
Loxapine	1, 2, 3
Mesoridazine	1, 2, 3
Molindone	1, 2, 3
* Olanzapine	None of these adverse reactions listed as common
Perphenazine	2, 3
* Quetiapine	None of these adverse reactions listed as common
Pimozide	1, 3
Risperidone	2
Thioridazine	1, 3
Thiothixene	2, 3
Trifluoperazine	2, 3
1 = Sedation 2 = Extrapiramidal symptoms 3 = Tardive dyskinesia * These drugs are considered the preferred treatment for older adults with dementia because of the safer side effect profile.	
<i>Source: [63; 64]</i> <i>Table 6</i>	

Other medications are being developed in an effort to delay the onset of additional symptoms in people with mild to moderate Alzheimer's and to help brain cells function more efficiently. None of these drugs prevents or cures AD.

Centrally acting cholinesterase inhibition is the primary available mode of treatment. Cholinesterase inhibitors produce a temporary small but measurable improvement in cognitive function and some improvement in behavioral symptoms in patients with mild to moderate disease. Their benefit has not been proved in severe or preterminal AD. Because they do not produce a dramatic benefit, families and caregivers need to be informed of realistic expectations [6]. Donepezil (Aricept) approved in 1996 and rivastigmine (Exelon), approved in 2000, both act

to increase the supply of acetylcholine. Approved for use in 1993, tacrine (Cognex) was the first approved cholinesterase inhibitor, but is little used because of cumbersome dosing and a potential for liver toxicity [6]. Galantamine (Reminyl) is expected to be approved in 2001. It is a reversible competitive inhibitor of acetylcholinesterase, which also enhances the response of nicotinic receptors to acetylcholine [6].

Cerebrolysin is not yet approved in the United States but is in Phase II/III clinical trials in Europe and North America and is approved in 25 countries. The drug mimics a naturally occurring growth factor, resulting in generation or support of nerve cells in the brain, and improves behavioral performance by affecting synaptic transmission in the hippocampus [65].

CRITERIA AND GOALS

A clinical need for the prescription of antipsychotic medications must be established. Psychotic behavioral disturbances, including agitation, hallucinations and delusions, paranoia and physically and verbally aggressive behavior, may justify their use [49]. Wandering, impaired memory, depression, insomnia and anxiety do not warrant their use unless the client presents a danger to himself or to others. Ongoing evaluation is required to determine the effectiveness of the drug over time and to assess the need for its continued administration. The goal of the therapy is to find the dose at which the identified behaviors are eradicated without causing sedation [66]. Evidence suggests no single drug is more effective than any other and when it's effective, it requires relatively low doses. Greater clinical improvement has not been noted with higher doses [67].

Before antipsychotic medications are prescribed, consider that changes in behavior may be caused by a medical problem other than the dementia. An assessment should be completed to rule out other treatable causes. Keep in mind that the drugs themselves may aggravate behavior and that the elderly have decreased renal clearance and hepatic metabolism. The combinations of drugs may contribute to disorientation and confusion and administration of multiple drugs increases the risk for adverse, interactional side effects.

Monitor clients receiving antipsychotic drugs for extrapyramidal effects:

- Apathy
- Akinesia
- Drooling
- Dysphagia
- Muscle rigidity
- Tremors
- Restlessness
- Involuntary eye movements
- Signs of tardive dyskinesia:
 - Protrusion of tongue
 - Puffing of the cheeks
 - Chewing
 - Involuntary trunk and extremity movements

- Diminishing functional abilities for activities of daily living

OTHER PHARMACOLOGICAL MANAGEMENT

Tocopherol (Vitamin E) acts as an antioxidant and promotes survival of cultured neurons exposed to beta amyloid. A single study showed that patients with moderate AD who were given 1000 i.u. of vitamin E twice a day had slower deterioration in the activities of daily living and delayed progression to nursing home admission, despite no effect being seen on the decline of cognitive measures [6].

Gingko biloba is an herbal product, whose mechanism of action is unclear, but it may have antioxidant and anti-inflammatory effects, may positively influence neurotransmitter levels and may have a protective effect on the energy metabolism of nerve cells when oxygen and glucose levels are low. A certain extract (EGb 761) of gingko was shown in a single study to produce a slight improvement in cognitive scores in patients with AD [6].

NONPHARMACOLOGICAL MANAGEMENT

The first phase of a randomized clinical trial using a low-flow cerebrospinal fluid (CSF) shunt for AD treatment has been completed showing a slight increase in cognitive stability with the shunt. The approach is based on the hypothesis that CSF is important in clearing beta amyloid from the brain and that reduced clearance may correlate with enhanced cerebral beta amyloid deposition, resulting in AD symptoms [68].

FAMILY ROLE AND COMMUNITY RESOURCES

Families are the "other" victims of AD. The disease is frequently not diagnosed until the client has manifested symptoms for a few years. The family is bewildered and distressed by the behavior of this person they no longer know. As the disease progresses, family members weather a number of crises and experience many emotional upheavals. One spouse described AD as a "funeral that never ends." There is no doubt that family members, especially spouses, will face many challenges throughout the course of the disease. However, many also experience feelings of great love, commitment and devotion and find rewards in an unchangeable situation. A sense of humor is a major prerequisite to filling the role of caregiver. The clients too benefit from shared humor and laughter.

ROLE CHANGES AND REVERSALS

It may be difficult for the family to accept a diagnosis of AD. There is a sense of finality associated with the disease that implies hopelessness and despair. The family's ability to cope with future demands may well depend upon the information they receive at the time of diagnosis. This is the time for the family unit to communicate with each other in an open and

straightforward manner. The spouse may be reluctant to share information with the children "so as not to cause them to worry." The children may be hesitant to verbalize their concerns about the changes they note in the parent. There may be an unspoken group effort to deny the realities of the situation. Some spouses cover so well for the impaired person that other family members may not be aware of the problem until the caregiving spouse becomes ill or dies.

Gradual awareness of the implications of AD for the caregiver become evident as the spouse begins to realize that he/she must take on the responsibilities formerly assumed by the client. The realization may occur abruptly when the spouse realizes that he/she has never balanced the monthly bank statement, prepared an income tax form or used the lawnmower or the washing machine. Assisting the client with personal care becomes a challenge, as the wife tries to help her husband shave or the husband tries to help his wife put on pantyhose and make-up.

The need for love and closeness does not disappear with the onset of AD. Some couples maintain a satisfying physical and emotional relationship especially in the early stages. Other caregivers may find it exhausting and troublesome to be both caregiver and lover. These couples may forego sexual relations but are able to continue a warm, pleasing relationship. Still others may feel more like a parent than a spouse and while they still love the partner, they find it impossible to harbor romantic feelings.

FAMILY CAREGIVING ROUTINES

Families who deal successfully with AD tend to develop a workable routine early in the course of the illness. Flexibility is imperative. Clients generally respond positively to consistent, predictable routines. It is helpful if the caregiver remembers what has always been important to the client. If shaving twice a day, brushing teeth after every meal or going to the hairdresser weekly was a custom, then that routine should be continued if possible. Perhaps reading the paper with the morning coffee or going for a walk was an enjoyable beginning to the day that can be carried on.

IMPACT OF CHRONIC STRESS ON PRIMARY CAREGIVERS AND EXTENDED FAMILY MEMBERS

Families are systems with a power structure, lines of authority, assigned (albeit unspoken) roles and responsibilities, forms of communication or lack of and problem-solving methods. The strengths and weaknesses of the family unit are revealed in a time of crisis. Children may find it difficult to make decisions for an impaired parent and the parent may resent the children's efforts. The healthy parent may be unable to successfully cope, expecting the children to take over additional responsibilities. When there are several children, one or two may be unofficially designated as being "in charge" while the others seek release from any obligations. Each family is different; making judgments is not the responsibility of the healthcare providers.

Grief is an expected reaction to a critical situation that requires adjustment and response. Grieving is necessary; it allows loved ones to face reality, to adapt and to adjust to present circumstances. The shock of hearing the diagnosis usually results in a sense of disbelief and

denial. This response allows loved ones the time to assimilate the information and to integrate it into a frame of reference. The primary caregiver (and other family members) may experience feelings of anger as they realize the lifestyle changes that will have to be made; with the situation ("it isn't fair that after 50 years of marriage, we have to deal with this"); with the client ("if he asks me that question one more time I'll scream"); and with other family members or friends who "don't understand what's going on." Depression marked by feelings of despair and helplessness, may be the beginning of grief resolution and adjustment. During the grieving process, it is not unusual for caregivers to socially withdraw from friends and previously enjoyable activities.

While grieving is normal and necessary, unresolved grief may result in dysfunctional responses. If denial, anger or depression are unrelenting, referral to a physician or mental health clinic is justified. Even in the best situations, caregivers, whether they are the spouse or adult child, will inevitably experience periodic moments of stress. Persistent signs of anxiety, exhaustion, sleeplessness, irritability and lack of concentration may indicate a need for professional support.

Guilt is a common feeling among caregivers and usually stems from unrealistic expectations they may have for themselves. The adult child who has a spouse, children and a job feels distressed when she witnesses the frustration and exhaustion of the caregiving parent. The wife who promised never to place her husband in a nursing home finds that it is impossible to keep that vow. The husband who arranges for adult care two days a week finds that he is unable to enjoy any activities during that time. Joining an Alzheimer's support group is often effective in helping families deal with feelings of guilt in a productive manner.

ASSISTING FAMILY MEMBERS TO COPE

When the diagnosis is AD, the family and client need support, education, information and encouragement. The family can benefit from a family meeting to acknowledge the disease, to identify the ways in which it may disrupt family life and to clarify the tasks and roles of family members. Families will cope more effectively if they are educated about the disease so they will have some idea of what to expect as AD progresses.

Legal and Financial Issues

As the family adjusts to the situation, they may need encouragement to think about the future and any legal actions that should be taken in regard to legal and financial planning. Eventually the client will be unable to manage his own affairs. When done early in the course of the disease, the client is able to participate and help with decision making. To delay this process can result in many financial and legal problems later.

Admission to a Healthcare Facility

Most families experience mixed emotions of relief and guilt when they realize they can no longer care for their loved one. The healthcare team needs to fully understand the impact of AD and institutionalization on the family so they can effectively help them deal with their grief. Intervention begins when the family visits the facility prior to admission. Their future adjustment may be influenced by what they observe during this time. Introduction to staff gives family the

opportunity to identify key people in various departments. Provide information that describes the facility routine and a typical day. Most importantly, family should be encouraged to communicate openly and honestly with staff. It is helpful if there is a specific person they can go to for discussion and answers. Let them know that their feelings are normal and that staff is not judging them because of the client's behavior. Families may need suggestions for visiting. It is sometimes awkward to visit with a person who thinks the spouse is a sibling or the child is the spouse. Encourage family to bring old photos as a way of stimulating a response from the client. Direct them to other areas of the unit or building where they can take the client when they come to visit. Invite family members to participate in care planning conferences and activities. Teach them how to assist in the client's care if they so desire. Some families take great pleasure in feeding their loved ones, getting them ready for bed or helping them bathe. On the other hand, do not pressure those who choose not to help. Some families are exhausted from their caregiving demands prior to admission and welcome relief from further responsibilities.

COMMUNITY RESOURCES

Knowledge of resources enables one to give assistance to families who need information. There are services available in many communities that when utilized, can ease caregiving burdens.

Hospice Care

Hospice agencies can be a tremendous help for clients who qualify for the service (described earlier). Care may be rendered at home or in a healthcare facility. Staff members are truly concerned with the total family unit. They are knowledgeable about community resources and can link the family to other services that they may require.

Respite Care

Adult day care may be a solution for spouses who are still employed. Care may be available 8 to 10 hours a day, 5 days a week. The client receives nourishing meals and snacks and appropriate activities are offered. Other services may be available depending on the type of agency sponsoring the day care. Adult day care may be utilized for family caregivers who do not need full time care but who would benefit from release of responsibilities once or twice a week, either for the day or a few hours.

Some nursing facilities offer temporary nursing care (respite care) to allow caregivers to have freedom from care for a weekend or for a couple of weeks. This allows the caregiver to take a vacation or to recuperate from illness.

Homemaker services are frequently available through family service organizations or nursing agencies. The homemaker provides no nursing care but will come to the home to prepare and serve a meal, do laundry, light housekeeping, run errands or to stay with the client while the caregiver performs those tasks. Home-delivered meals (Meals on Wheels) can be arranged for in most communities where there is a documented need for such a service.

The Alzheimer's Association can provide a wealth of information and education to client's families and healthcare providers. The Association also sponsors support groups located in every state. The Social Services department of hospitals and long-term care facilities can offer information about the availability of community services.

CURRENT RESEARCH for ALZHEIMER'S DISEASE

ALZHEIMER'S VACCINE

Elan Corporation has developed a vaccine that when administered to mice, has been shown to avoid and lessen the plaques that are a manifestation of AD [8]. The vaccine, called AN-1792, is designed to attack and clear out the characteristic beta amyloid plaques seen in the brains of Alzheimer's patients. Immunizations against beta amyloid result in immunoglobulin (Ig) antibodies that percolate in very small quantities across the blood-brain barrier and label beta amyloid in the brain, resulting in microglia and clearance of amyloid. Intranasal administration of beta amyloid vaccine has also been effective in reducing cerebral plaque burden during clinical laboratory trials [68]. To date, 360 patients with mild to moderate Alzheimer's have received multiple doses of the vaccine. The results of Phase 1 of the clinical trial were promising, as the subject's antibody levels increased after receiving the vaccine. However, in January 2002, Elan halted Phase 2 of the clinical trial due to the development of brain inflammation in several test subjects.

ONGOING RESEARCH STUDIES

The National Institutes of Health has established an initiative to move forward on several aspects of research [8]:

- Fostering new approaches to basic biologic and epidemiologic research
- Increasing the focus on drug discovery and development
- Improving methods to identify, at an early stage, those people who are at increased risk of developing AD
- Facilitating possible new treatments
- Facilitating possible new clinical trials
- Actively pursuing research into drug and nondrug strategies for treating behavioral disturbances in AD clients

In a multicenter trial of rofecoxib and naproxen in AD, the goal is to determine whether rofecoxib, a selective COX-2 inhibitor or naproxen, a nonselective NSAID will slow the rate of cognitive and clinical decline in people with AD [13].

Ongoing Alzheimer's studies that are continuing or being initiated by the National Institute on Aging include vitamin E and donepezil; statins; high-dose folate supplements; valproate, indole-3-propionic acid (IPA); and improved assessment measures [69].

Alzheimer's Disease continues to be a major health problem around the world. It claims as its victims not only the patient but also their loved ones as they watch their spouse, parent, sibling or friend gradually slip away, losing all vestiges of their former selves. As doctors, we must investigate and continue research to find the cause, the prevention and effective treatment for those already afflicted. It is imperative that we educate caregivers, the general public and ourselves about the implications of Alzheimer's so that we can provide the best possible care to our patients.

Alzheimer's disease prevention trial: A study to determine whether estrogen (or estrogen and progesterone) can delay the onset of memory loss or AD in elderly women with a family history of AD [8].

Alzheimer's Disease continues to be a major health problem around the world. It claims as its victims not only the patient but also their loved ones as they watch their spouse, parent, sibling or friend gradually slip away, losing all vestiges of their former selves. As nurses, we must campaign for the designation of funds for research to find the cause, the prevention and effective treatment for those already afflicted. It is imperative that we educate caregivers, the general public and ourselves about the implications of Alzheimer's so that we can provide the best possible care to our clients.

[Take Test](#)

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