Non-pharmacological Treatment for Alzheimer’s Disease: A mind-brain approach

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Abstract

A new paradigm is needed that focuses on minimizing the symptoms of Alzheimer’s disease and related dementias rather than focusing only on a search for a cure. To include Alzheimer’s in the same class of diseases as cancer, multiple sclerosis, diabetes, congestive heart failure, and degenerative arthritis places Alzheimer’s in the realm of medically and psychosocially understandable and manageable. A critical first step toward making this shift is to examine carefully the way in which we define the disease. An approach to care for people with Alzheimer’s disease results in treatment when it systematically compensates for functional losses of dementia by linking caregiving actions and environments to specific brain dysfunctions; namely the neuropathology of the disease. The ultimate measures of success of such a treatment approach are improved quality of life, delayed institutionalization, slowed rate of progression of the disease, people who achieve their potential, and reduced need for medication.

A new paradigm

Over a decade ago Winograd and Jarvik, in their aptly named book Treatment for the Alzheimer Patient: The Long Haul, questioned the widely held assumption that Alzheimer’s disease is a hopeless and untreatable condition. “The unrelenting downward spiral of Alzheimer’s disease,” they wrote, “frequently leads to a sense of pessimism and therapeutic nihilism among physicians and other health care professionals.”

In their holistic approach towards Alzheimer’s disease--a disease which then was and now still is incurable--lies a sound basis for taking a new approach to treating dementias. Emphasizing non-pharmacological treatments linked to our growing understanding of neuroscience, this new vision appears to be sparking the imagination of caregivers, clinicians, designers and others concerned with people living with dementia. Common sense and a knowledge of the history of other diseases demonstrates that “..physicians routinely treat people with diseases for which there are no cures. People with cancer, multiple sclerosis, or Lou Gehrig’s disease receive treatment and medical attention even though there is no cure for their maladies. Alzheimer’s patients deserve no less.”

A new paradigm is needed that focuses on minimizing the symptoms of Alzheimer’s disease and related dementias, rather than focusing only on a search for a cure.

1 The authors would like to acknowledge the gracious assistance of Marilyn Silagyi-Albert, Ph.D., Professor of Psychiatry and Neurology at the Harvard Medical School in reviewing this paper
... despite lack of medications to reverse the underlying etiology, physicians need not feel helpless or hopeless, because management strategies do exist that can help treat the manifestations of this disease. Incurable does not mean untreatable. As with other chronic diseases, such as diabetes mellitus, congestive heart failure, or degenerative arthritis, curative remedies for the underlying disorder do not exist. Treatment is often symptomatic rather than pathology-specific. (pp. 6-7)

Including Alzheimer’s in the same class of diseases as cancer, multiple sclerosis, diabetes, congestive heart failure, and degenerative arthritis places Alzheimer’s in the realm of the medically and psycho-socially understandable and manageable. Making this link turns Alzheimer’s into a treatable, although incurable, disease rather than the hopeless condition it and these other diseases were thought to be a century ago. This seemingly simple shift can bring back to the realm of the living, tens of millions of people worldwide who our limited thinking has condemned to a limbo in which they are merely waiting to die.

Labels and definitions control our behavior
A critical first step towards making this shift is to examine carefully the way we define this disease. This step is necessary because we tend to gather and organize knowledge according to the way we define the world around us, then act and behave according to what we think we know. Ancient astronomers who believed the sun revolved around the earth found “scientific” facts that supported this definition--creating a generally accepted, but incorrect, earth-centered theory to explain the cosmos

Over the years Alzheimer’s disease has been culturally defined in different ways; and each label resulted in a dramatically different approach to care. First there was no definition at all; memory loss, confusion and disorientation occurring later in life were labeled “senility” and considered just a facet of normal aging. With dementia symptoms seen as “normal,” no specific approach to care was needed. This nihilistic view is reflected in the “one size fits all” model of residential elderly care still ubiquitous today.

Over time a second, equally disturbing, definition emerged: Alzheimer’s care as a “low tech” backwater area of medical science and professional caregiving with minimal challenges and scant rewards. This label lead to emphasizing the palliative, hospice-like dimension of dementia care--basic comfort measures as patients wait to die.

At the same time a closely related third definition emerged. With little hope seen for people with Alzheimer’s except to alleviate the pain and suffering associated with the disease, society’s resources were dedicated to biomedical research. In the context of a vigorous and well-funded search for an ultimate cure, people with the disease today are still written off. Biomedical research, it is thought, can offer them very little. They are seen as too early in the long-term research process to benefit from the “magic pill” which, although years away, is being held out as a promise.
The most recent and positive view of Alzheimer’s and related disorders to emerge defines these diseases as disabilities, albeit caused by a progressive and fatal neurological illness. Caregivers employing a disability model emphasize active treatment of symptoms by focusing on supporting the capacities a person retains, particularly, the person’s psychological capacity. Developing a better understanding of the psychology of dementia—how a person thinks, feels, communicates, compensates, responds to change, to emotion, to love—can lead to breakthroughs in treatment.

**Popular and professional acceptance**

One indicator of the success of a new label is its popular acceptance. A recent broadly distributed pharmaceutical industry health guide reflects this approach:

*AD Can be Treated*

Although there is no cure for Alzheimer’s disease at this time, there is much that can be done to manage the disease and to treat its symptoms to provide a better quality of life for those afflicted and their caregivers. (p. 4)

In addition to medication to treat the symptoms of AD, physical exercise and social activity are important in maintaining overall good health, as is proper nutrition.

Calm structured surroundings may also help the afflicted person to continue functioning as well as possible for as long as possible. Modifications to the living environment can help the afflicted person maintain comfort and dignity (p. 6)

Another important indicator of a label’s influence is its appearance in scholarly articles by respected researchers and authors. Barry Reisberg and his colleagues at New York University Medical Center discuss “treatment” for Alzheimer’s disease in a 1998 article:

A stage 6 AD patient who is frustrated or mistreated will frequently respond with what has been termed a “catastrophic reaction”…A stage 5 or 6 AD patient who is insecure, whose pride has been wounded, or who experiences their current life as intolerable, will frequently develop delusions. we might consider treating the AD patient’s catastrophic reactions by removing the sources of frustration or mistreatment [and] we might use “delusion therapy” in AD to explore and treat the source of the AD patient’s insecurity, wounded pride, etc. (pp. 16-17)

This shift in the paradigm, prophetically predicted by Winograd and Jarvik over a decade ago, is now taking form as a distinct treatment.

**An Ethical Dilemma with Practical Implications**

Alzheimer’s poses a significant ethical and practical dilemma for those who care for people with the disease. Because Alzheimer’s is a terminal illness, people with the disease face a death sentence. It is as if someone said to them: “You
have only a certain time to live.” If that time were two days, we would clearly treat that person as if he were dying. If that time were 75 years we would clearly treat that person as if they were going to live, and provide them with the highest quality of life possible. But for those with Alzheimer’s disease the term lies somewhere in-between—closer to twelve years. The question raised is whether to provide care for these people as if they were dying or living. With Alzheimer’s disease the term lies somewhere in-between—closer to twelve years. The question raised is whether to provide care for these people as if they were dying or living.

When people with Alzheimer’s disease are seen as dying, it is reasonable to focus on making them as comfortable as possible in a custodial environment. If those with the disease are seen as people who are living, we need to think differently; we need to concern ourselves with their treatment and quality of life.

In this century significant diseases have posed the medical and non-medical professions with this same dilemma: diabetes, manic depression, and now AIDS. Each was first thought of as a hopeless condition, a plague from which there was no way out. But each has become a treatable disease through the use of proper medication, life style changes, diet, and environmental design. Alzheimer’s is now at the cusp of this shift from hopeless condition to treatable disease.

In order to frame a treatment approach caregivers, clinicians, environmental designers and others need a coherent way to envision the quality of the lives of those with the disease, so that they can maintain that quality of life. For Alzheimer’s disease, treatment must also take into account the quality of life of family members and professional caregivers, not only of patients and residents

**Quality of Life/Treatment Outcome Levels**
Abraham Maslow⁴ defined the components of life quality for cognitively intact people half a century ago as physiological, security, social, self-esteem and self-
actualization. For those with Alzheimer's disease a similar model can be constructed, with three levels of needs necessary for them to experience life quality; the highest level representing the highest quality.

The first two levels of needs that caregivers must meet to provide quality of life require only brief explanation. The most basic set of needs is physiological: the need for safety, health, nourishment and shelter. Meeting these basic needs comes first because doing so forms the foundation for meeting the others. The next set comprises behavioral needs for appropriate functioning and use of the environment. Help is required to meet these needs because damage to the brain of people with dementia specifically affects those areas that control social behaviors, impulse control and environmental cognition.

**Quality of Life Treatment Outcomes**

<table>
<thead>
<tr>
<th>High</th>
<th>Emotional</th>
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<tbody>
<tr>
<td>Self Actualization</td>
<td></td>
</tr>
<tr>
<td>• belonging</td>
<td></td>
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<tr>
<td>• individuation</td>
<td></td>
</tr>
<tr>
<td>• mood</td>
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</table>

<table>
<thead>
<tr>
<th>Middle</th>
<th>Behavioral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behaviors &amp; Functions</td>
<td></td>
</tr>
<tr>
<td>• functional independence</td>
<td></td>
</tr>
<tr>
<td>• read the environment</td>
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</table>

<table>
<thead>
<tr>
<th>Low</th>
<th>Physiological</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Needs</td>
<td></td>
</tr>
<tr>
<td>• safety</td>
<td></td>
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<tr>
<td>• health</td>
<td></td>
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<tr>
<td>• nourishment</td>
<td></td>
</tr>
<tr>
<td>• shelter</td>
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</tbody>
</table>
The highest life quality level deserves further explanation because popular misconception would hold that people with dementias cannot feel the way cognitively intact people can. However, one of the last parts of the brain affected by this disease, the amygdala, receives, reacts to and expresses mood and emotion. Mood and emotion are therefore readily accessible to caregivers until very late in the disease; although it remains difficult to maintain positive mood and emotion for this population because the amygdala processes both negative and positive emotions equally. Many people with Alzheimer’s disease feel negative feelings as readily as positive ones. In addition, people with dementia face so many real frustrations and experience so many losses.

The goal of life quality treatment is not only to maintain positive mood, but also to maintain emotional stability around social norms—recognizing and dealing with other people—and personal norms—maintaining a sense of self.

Even those with Alzheimer’s disease can achieve higher emotional levels when treated consistently in specially planned environments. They can develop both a sense of self and of belonging to a larger community of residents.

**Treatment, not random care**

An approach to care for people with Alzheimer’s results in treatment when it systematically compensates for functional losses of dementia by linking caregiving actions and environments to specific brain dysfunctions; namely, the neuropathology of the disease. In other words, treatment for Alzheimer’s employs environment, activities, communication and programs to maximize use of cognitive capacities that remain intact while compensating for those cognitive capacities that decline. As neuropsychologist Marilyn Albert points out, the more fine-tuned treatment approaches are to an individual’s specific configuration of brain dysfunctions the more effective treatment is likely to be. Knowing, or at least thinking about, the links between a person’s cognitive strengths and weaknesses and that person’s brain function is particularly helpful for caregivers who might otherwise treat the person with Alzheimer’s disease as globally dysfunctional rather than as a person with certain strengths and other weaknesses:

To make [neurological assessment] information useful to family members one must explain the practical consequences of the cognitive profile one sees and, whenever possible, relate it to the function of the brain. ... A simplified explanation of brain function tends to allow family members to better visualize the changes caused by the disease. ... For example, if a patient is inappropriate, it may be useful to explain that the frontal lobes of the brain enable people to monitor and inhibit their behavior ... While the suggestion that the frontal lobes are involved may only be an educated guess on the part of the neuropsychologist, this explanation will help the family to think about behavior as caused by the brain...This may prevent them from blaming themselves or the patient unnecessarily for the
The brain works as an integrated whole, making it difficult to link specific functions to single areas or lobes of the brain. Nevertheless, because researchers over the years have mapped out where alterations occur in the brains of people with Alzheimer’s and have begun to associate location of changes with clinical symptoms, schematic associations between brain function and functional capacity are possible. Making such schematic associations is useful for diagnosis, family counseling and treatment planning, even though Alzheimer’s disease is generally caused by non-uniformly distributed changes that evolve over time in many areas of the brain.

Alzheimer’s disease tends to begin in the medial temporal lobe, then spreads to other regions of the brain. Alzheimer’s disease tends to affect most severely the association cortex of the parietal, temporal and frontal lobes and the cingulate cortex of the brain. By contrast, the motor cortex and major sensory areas are less affected. Memory dysfunction, emotional and personality changes tend to arise from damage to the limbic system—the hippocampus and amygdala—while damage to the temporo-parieto-occipital association cortex results in different forms of language, visual, and movement disorders. Social graces and habitual personality traits are relatively preserved until late in the disease.

In this context, it may be easier to accept the simplification presented here to explicate the nature and organization of a non-pharmacological approach.

**The Temporal lobe** may be the first part of the brain to be affected by Alzheimer's disease. Grossly speaking, the temporal lobe controls new learning, short-term memory, and, in conjunction with other parts of the brain, language and perception of music and rhythm—all of which may be profoundly impaired by mid stage of the disease. The hippocampus, a key structure in the limbic system located in this area of the brain, can be seen as a computer chip with the following functions: recording new information, partially processing that information and sending the newly learned information to other parts of the brain to be processed further and eventually stored in memory. By mid stage of Alzheimer’s disease the person will have almost no capacity to learn new information, or hold on to experience. Because these connections between new learning and response cannot be made, traditional forms of treatment such as behavior modification do not work with this population.

**The Occipital lobe**, the rearmost part of the brain, controls vision and other functions related to visual performance. Depth perception, acuity for objects, recognition of faces and objects and what environmental psychologists call a “cognitive map”, that is, holding a picture of an environment in mind that enables a person to make their way from one place to another, are occipital lobe capacities affected by the disease. Because of deficits in processing and holding visual information as well as hippocampal deficits that lead to an inability to hold other information about the recent past, the person with Alzheimer's lives in the
present moment. What a person sees at any moment makes up his or her reality.

The Parietal lobe, together with the temporal lobe, is involved in understanding written and spoken language, and processing spatial relations. The progressive loss of these with advancing Alzheimer’s typically means that the person with Alzheimer’s has difficulty making him or herself understood as well as understanding written or spoken language. Because of this, many people with Alzheimer’s become extraordinarily dependent on body language to understand meaning.

The Frontal lobe is the site of judgment, reasoning, decision making and sequencing tasks. It also controls our ability to look inward to understand our own and others’ deepest motives. Planning and carrying out a task and understanding how others feel are capacities dependent on this part of the brain. By mid stage or sometimes even early stage of Alzheimer’s disease many of these capacities are seriously compromised. Overall, people with frontal lobe damage in mid stages of Alzheimer’s disease have difficulty with personal care and the everyday tasks of life.

As the disease progresses, psychiatric symptoms such as hallucinations, delusions, paranoia, agitation, panic and denial are seen in some people. Towards its end stage, other more primitive parts of the brain are affected. Changes in the Cerebellum lead to impaired coordination of voluntary movement such as sitting, standing, opening a door, and walking. Changes in the Pons and the Medulla areas of the brain late in the disease even affect basic functions such as breathing, heart rate, temperature control, digestion, swallowing and blinking.

Why treatment can still be effective
Looking at all the neurological damage caused by Alzheimer’s one might logically ask how can treatment take place. Traditional forms of treatment such as reality orientation, behavior modification, talking therapies require at least some memory and introspective capacities, none of which Alzheimer’s caregivers have to work with. What neurologically based capacity remains for treatment?

The amygdala in the brain’s limbic system gives us the ability to respond to emotion, to evoke or hold emotion, and to perceive emotion. Remaining relatively intact late into the disease, the amygdala retains enough function so that those with Alzheimer’s disease continue to relate to others emotionally. What is lost is the personal insight into what may have triggered a particular emotion, and how to control it. Treatment ultimately targets the person’s ability to hold and respond to emotion.

Two treatment modalities are available to maintain quality of life for those with Alzheimer’s disease and related dementias. They are environmental design and staffing/programming. Before either of these treatments can be effectively
employed or evaluated, however, medical intervention must be taken into account.

Specifically, it has been found that when other illnesses are present, symptoms associated with dementia can be exacerbated.\(^6,7\) Such additional symptoms are one type of “excess disability”—labeled this way because they are not strictly symptoms of the dementia itself. For example, a person with Alzheimer’s disease who is also clinically depressed is likely to appear more demented than an Alzheimer’s patient whose depression has been treated medically and psychiatrically. It is for this reason that the first steps in treatment need to include thorough diagnosis and treatment of those illnesses that may be present but are not integral to dementia.

**Treatment Interventions**

The goal of non-pharmacological treatment is deceptively simple; to bring about a positive emotion and to maintain that positive emotion for as long as possible. Clinically, this presents a challenge. It is not simple for a caregiver to increase functional independence, reduce the need for psychoactive medications, prolong life, reduce the need for restraints, reduce acute hospital admissions, reduce depression and improve morale. Treatment has the potential for improving the quality of life at any stage of the disease\(^8,9,10,11,12,13,14,15\) --early, middle or late, in home, day care, assisted living or long-term care settings--but what are its components?

**“Habilitation” therapy\(^16\)**

An important conceptual stepping stone towards recognizing treatment possibilities and shifting the caregiving paradigm away from hopelessness is called “habilitation” therapy. The term reflects the realization that the brain of a person with Alzheimer’s and its function cannot be restored to its prior condition—hence therapy is not “re” habilitative. The term also implies that effective treatment aims to help people “live and work through every day life”; namely, is “habilitative.” In the definition of this unique and pioneering therapy, “using mood to bring about a person’s ability to live and work to their full potential’ is a central feature.

**Six Treatment Domains**

**Naturally Mapped Physical Environment\(^17\)** Treatment can be a physical environment that promotes safety and reduces fear by directing cognition even without the person’s awareness. The literature is replete with environmental intervention strategies that have proven effective in improving resident behavior.\(^18,19,20,21\) The environment is like prosthesis for those who have difficulty carrying a cognitive map. By being self-evident it compensates for neurological losses. The environment has what Donald Norman calls “natural mapping” in which the environment itself contains the knowledge necessary for its correct use, rather than relying on knowledge held in the head of the user.\(^22\) Design adaptations and enhancements work by reducing demands on the person’s already challenged perception, thus dramatically improving levels of functioning.
More importantly, by promoting feelings of security, mastery and belonging, they lessen the frustrations that often result in behavioral outbursts.

**Accepting Residents’ Frame of Reference** How we help the person to make him or herself understood and how we make ourselves understood to the person is the cornerstone of non-pharmacological treatment. It is in communication that this treatment departs most dramatically from traditional forms of therapy with older adults. Communication with people who have limited word recognition starts with the premise that a person’s behavior is not changed by words alone; rather, to change behavior, caregivers must change their behavior or change the environment. Another tenet of treatment communication is never to try to bring the person--especially with mid stage or later stage dementia--back to our sense of reality, but rather to move into their sense of the world. A third principle is to reduce fear by using validation therapy and limiting the range of options for the person to a number he or she can manage. A fourth strategy is to use distraction, refocusing and redirection to change goal-oriented behavior. The success of specific treatment techniques such as validation therapy has been demonstrated in previous research.23,24,25

**Maintaining Positive Emotion while Assisting with Activities of Daily Living**

All too frequently caregivers take away the opportunity a person with Alzheimer’s may have to perform routine everyday tasks of life. Rather than helping the person do what he or she still can do for themselves, the caregiver carries out the entire task. People cared for in this way feel frustrated, dependent and helpless, often losing the drive and ability to care for themselves. Such dysfunction is a type of “excess disability.” It is “excess” because it is caused by a caregiver’s well meaning actions, the person’s own emotional reaction to their disease or the lack of environmental support rather than in response to brain damage. For example, if we present a person with a large plate of food and feed her by hand when she can still eat finger food by herself, that person is likely to lose the ability to eat by herself.

Scores of specific strategies and skills have been developed to keep the person with Alzheimer's participating in their own care far into the disease.26,27,28,29,30 Treatment in this domain requires caregivers to discover and capitalize on remaining skills, break tasks down into simple, easily sequenced steps and know when to provide more and when less support.

**Therapeutic Activities and Programming** Structured therapeutic activities are the motor that drives the entire treatment model. A broad range of specific treatment techniques in the literature can be incorporated under this modality.31,32,33 While people with dementia who spend long periods doing nothing experience more psychiatric symptoms, such as depression, anxiety, paranoia, delusions and hallucinations, therapeutic activities should not be thought of as valuable merely because they fill time. Activities are therapeutic because they change negative emotions quickly and promote feelings of purpose and accomplishment.
From another perspective, activities maintain connections between healthy neurons and may even prevent neuronal connections from being lost. By drawing on a person's remaining skills, as determined by a battery of neuropsychological test, caregivers can create a plan of success oriented activities that focus on the individual's cognitive strengths and avoid the weaknesses, slowing the rate of decline of those skills.

Such therapeutic activities also confront an unfortunate but persistent myth that people with Alzheimer's disease, because they may not remember friends or initiate a relationship, no longer have a need for relationships or social interaction. In fact, as people lose the ability to make and hold friends, they increasingly need the social benefits that derive from relationships. Where some people with Alzheimer's may not have been very sociable before they developed the disease, group activities that surround them after they have the disease can counteract feelings of alienation and isolation and support feelings of belonging and safety.

**Multiple Communication Modalities** With Alzheimer's, people's senses do not work as well as they once did and the brain's ability to interpret sensory information becomes impaired. Sensory modalities blend together; senses like sight and sound may not be completely separate experiences. As William James observed about infants: "Sensory information is a blooming, buzzing confusion." In some cases a person may lose proprioceptive memory; that is memory related to muscle function.

The treatment intervention here is to constantly stimulate the senses at the appropriate level for that person. Familiar music, food smells, touching furry animals and other non-verbal perceptual inputs replace words in many cases. In addition, because receptive and expressive language abilities are impaired, much of what is communicated to people with dementia is not done with words; feelings of safety, personal value and purpose are communicated with a look, a tone, or a hug.34,35,36,37,38

**Self-control Behaviors** This treatment area focuses on behaviors rather than emotions, striving to prevent difficult behaviors and to react to difficult behaviors positively when they do occur. The premise underlying self-control behavior strategies is that negative behavior is rarely a random neuro-electric impulse. It is caused by a triggering event which, if identified and eliminated, can reduce the problem behavior. Current research in the field addresses various treatment techniques to reduce behavioral disturbances.39,40,41 When a negative behavior does occur, caregivers can observe, analyze and plan interventions that manipulate the triggering event. Caregivers who continuously and vigilantly apply each of the other treatments--particularly therapeutic activities that focus on the person's sense of self and belonging to the group--can reduce the likelihood of negative behaviors occurring in the first place.

The simultaneous cross-fertilization and interconnected use of all these treatments creates a proactive therapeutic milieu for understanding and treating
the needs of people with Alzheimer's disease. This is as much a paradigm shift in our way of thinking about Alzheimer's disease as it is a therapeutic method.

From *Mind and Brain*
Gerald D. Fischbach
*Scientific American*
September 1992
Non-pharmacological Alzheimer’s
Treatment Matrix
(The amygdala\textsuperscript{42} in the brain retains the person’s ability to sense emotion & mood; therefore the major treatment goal is to maintain positive emotion.)

<table>
<thead>
<tr>
<th>Brain Dysfunction</th>
<th>Functional loss</th>
<th>Treatment Approach</th>
<th>Treatment Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naturally Mapped Environment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parietal &amp; Occipital Lobes\textsuperscript{43}</td>
<td>lack of cognitive map &amp; vision</td>
<td>How environment communicates to residents by speaking for itself/cueing.</td>
<td>• speaks for itself</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• directs cognition (cueing)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• archetypal spaces</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• links into what is lost last</td>
</tr>
<tr>
<td>Accepting Residents’ Frame of Reference</td>
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<td></td>
</tr>
<tr>
<td>Hippocampal Complex</td>
<td>being in the present, with no past or future</td>
<td>How we communicate to residents by participating in their definition of the situation.</td>
<td>• never say “no”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• participate in patient’s reality</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• reduce fear</td>
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<tr>
<td>ADL Success Assistance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frontal Lobe\textsuperscript{44}</td>
<td>loss of executive function — ability to sequence tasks — and motor function</td>
<td>How we approach ADLs to create independence and enhance mood. The way they are done is as important as getting them accomplished.&quot;</td>
<td>• use ADL to bring about a positive emotion—participate in daily life routine</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• limit excess disability—don’t do too much for residents</td>
</tr>
<tr>
<td>Therapeutic Activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frontal Lobe\textsuperscript{45}</td>
<td>loss of impulse control &amp; social norms</td>
<td>How we therapeutically structure activities to increase relationships, belonging to the group &amp; individuation.</td>
<td>• the main treatment therapy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• use activities to keep cognition that still remains from being lost</td>
</tr>
<tr>
<td>Multiple Communication Modalities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anterior &amp; Medial Temporal Lobes</td>
<td>loss of language &amp; detailed memory</td>
<td>How we link into the way residents perceive, feel &amp; process information to enhance whatever types of memory are preserved.</td>
<td>• verbally &amp; physically structure things so residents can “see” them</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• employ music, art, visual objects &amp; hugs</td>
</tr>
<tr>
<td>Self-control Behaviors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frontal lobe\textsuperscript{46}</td>
<td>loss of ability to place meaning &amp; reality — no ability to soothe themselves</td>
<td>Strategies to avoid negative behaviors—agitation, confusion, hallucination—to react positively to negative behaviors &amp; to support positive behaviors.</td>
<td>• react positively yourself to prevent causing problematic behaviors</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• structure the environment to provide meaning</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• can’t change behavior by words—change yourself</td>
</tr>
</tbody>
</table>
Outcomes
The ultimate measures of success of such a treatment approach are improved quality of life, delayed institutionalization, slowed rate of progression of the disease, people who achieve their potential, and reduced need for medication.

Specific qualities of life that we can expect to observe, when these approaches are consistently employed in a coordinated way, include improvements in functional independence, mood, motor skills, happiness and satisfaction, and reductions in agitation, disease related behavioral symptoms, depression and excess disability.

A poignant definition of this approach to treatment may lie in the observation of neurologist, A. R. Luria in a letter he wrote years ago to Dr. Oliver Sacks:47 "People do not consist of memory alone. They have feeling, will, sensibility, moral being. It is here that you may touch them, and see a profound change."

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43 This reference suggests that wayfinding loss is associated with damage to the parietal lobes. Frank J. *Alzheimer's Disease: The Silent Epidemic*. Minneapolis: Lerner Publications, p. 30.
46 This association is related to that of impulse control and thus is supported by Albert MS. *Assessment of Cognitive Dysfunction*. In Albert MS, Moss MB, eds. *Geriatric Neuropsychology*. New York: The Guilford Press, 1988, p.68.