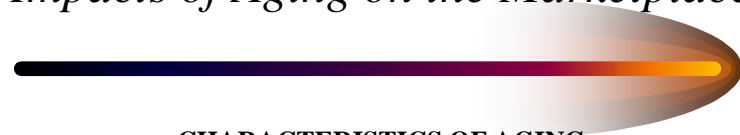


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## *Impacts of Aging on the Marketplace*



**CHARACTERISTICS OF AGING  
INTER-RELATEDNESS OF AGING  
IMPACT OF AGING ON PRODUCT  
AGING AND NICHE MARKETS**

1

This module addresses the needs of seniors and how their requirement for services will affect the marketplace.

The next module will address the increasing numbers of seniors in the population

- Numbers
- Percentage of the overall population
- Characteristics that distinguish them from other populations

## **NOTES:**

## What Is Aging?



- Deterioration in Function
- Not the Same As Disease
- Diminution of Reserves

2

Three authors reflect different views of the aging process:

“A gradual deterioration in function and the capacity of the body’s homeostatic systems to respond to environmental stresses.”

--Vander, Sherman and Luciano (1990)

“Although the incidence of disease increases with age..., disease and aging are not the same thing.... Aging is a normal process; disease is an abnormal process.”

--Hayflick (1996)

Aging is characterized by the diminution of an individual’s physical, psychological and/or social reserves.

--Applebaum, (2000)

On average, we lose 1% of many organs’ function each year—starting at 35. However, there is incredible variation in how we age, both across individuals and in an individual’s organs.

While aging is not a disease, it is often accompanied by disease:

- 80% of those over 65 have one chronic disease
- 40% of non-institutionalized seniors report limitations
- 8 of 10 leading causes of death are related to chronic disease

Our “biological clocks” tick at different rates (Gompertz’ Theory notwithstanding). How each of us ages will be compounded by any number of factors, including:

- Physiological characteristics of each individual
- Psychological differences
- Social and behavioral patterns

## *Physiological/Anatomical Changes Related to Aging*



- Susceptible to Heat/Cold Exposure
  - Chicago (1995)
  - Respiratory/Circulatory Faults, Not Heat, Were the Culprits
- Decreased Immune Responses
- Falls
- Toxicity From Medications
- Etc.

3

Several aspects of aging make seniors more susceptible to illnesses and hazards that threaten all of us. For example, a disproportionate number of Chicago’s senior residents died or suffered significant health problems during the 1995 heat wave, primarily because they didn’t have the respiratory or circulatory ability to fight off the heat. Special care is needed to protect seniors from temperature extremes, both heat and cold.

The decreased immune response presents risks in any type of group living situation. The facility can take some steps, such as providing influenza vaccine during flu season.

Addressing seniors’ risk of falls is addressed primarily in the facility’s design and construction (the focus of the second course in this series). Attention to grab rails in the shower, non-slip rugs in hallways, and a minimum of stairs can reduce the number of injuries from falls.

Toxicity from medications derives from two factors: seniors’ chemical changes reducing their ability to metabolize medications; and increased possibility of side effects or interaction effects in seniors who take numerous medications. Forgetting to take medications can also endanger the senior. The facility’s responsibility is to provide consistent, reliable medication management, including ensuring that the senior is taking the right medications on schedule.

All individuals are different, of course; the senior who has trouble walking and is susceptible to falls may never catch a cold. The facility’s assessment of each individual will enable it to provide the appropriate safeguards for its residents.

## Markers of Aging

- Reduced Capacity to Adapt
- Reduced Speed of Performance
- Increased Susceptibility to Disease

4

**Reduced Capacity to Adapt:** Difficulty adapting is a common cause of admission to assisted living facilities. Seniors generally have less ability to respond to even minor changes in their environment or emotional lives. For example, many seniors who need to give up driving have difficulty with the practical aspect (“How will I get around?”). They may also experience the emotional response of decreased independence and taking what might be seen as a major step into old age.

Facilities can respond to this specific issue by ensuring availability of adequate transportation—facility vans, cab

service, etc. On a broader scale, the facility must provide extensive orientation, not only when the senior arrives but as long as necessary until the individual feels at home—particularly if some change in the facility or procedures affect the resident.

**Reduced Speed of Performance:** Seniors take more time to perform such activities as getting to meals and eating. For this reason, the most popular rooms are generally those closest to dining areas.

Staff patience is critical, and the facility must include extra time in scheduling activities. For example, seniors need more time for doctor’s appointments, since it can take them longer to get to the examination room and disrobe. Similarly, a transportation schedule must allow extra time for seniors to get in and out of the vehicle.

**Increased Susceptibility to Disease:** As noted, the facility must establish preventive procedures to protect residents from contagious diseases.

## *Aging Accompanied By (Not Necessarily Causal Of) Disease*



- 80% of Those Over 65 Have One Chronic Disease
- 40% of Non-institutionalized Report ADL Limitations Based on Chronic Disease
- 8 of 10 Leading Causes of Death Related to Chronic Disease

5

Although chronic conditions are very common among seniors, they are not necessarily debilitating. (Indeed, 70% of women and 53% of men over the age of 85 have *two or more* chronic diseases.) Most elderly still describe themselves as being in good or excellent health, although the percentage declines with age:

65 to 74	75%
75 to 84	69%
Over 85	65%

(The percentages are almost identical for men and women.) Critical, however, is the fact that the long-term care system needs to be oriented toward chronic conditions rather than acute care episodes. And it needs to be oriented as much toward quality of life as quality of care.

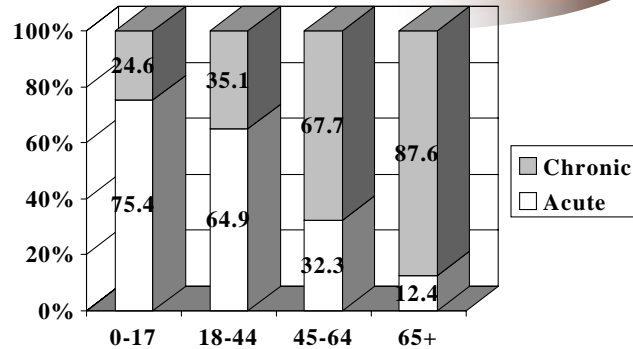
In short, any housing and care program for seniors must provide a given level of health care in response to *residents'* needs—minor or otherwise. In particular, the presence of a chronic disease typically results in a greater need for assistance with ADLs.

Developers of seniors housing must therefore be aware of and respond to the need for significant care requirements, even though their nature is significantly different than in acute care facilities or even in home care settings.

## NOTES:

The Johns Hopkins Bloomberg School of Public Health  
 “Managing Long-Term Care Services for Aging Populations”

*Health Conditions by Age*



6

What do these chronic diseases look like? An NIC assessment found the following conditions to be most common:

Condition	%
Endocrine/metabolic disorders	24
Heart/circulation (primarily hypertension)	74
Musculoskeletal (primarily arthritis)	52
Neurological (primarily dementia)	36
Psychiatric (primarily depression)	35
Pulmonary disorders	9
Sensory disorders	20
Other	8

16.5% reported having none of these conditions. There is, of course, a significant range among individuals and the seriousness of the condition. For example, mildly high blood pressure that is easily controlled by medication is much less a concern than treatment-resistant very high blood pressure that threatens a stroke.

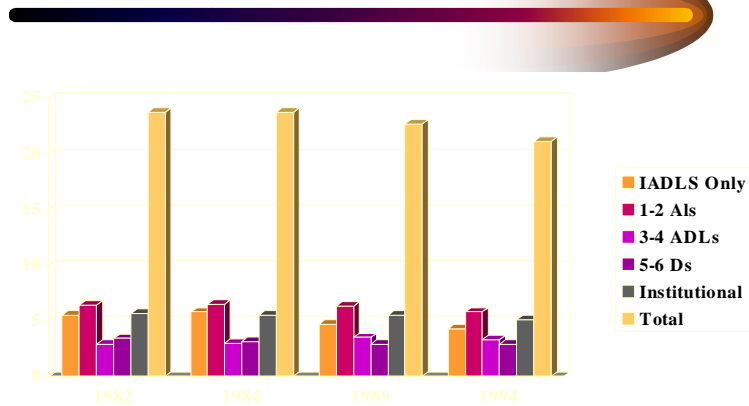
Still, even chronic conditions that seem to have little medical impact can affect the senior’s quality life and perhaps lead to other medical condition. Example:

1. A senior's reduced sense of taste leads to...
2. A change in food preferences that...
3. Affects metabolism and...
4. Results in weight loss that...
5. Exacerbates an existing condition

Similarly, seniors’ hearing loss limits their activities, so the facility may need to provide new recreational and social opportunities.

The Johns Hopkins Bloomberg School of Public Health  
 “Managing Long-Term Care Services for Aging Populations”

*% of Elderly  
 with ADLs*



Disease and ADL (activity of daily living) dependencies are not the same, of course (although the former may occasion the latter). ADLs are the most accurate predictor of the need for facility-based care. The NCAL estimated in 1998 an average of 1.7 ADLs for residents in assisted living facilities. In 1999, the American Health Care Association suggested a comparable figure of 3.7 ADLs for nursing home residents.

Similar studies have confirmed that a significantly higher proportion of nursing home residents need assistance

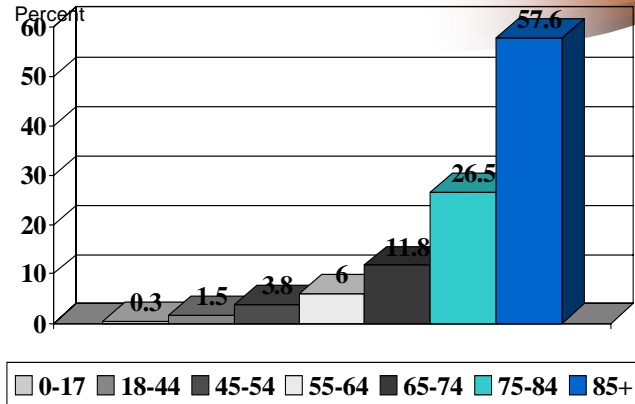
with ADLs than do their counterparts in assisted living.

Still, the majority of seniors are able to perform ADLs without assistance until they become older—on average, 85 and above.

**NOTES:**

The Johns Hopkins Bloomberg School of Public Health  
“Managing Long-Term Care Services for Aging Populations”

*ADL Dependencies by Age*



**NOTES:**

The need for help with activities of daily living (ADLs) and instrumental activities of daily living (IADLs) is largely a function of age (and aging). Ironically, the first ADL we master in life—eating—is the last we lose in old age; the last skill we master—bathing—is the first we lose.

The distinction between IADLs and ADLs is the degree of personal/physical interaction. ADLs are things we do to someone (i.e., we give someone a bath, we dress someone). IADLs are things we do for someone (i.e., we clean house for someone, we keep somebody’s checkbook).

**The Johns Hopkins Bloomberg School of Public Health  
 “Managing Long-Term Care Services for Aging Populations”**

*Look To Your Left,  
 Look To Your Right...*



Managing cash	60
Preparing snacks, light meals	68
Using telephone	25
Light housework	69
Laundry	76

If You Live Long Enough, 70% of You Will  
 Become So Disabled at Some Time  
 In Your Lives That That You Won't Be  
 Able To Climb a Flight of Stairs.

**NOTES:**

9

Even if you can make it up the stairs, several other activities of daily living will become too difficult for you to perform on our own.

Based on current statistics, you will ultimately need help with the following IADLs as well:

<b>IADL</b>	<b>%</b>
Taking medications	74
Shopping	70
Securing personal items	77
Arranging transportation	70
Managing finances (checks, bills)	70

## *Dementia, Delirium, Senility*



- Dementia Is a Symptom, Not a Disease
- Characterized By:
  - Decline in Intellectual Ability
  - Caused by Many Different Diseases
    - Some Treatable
  - 50-60% of Dementias Caused by Alzheimer’s Disease
    - Alzheimer’s Disease Is Not Treatable
    - And Is Irreversible

10

The decline in intellectual ability is sufficiently severe to interfere with daily functioning in a person who is fully conscious.

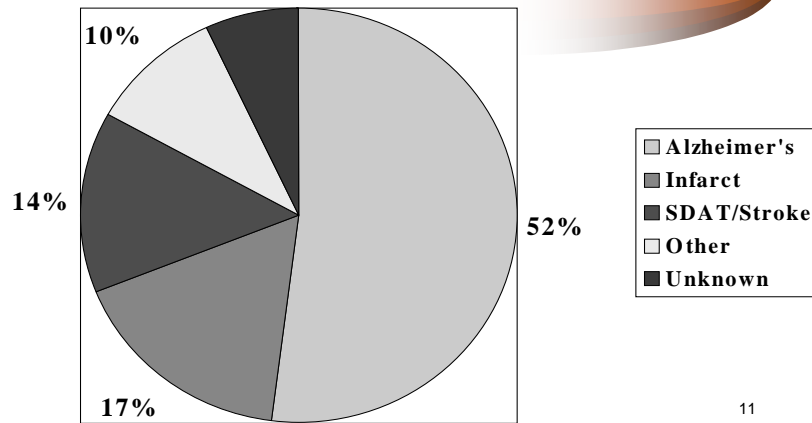
Of all the diseases affecting seniors, Alzheimer’s and other forms of dementia are perhaps the most insidious. According to “Older Americans 2000: Key Indicators of Well-being,”

“In 1998, the percentage of older Americans with moderate or severe memory impairment ranged from about 4% among persons aged 65 to 69 to 36% among persons 85 or older. About 23% of persons age 85 or older reported severe symptoms of depression.”

## NOTES:

The Johns Hopkins Bloomberg School of Public Health  
“Managing Long-Term Care Services for Aging Populations”

*Causes of Dementia*



11

More than half of dementia in seniors is due to Alzheimer's. Other causes of dementia include:

- Parkinson's disease
- Brain injury
- Stroke
- Vascular Disease
- Alcoholism

Unlike Alzheimer's, many of these conditions are treatable.


“Pseudo-dementia” refers to various conditions that create dementia-like symptoms but can be easily treated. These include:

- Reactions to prescription medications
- Depression
- Thyroid Problems

**NOTES:**

NOTES:

*What Is Alzheimer’s?*

- 
- Dementing Disorder
  - Marked by Certain Brain Changes
  - Not a Normal Part of Aging
  - Exception, Rather than the Rule
  - Not Curable or Reversible
  - Family Support Critical Part of Management

14

Alzheimer’s is a dementing disorder marked by certain brain changes. The disease is age-related, but is *not* a normal part of aging; the majority of elderly people do not experience Alzheimer’s.

The disease is not curable or reversible. In spite of the extensive research being performed, there is little hope of any advances in the foreseeable future.

Because of Alzheimer’s debilitating nature and the need for intensive care associated with it, family support is a critical part of management

The Johns Hopkins Bloomberg School of Public Health  
“Managing Long-Term Care Services for Aging Populations”

*Pathology*



- Tissue Changes
- Reduces Strength of Signals Between Nerve Cells
- Which Impairs Cognition
- Study of Brain Tissue Only Sure Method of Diagnosis

13

Alzheimer's is caused by tissue changes in the brain, two types in particular:

- Neuritic plaques (chemical deposits)
- Neurofibrillary tangles (nerve cell malformations)

These conditions result in reduced strength of signals between nerve cells, including neurotransmitters, such as acetylcholine.

The only certain way to diagnose Alzheimer's is to study brain cells directly as part of an autopsy. Less severe diagnostic approaches include:

- Physical/neurological examinations, which typically include a full physical that also evaluates reflexes, reaction to light, and other measures of neurological function.
- Psychiatric/psychosocial exams, including memory evaluation and related tests as well as the individual's social functioning.


Occupational therapy/ADL examinations, which address the individual's overall functioning and ability to meet his or her own day-to-day needs.

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**NOTES:**

The Johns Hopkins Bloomberg School of Public Health  
“Managing Long-Term Care Services for Aging Populations”

## *Incidence of Alzheimer’s*



- Very Few Afflicted Afflicted Are under 50
- The Majority Are Over 65
- 2-3% of Elderly Afflicted with Disease (4 Million)
- 9-14 Million Americans with a Form of Dementia (Primarily Alzheimer’s) by 2050
- Black to White Ratio - 4:1; Hispanics - 2:1

16

Some people 50 or younger suffer from Alzheimer’s, but the majority are over 65. About 4 million—2% to 3%—of elderly people are afflicted with some form of dementia, including:

- 20 to 30% over age 80
- 50% of those 85 and over

By 2050, between 9 and 14 million Americans will suffer from some form of dementia, primarily Alzheimer’s.

There is a significant racial difference:

- Blacks are four times more likely to suffer from Alzheimer’s than are whites.
  - Hispanics have twice the incidence of Alzheimer’s as whites.
- 

## NOTES:

**NOTES:**

*Social/Financial Implications*



- \$80 Billion in Annual Total Costs
- Mostly Private Sector (\$8.5 Billion Public)
- Immeasurable Personal Costs

15

Alzheimer’s care and related costs cost \$80 billion per year.

Primary costs are:

- Diagnosis and treatment.
  - Formal and informal care (Alzheimer’s patients as a group require more restrictive care than other residents, suggesting higher costs.)
- Lost wages and other indirect costs.

Most of these costs are borne by the private sector, as only about \$8.5 billion is covered by public programs. (The personal costs in grief and suffering are largely incalculable.)

## *Disease Progression*



- Onset Slow and Gradual, But Progressive
- Short Term Memory Loss Early in Disease
- Then, Abstract Thinking, Intellectual Functioning
- Finally, Confusion, Disorientation
- Detection to Death:
  - 8 Years Is the Average
  - Can Be As High AS 20

16

While the onset of Alzheimer’s is slow and gradual, the disease continues to progress throughout life:

- Early in the course of the disease, the individual loses short-term memory; there can also be personality and behavioral changes, often characterized by apathy and withdrawal.
- Abstract thinking and intellectual functioning then deteriorate, typically including language and visual-spatial abilities.

In the final stages, the individual becomes confused and disoriented with increasingly severe symptoms:

- Neglected appearance, wandering, incontinence
- Inability to walk, stand, or move voluntarily
- Loss of physical control
- Death

Alzheimer’s patients usually die eight years after the disease is diagnosed, although they may survive up to twenty years. Progression is more rapid in cases of early onset.

An important implication for housing developments: the facility is responsible for the individual and must be alert to wandering or other potentially dangerous activities. It may be necessary to change the senior’s room so it is close to the nursing station, enabling staff to see the individual start to leave. It may also be necessary to bring on more staff members, although they can be aides rather than licensed personnel.

New technologies, such as microchips in shoes that signal the resident’s moving outside of a certain radius, may also be a safeguard.

The key point: facility staff must be aware of and respond to the progression of the disease.

## *Settings of Choice*



- Home
- Day Care
- Respite Care
- Foster Care
- Boarding Homes
- Assisted Living
- Special Care Units
- Nursing Facility

17

The treatment setting for patients with Alzheimer’s will depend on numerous factors, ranging from severity of symptoms to patient/family resources. Currently, Alzheimer’s patients are receiving care in the following settings:

- Home (75 to 85% of frail elders are at home, although this can be very difficult for the family.)
- Day care helps patients succeed in minor tasks, while freeing up the family for part of the day.

- Respite care can be as much for the family’s benefit as the senior’s. Such care can include home care as well as facility-based care.
- Foster care and boarding homes can be an effective compromise between home-based and institutional care.
- Assisted living, which is a more recent option, includes some facilities that have special units for the “memory-impaired.”

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### **NOTES:**

## *Predictors of Institutional Care*



- Decline in ADLs
  - But Not Necessarily IADLs
- Spousal Care Seems to Delay Need
- Whites Twice As Likely As Blacks to Institutionalize

1

Nursing facilities may, ultimately, be the most responsible decision, albeit the most expensive and the most stigmatized.

Alzheimer’s is a major factor in a senior’s requiring housing and care, but certainly not the only one. Perhaps *the* primary cause is seniors’ inability to perform activities of daily living. Instrumental activities, such as balancing a checkbook, can be supported by visiting family members or paraprofessionals. However, seniors who are unable to bathe themselves

or perform other ADLs need more constant care—particularly if health issues are involved.

Many seniors do not need institutionalization if they are living with a healthier spouse or, in some cases, other family members. This situation may be ideal for many, but the senior’s health can reach the point at which spousal/familial care is no longer adequate. Marketing implication: affluent “children” of seniors who live in another town often decide when the senior should be institutionalized and in what facility.

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### NOTES: