

Safe Mobility at Home Enhanced With Universal Design

**Minnesota Gerontology Society
2007 Conference
April 27, 2007**

**Margaret A. Christenson, MPH, OTR, FAOTA
Lifease, Inc.
Minneapolis, MN**

Safe Mobility at Home

Much more than walking or rolling from one place to another

Universal Design

Planning ahead

“The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.”

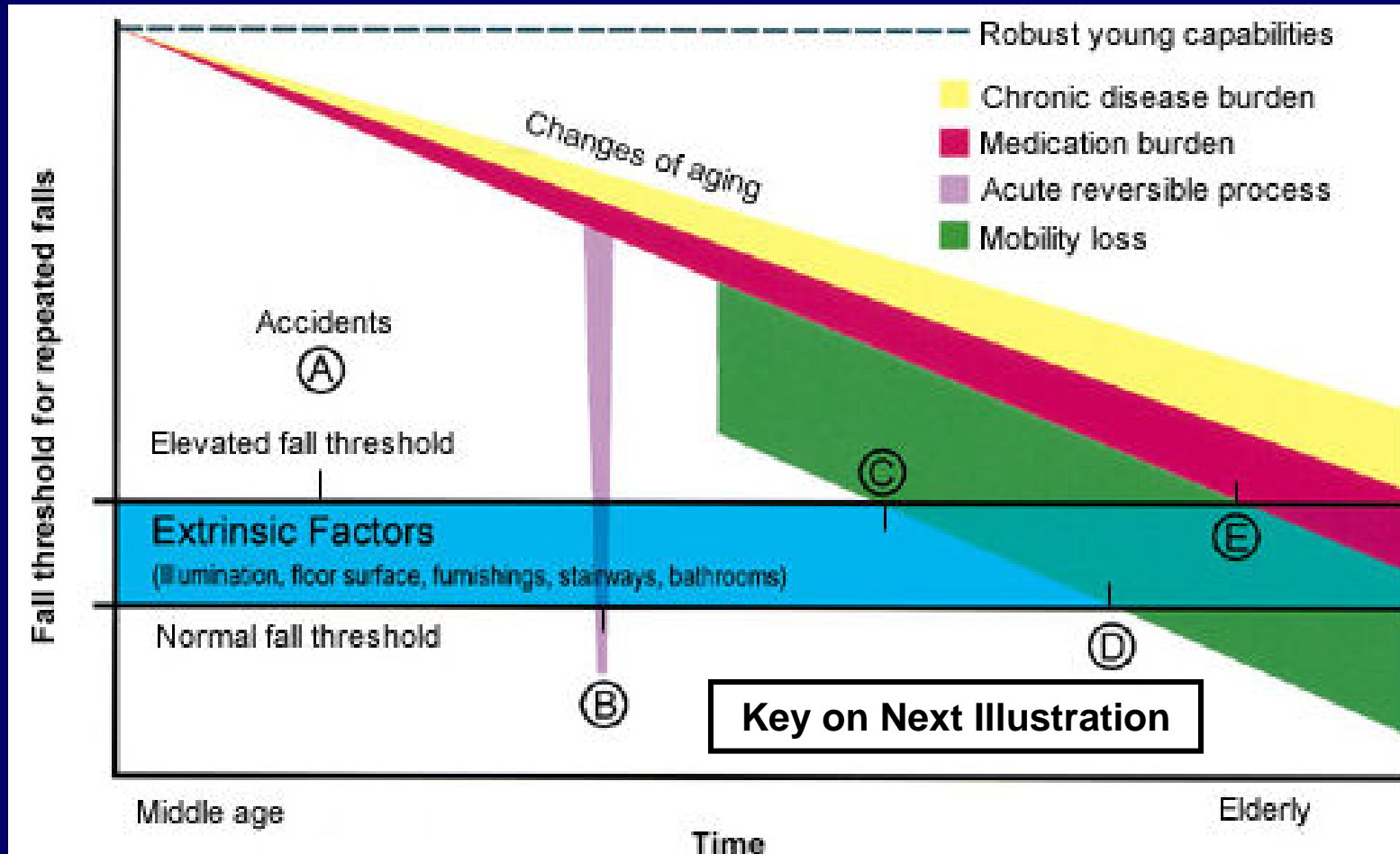
Ron Mace

Universal Design Principles

1. **Equitable use**
2. **Accommodates a wide range of users**
3. **Simple and intuitive**
4. **Conveys information without ambient conditions**
5. **Tolerance for error**
6. **Low physical effort**
7. **Size and space for approach and use**

www.design.ncsu.edu/cud

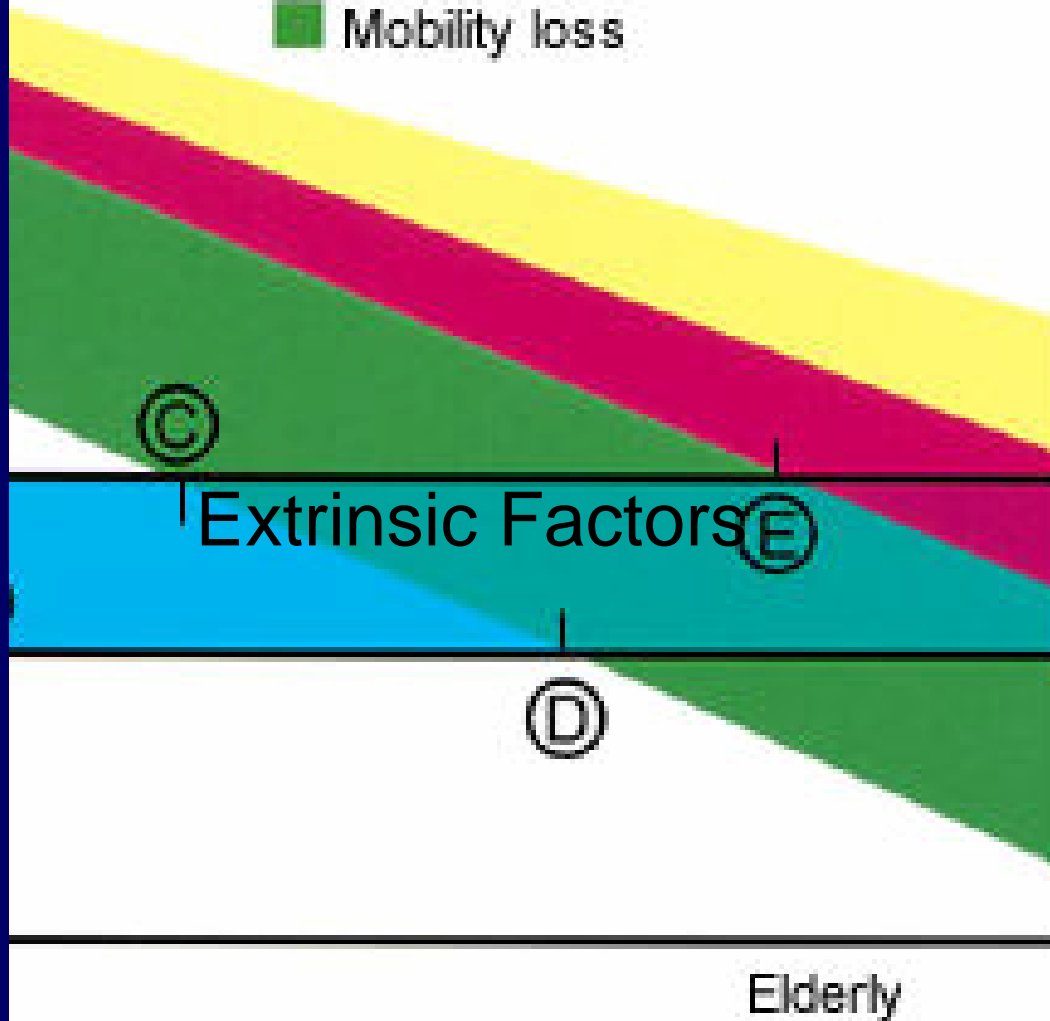
Falls in the Elderly



GF Fuller (2000) Falls in the Elderly, Am Family Physician, 2000, 61:7.
Adapted from Adapted with permission from Steinweg KK. The changing approach to falls in the elderly. Am Family Physician 1997;56:1815-22,1823.

Extrinsic Factors

- Chronic disease burden
- Medication burden
- Acute reversible process
- Mobility loss



C = Patient with moderate illness, loss of mobility and some prescription medications who falls because of an extrinsic factor.

E = Elderly patient with numerous age-related changes who falls because of an extrinsic factor.

Extrinsic Factors that Impact Mobility

Illumination

Floor Surfaces

Stairways

Kitchen

Cabinets

Living Room

Door Threshold

Furnishings

Bathrooms

Electrical

Fixtures

Laundry Room



There are several physical and sensory changes of aging, that impact safe mobility at home.

Age-Related Changes

Finding adaptations for problems that occur with:

- **Mobility/stability**
- **Sitting/Rising**
- **Bending/Reaching**
- **Carrying Items**
- **Climbing Stairs**
- **Illumination Needs**
- **Depth Perception**
- **Presbyopia**
- **Altered color perception**

Mobility



More Illustrations:



Stability

More Illustrations:

Sitting and Rising



More Illustrations:



Bending and Reaching

More Illustrations:

Carrying Items



More Illustrations:



Climbing Stairs

More Illustrations:

Illustration

**More
Illustrations:**

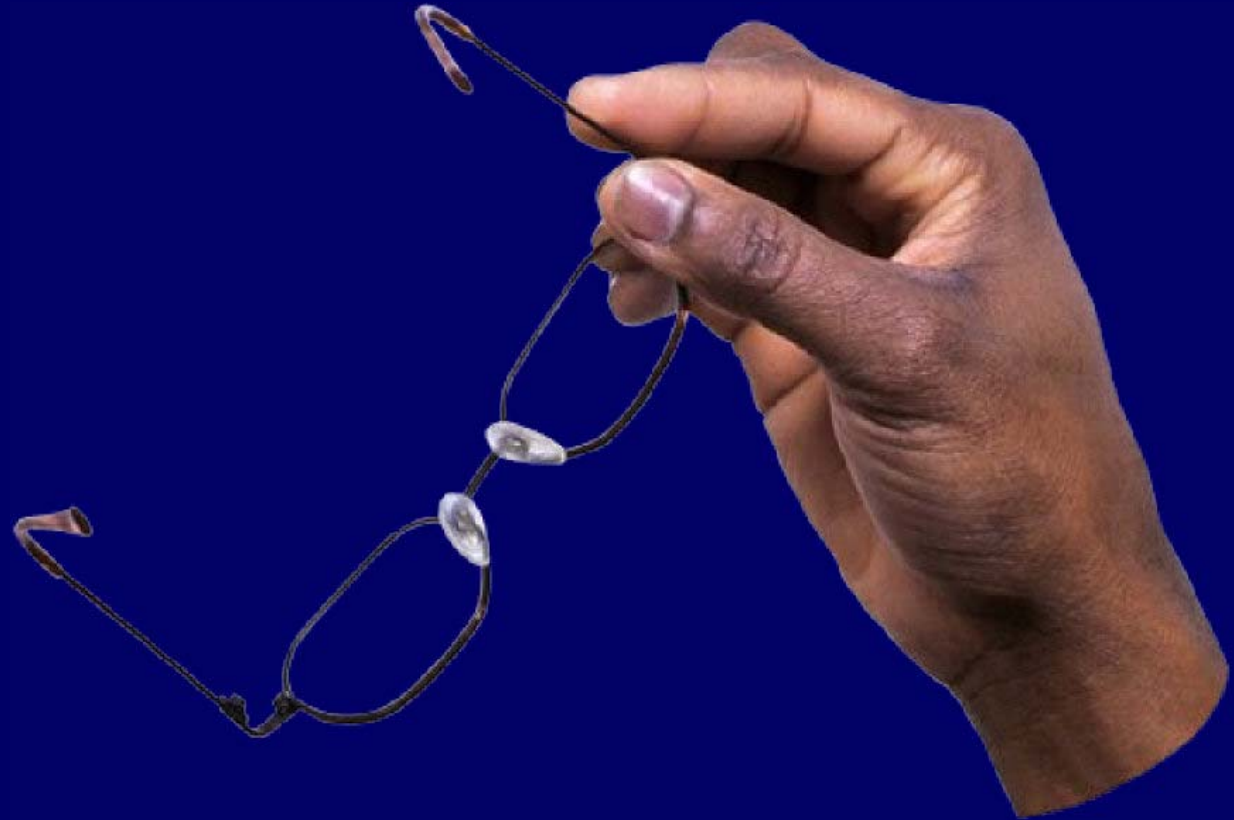




Depth Perception



More Illustrations:



Presbyopia

More Illustrations:

Altered Color Perception

This change in the lens impairs the perception of certain colors but it also effects the quality of light entering the pupil and those changes impact mobility.

More Illustrations:

Cognitive Issues



More Illustrations:

***"Design for the young
and you exclude the
old; design for the old
and you include the
young*"***

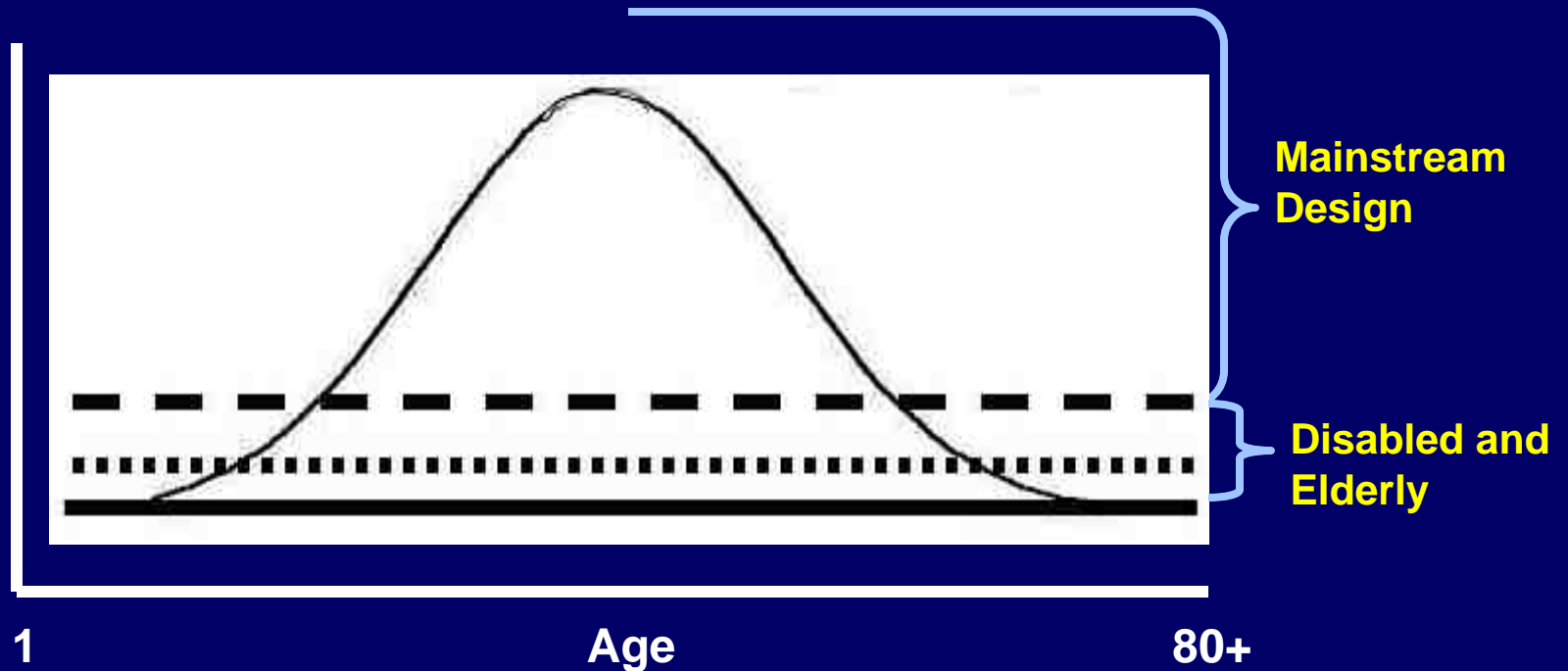
www.bham.ac.uk/gerontology

*** 21 yr. old male**

Design Based on Human Function

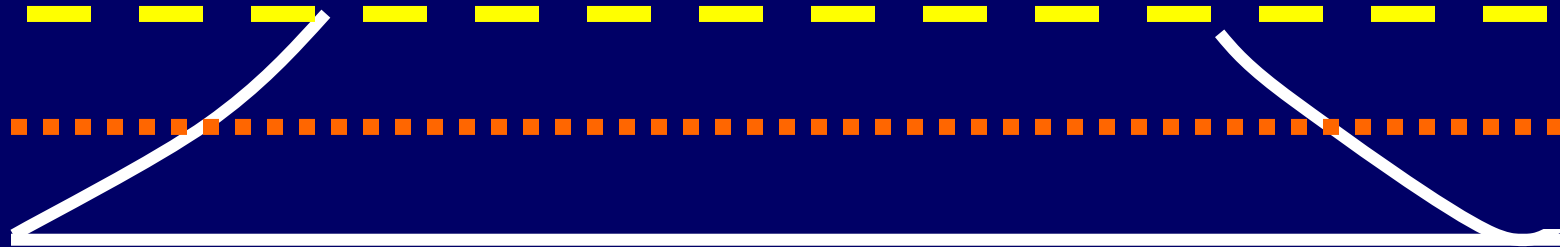
Range of Human Function

Population Distribution



Sandhu, J (2002) *Multi-Dimensional Evaluation as a Tool in Teaching Universal Design*, In *Universal Design: 17 ways of Thinking and Teaching* ed. Jon Christophersen, Oslo, Norway: Husbanken

The Bottom of the Bell Curve



This approach, expands standard design to accommodate the needs of older people and lay the foundation to compensate for many disabilities.

Specific additional adaptations that might need to be made to meet the needs for those with severe disabilities can be done with less effort - Support for lifts and the addition of grab bars in the future has been included; additional lighting and/or other electrical demands has been considered.

This Universal Design!

Home Environment Assessments/Checklists

**Lasoff and Lorentzen (2003) *The Accessible Home*.
Minneapolis, MN: Fairview Press, Retail Price: \$4.95
Safety For Older Consumers Home Safety Checklist**

www.myelderadvocate.typepad.com/blog/2006/12/safety_for_olde.html Online checklist

**www.aarp.org/families/home_design/rate_home
Home Modification Assessment and Solutions Checklist
by Rebuilding Together**

www.rebuildingtogether.org Search: Home Checklist

**LivAbility www.lifease.com/lifease-livability.html
Membership Number: mgsc-2007-7107**

**Thank You for this opportunity
to share some ways to resolve
potential problems in the home
and create an environment that
promotes safe mobility.**

Margaret Christenson, MPH, OTR, FAOTA

Lifease, Inc.

4001 Stinson Blvd. Suite 404

Minneapolis, MN 55421

612-312-1853

www.lifease.com

mclifease@aol.com