

**LIGHTING:
PARTNER IN
QUALITY
CARE ENVIRONMENTS**

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CMS/Pioneer Network Symposium
April 3, 2008**

Age Related Changes



- Arthritis
- Hypertension
- Hearing Impairment
- Vision Impairment
- Mobility Impairment
- Depression
- Diabetes
- Osteoporosis

Our Eyes Change As We Age



Mike Segar/REUTERS

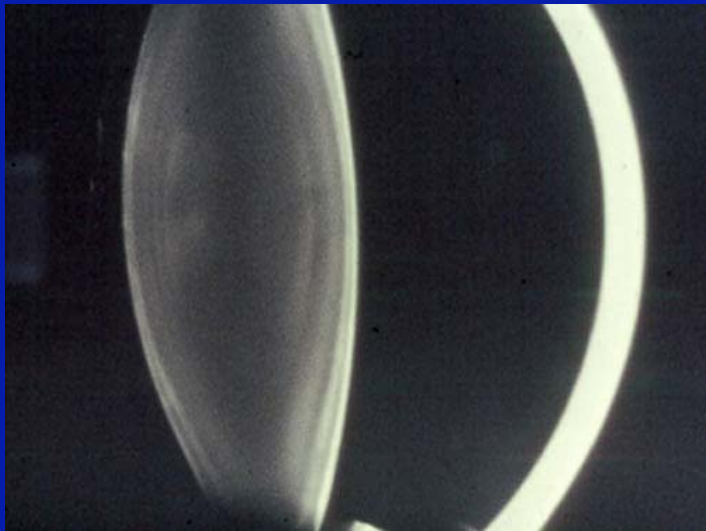


Normal Age-Related Vision Changes

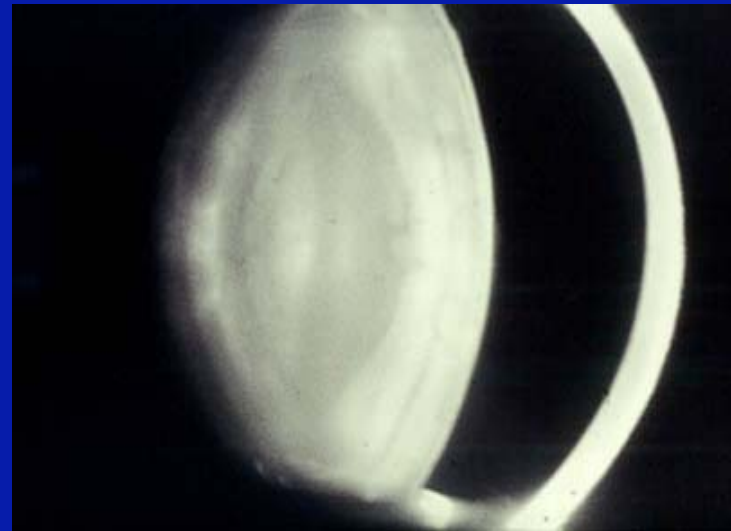
- **Pupil is Smaller - almost fixed in size**
- **Less light enters the eye**
- **Difficult to Adjust to Changes in Brightness**
- **Lens Thickens - Yellowish/Amber Color**
- **Difficulty Focusing**
- **Loss of Contrast Sensitivity**

Changes to the Lens

Lens of a 10 year old



Lens of a 65 year old



VISION

- **Reduced Visual Acuity**
- **Restricted Field of Vision**
- **Sensitivity to Glare**
- **Change in Depth Perception**
- **Impaired Ability to Adapt to Changes in Light Levels**
- **Contrast Sensitivity**
- **Restricted Color Recognition**

Eye Diseases are More Prevalent in Older Adults

- 1. Macular Degeneration -
foremost cause of blindness over 60**
- 2. Cataracts
(50% individuals ages 65-75)**
- 3. Glaucoma**
- 4. Diabetic Retinopathy**









Implications of Age-Related Vision Loss

- **Increase in falls**
- **Limits mobility in unfamiliar areas**
- **Limits independence**

MOBILITY and FALLS

- **1/3 people 65+ fall each year**
- **Half of the falls are recurrent**
- **1 in 10 falls result in serious injury**

- **87% of fractures in the elderly are due to falls**

Mobility: Risk Factors for Falls

- **Age**
- **Vision changes**
- **Weakness and strength loss**
- **Balance**
- **Fear of falling**
- **Cognitive loss**
- **Incontinence**
- **Environmental hazards**
- **Medication**

Environmental Supports Encourage Mobility



- **Higher Light Levels**
- **Control Glare**
- **Strong Contrast**
- **Handrails for Support**

IMPROVE LIGHTING

- **Higher Light Levels**
- **Even Illumination**
- **Eliminate Glare**
- **Task Lighting**
- **Balance Daylight and Electric Light**
- **Combine Direct/Indirect Lighting**
- **Provide Gradual Changes in Light Levels**









Daylighting

- **More natural light**
- **Large skylights**
- **Larger windows**
- **Need for both skylights and windows rather than windows alone**















GARDENS AND OUTDOOR SPACES



- Porches
- Sunrooms
- Greenhouses
- Gardening
- Walking & gathering spaces



Daylight Exposure

- Maintains Circadian Rhythm
- Promotes Better Sleep Quality
- Promotes Vit. D Synthesis for Healthy Bones
- Prevents Depression
- Reduces Agitation

SLEEP DISORDERS

- Experienced by 50% of those over 65
- 72% of nursing home residents are “poor sleepers” especially those with Alzheimer’s
- Sedative and hypnotic medications are the common treatment
- These medications are strongly linked to falls and hip fractures







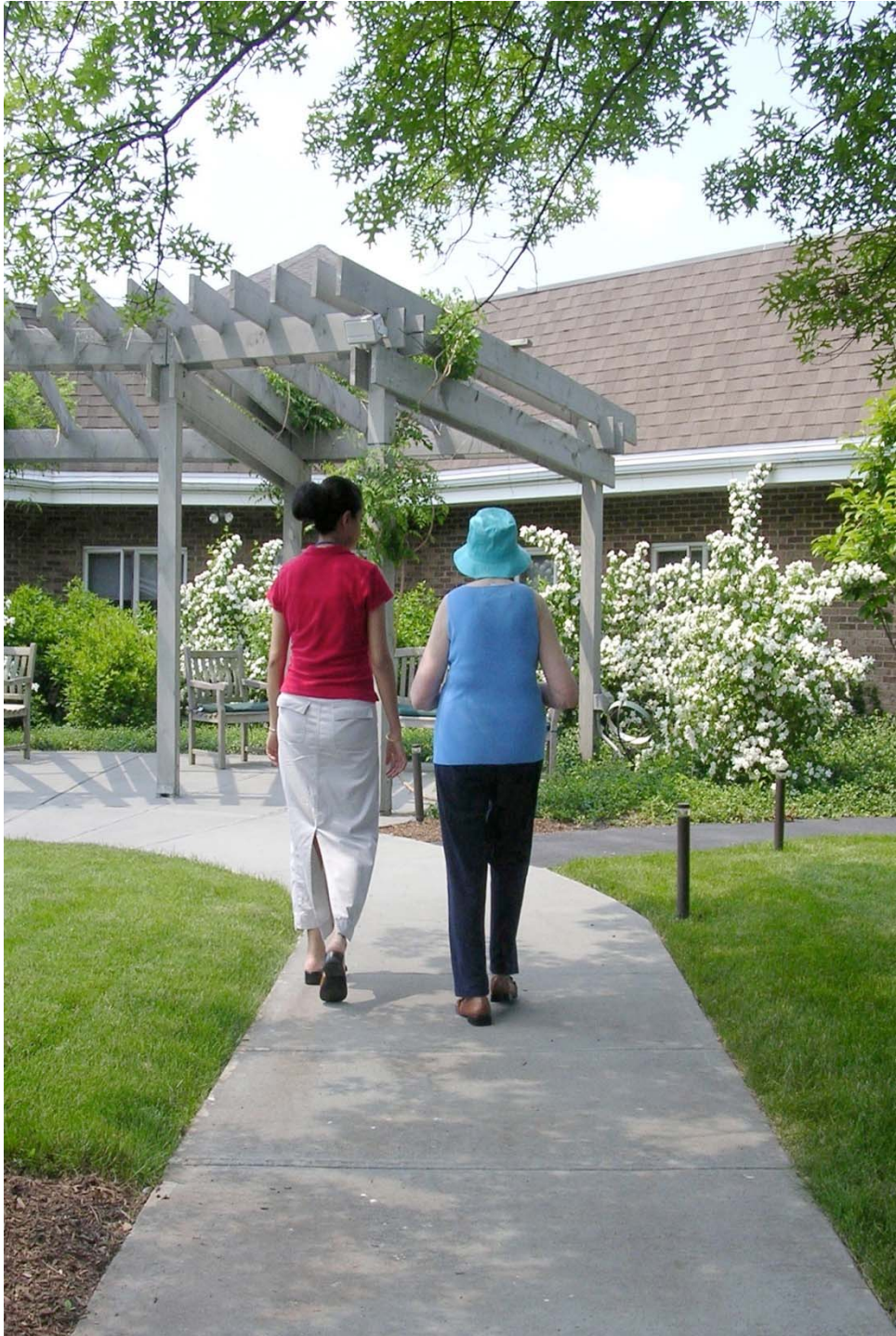








Meaningful Activity



Exercise

– Increases

- Mobility
- Balance
- Social Activity
- Exposure to Daylight

Lighting can and will make a greater difference in the success of a healthcare setting than any other single feature except for the healthcare itself.

Design Innovations for Aging and Alzheimer's