

Preventive Gerontology : Strategy to Achieve Successful Aging and Maximize Longevity

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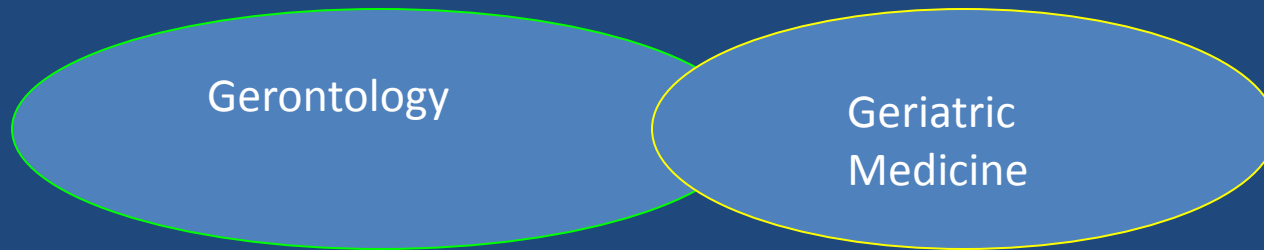
University of Washington

**Division of Gerontology & Geriatric
Medicine**

VA Puget Sound Health Care System

2010

Gerontology & Geriatric Medicine at the University of Washington: Why the name (and what is the difference?)



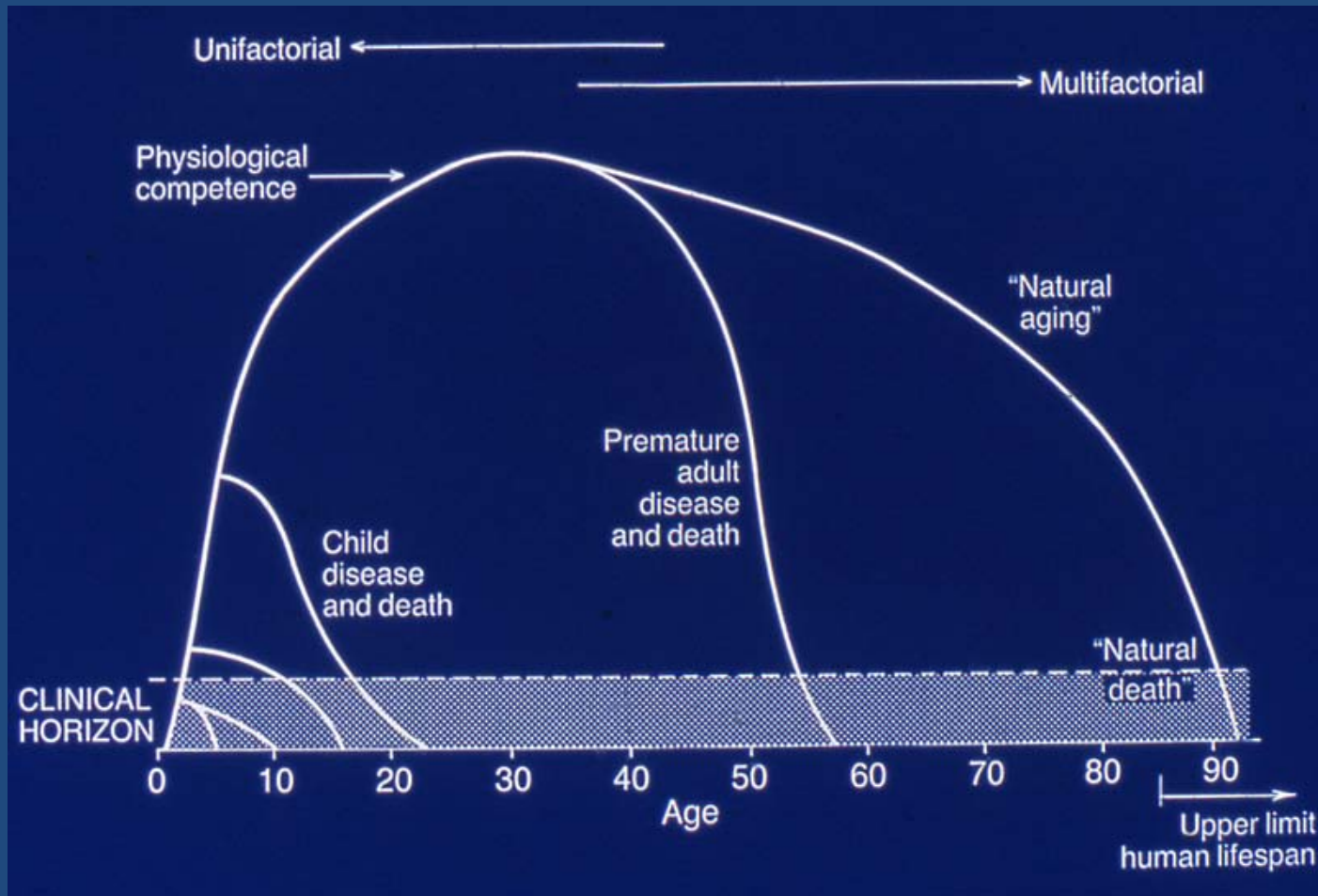
The Story of Life

A Postcard from 19th Century Germany*



*Courtesy of Dr. Elizabeth Barrett-Connor

Tracking the Story of Life from 19th Century to Fries in 1980



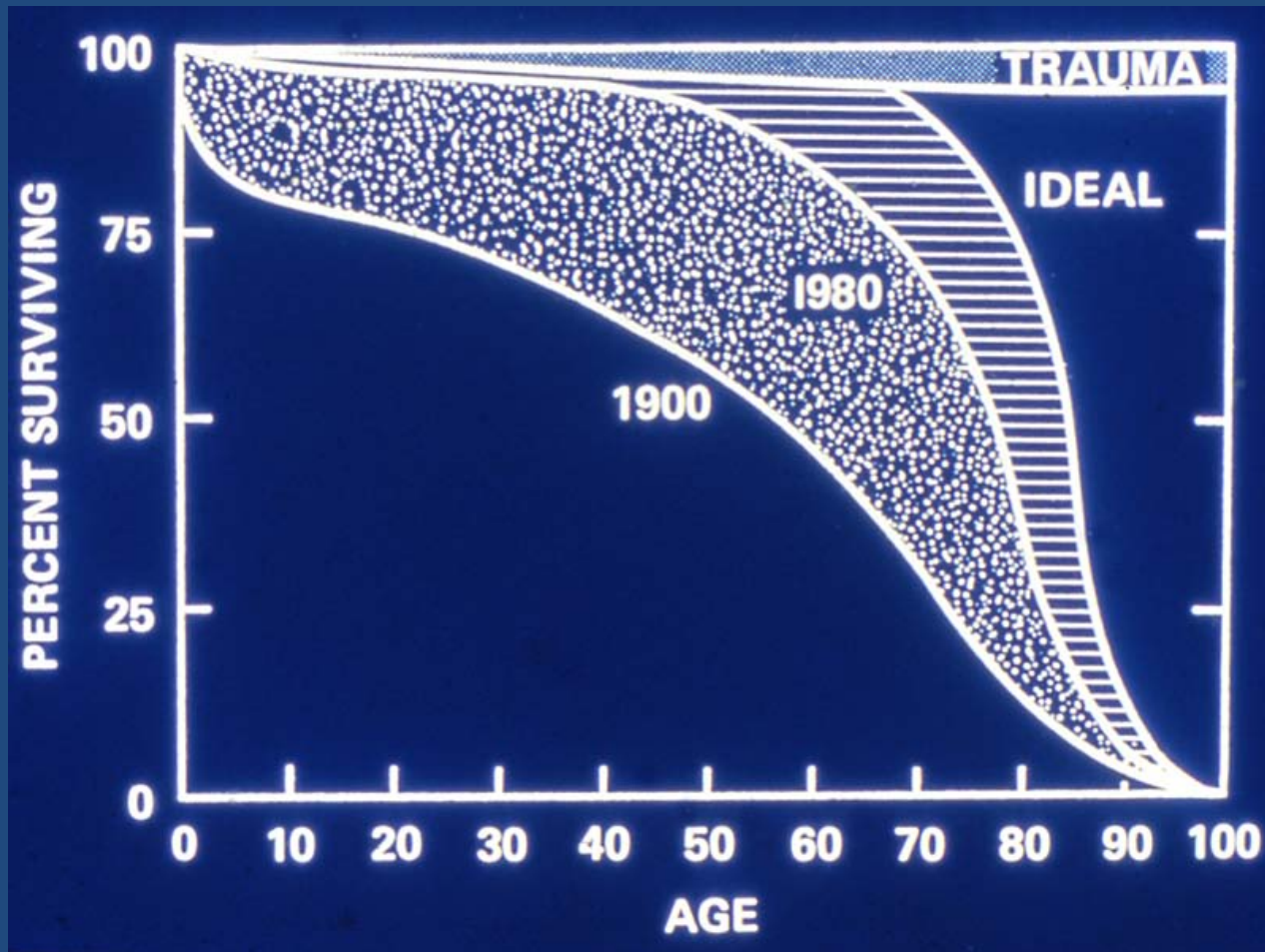
Preventive Gerontology 2010

The Agenda: Key References

- “Aging, Natural Death, and the Compression of Morbidity” (Fries, NEJM 1980)
- “Preventive Gerontology” (Hazzard, Post-Graduate Medicine 1983 et seq.)
- “Successful Aging” (Rowe and Kahn, 1998)
- “Secrets of Healthy Aging and Longevity: Lessons from Octogenarians & Supercentenarians, Willcox et al., *J. Geront.* 2008)
- Trajectory of Disability in the Last Year of Life, Gill et al, *NEJM*, 2010

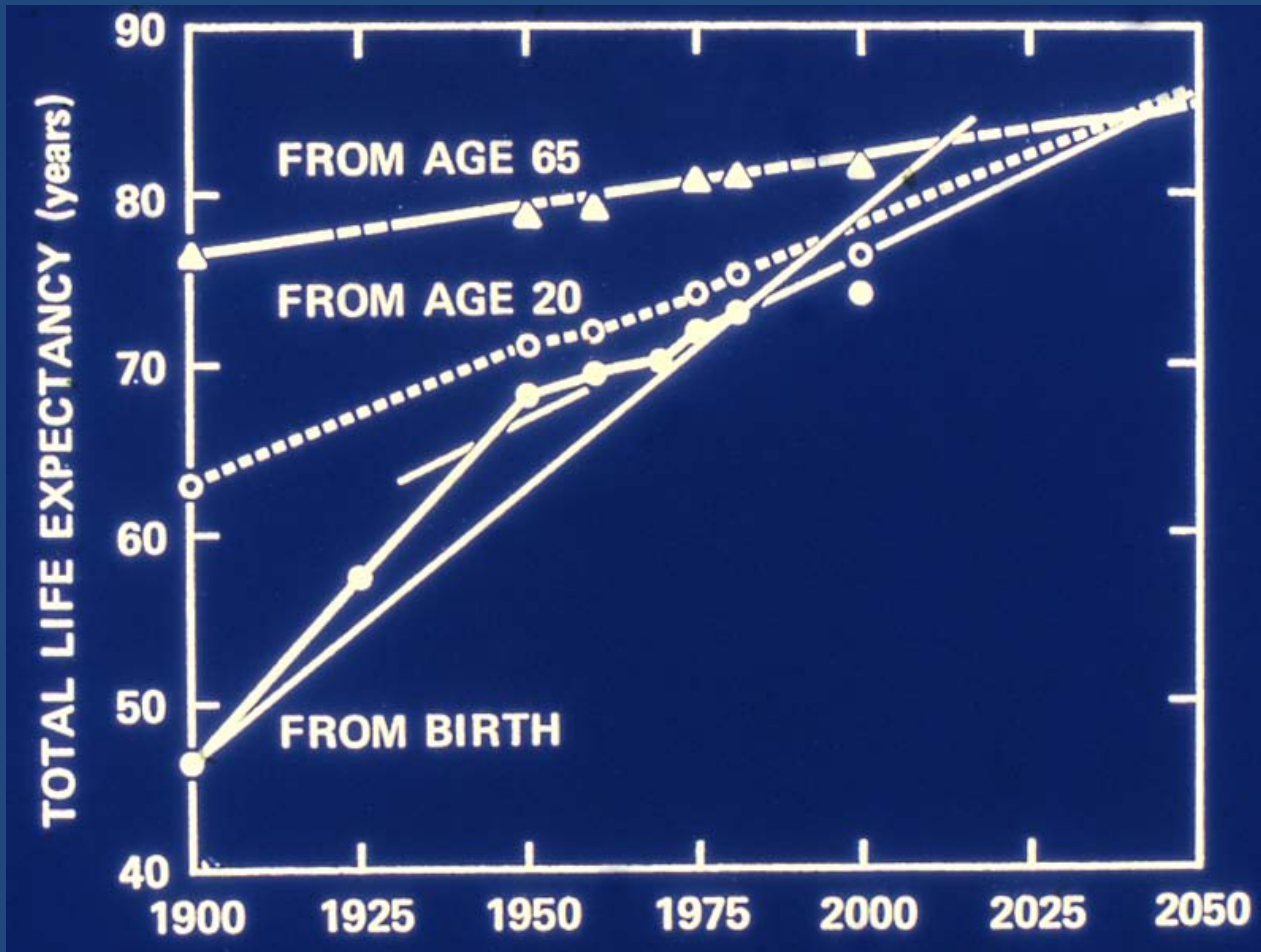
Fries 1980: Aging, Natural Death, & the Compression of Morbidity

The Human Survival Curve in the US in 3 Different Eras*



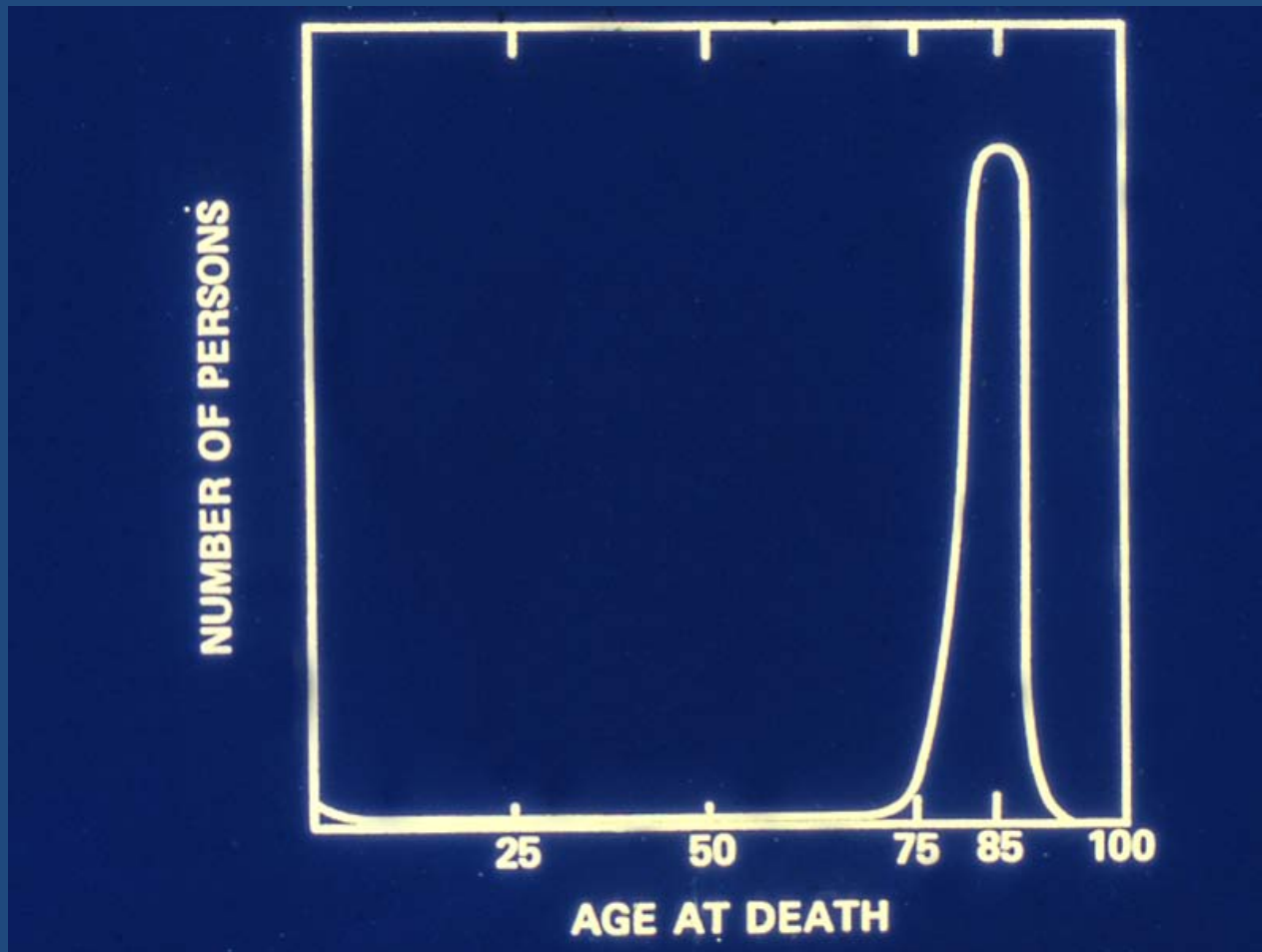
*Fries, 1980

Average Remaining Years of Longevity*



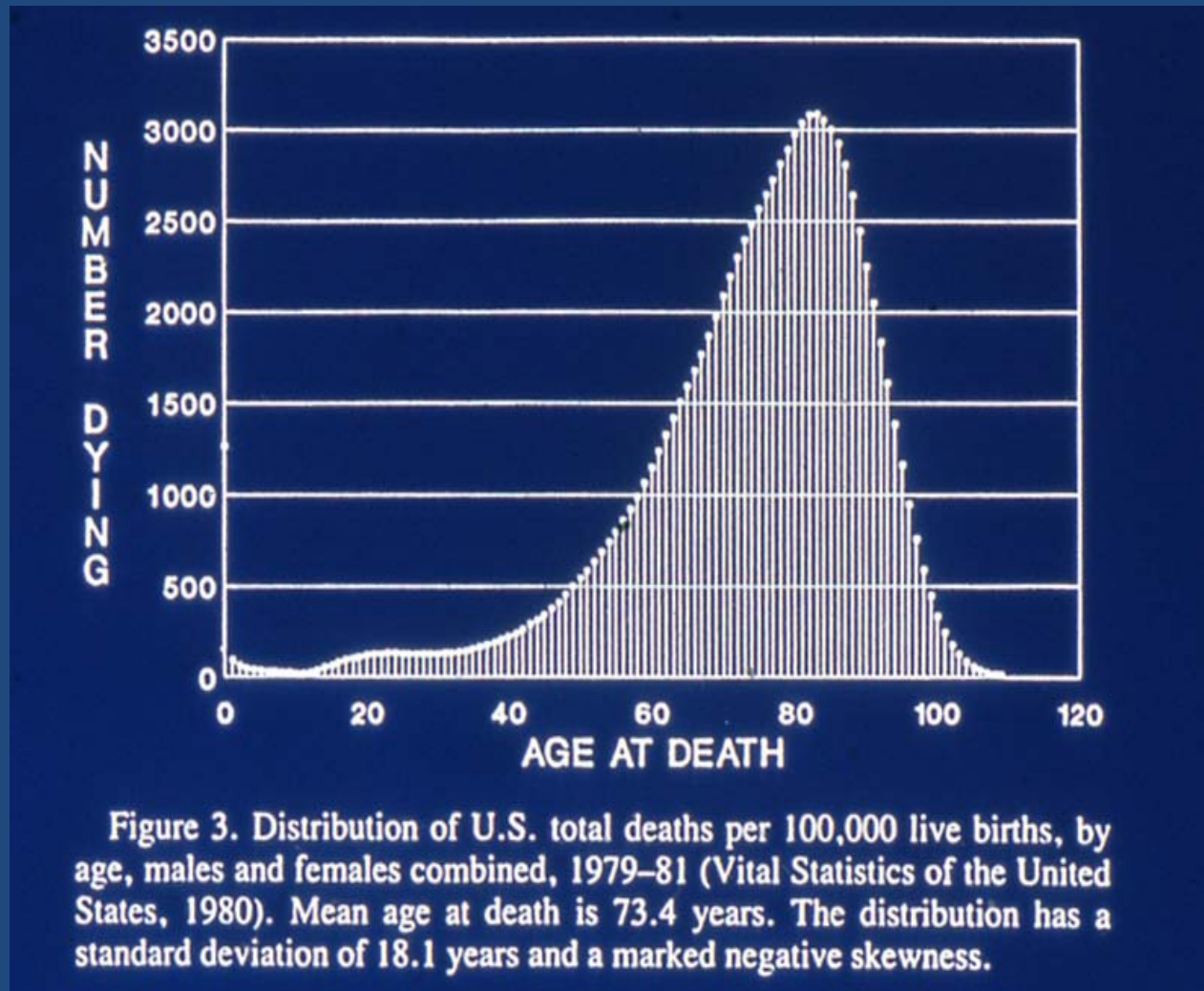
*Fries 1980

Distribution of Ages at Death (“natural death”?) in the “Ideal” Steady State*

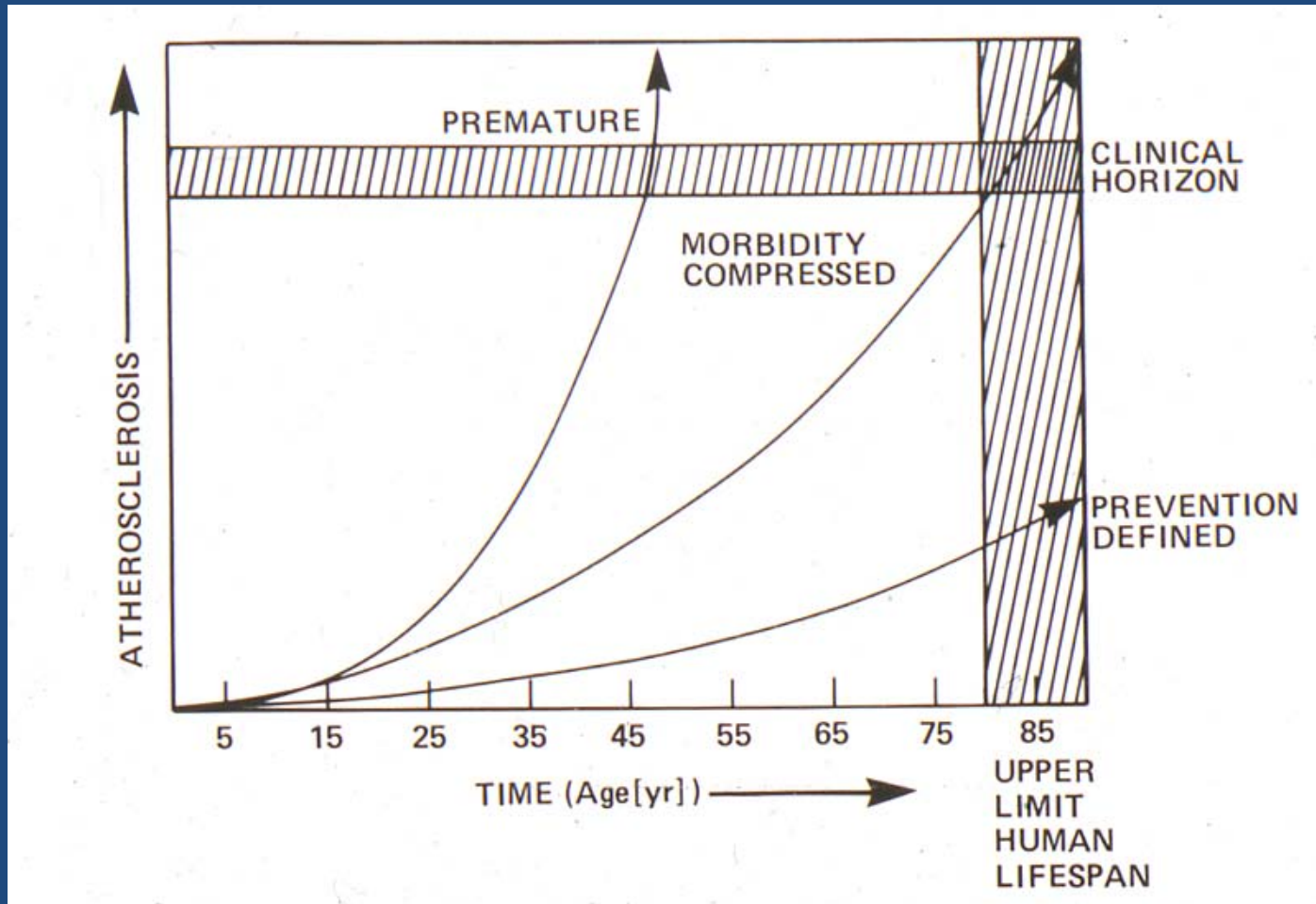


*Fries 1980

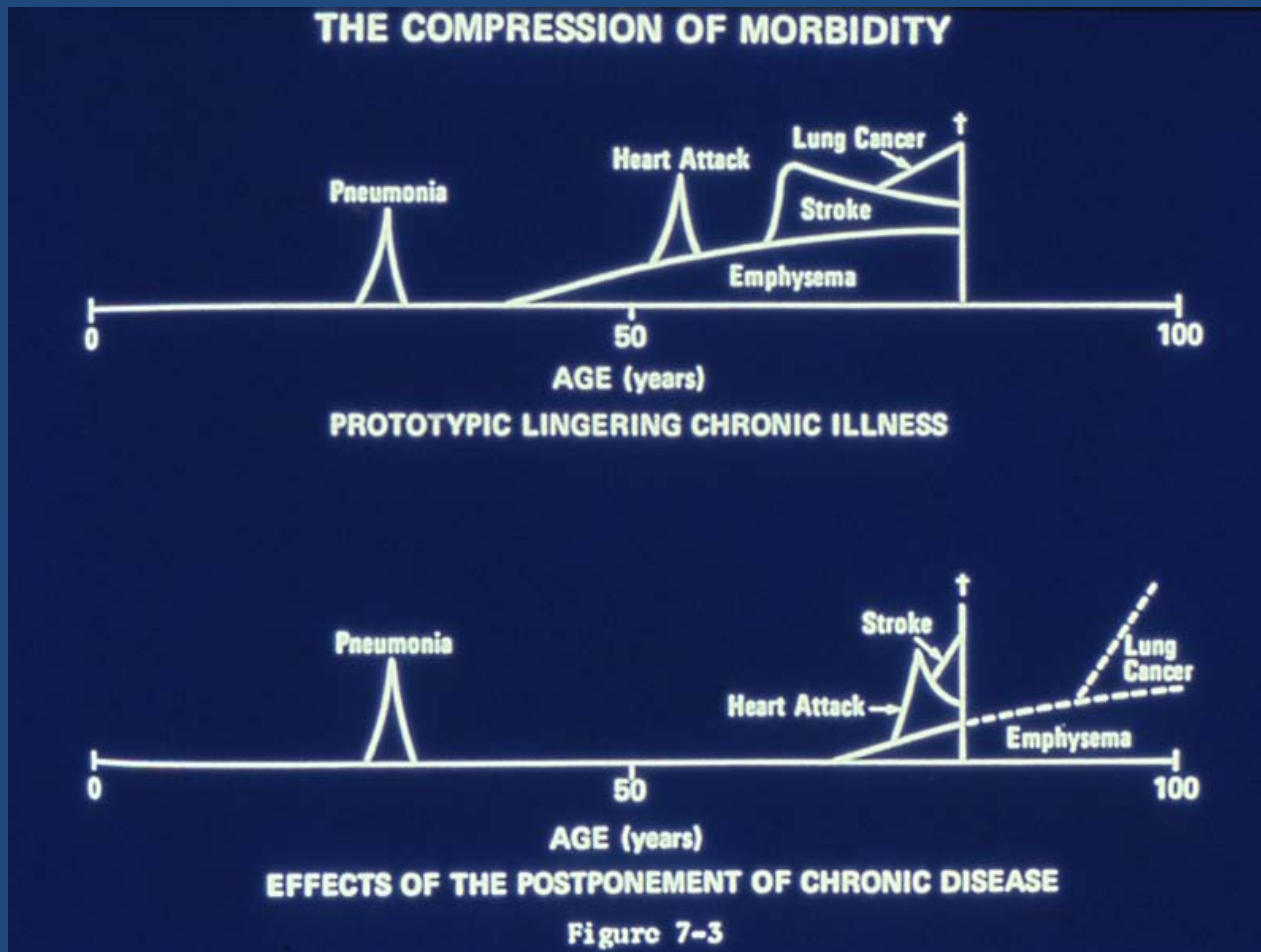
Distribution of Ages at Death in the US in 1980



Compression of Morbidity: Preventing Chronic Disease by Retarding Pathogenesis



The Compression of Morbidity*



*Fries 1980

Fries 1980: Aging, Natural Death, & the Compression of Morbidity

- Human survival curve progressively rectangularized, as ---
 - Pathophysiology of Age- and time-related diseases is retarded, delaying passage of the clinical horizon until advanced old age, when ...
 - Following a telescoped sequence of parallel declines in multiple systems that produce
 - Clinical disease(s)
 - Disabilities
 - Frailty
 - “Natural death” occurs for the average individual at an age approximating the median/mean upper limit of human longevity (85+/- 4 years) – the “barrier to immortality”(?)

Preventive Gerontology 2010: Living Strategically to Achieve a Long and Fulfilling Old Age

- A continuing, life-stage-specific program
- Of personal behaviors and health care practices
- Designed to retard age-/time-related disease processes
- Such that they cross the clinical horizon at or near the end of life
- Compression of morbidity will be a valued by-product of successful preventive gerontology
- And certain burdensome problems will be prevented altogether because of death from a competing cause before they are ever expressed

Fries' 1980: "Non-modifiable Aspects of Aging"

- Increased Arterial wall rigidity (hypertension)
- Decreased lens elasticity (presbyopia – far-sightedness)
- Reduced skin elasticity (wrinkles)
- Graying of hair
- Thinning of hair

By today's expectations

(Of "anti-aging medicine"):

FRIES WAS A PESSIMIST!

Fries' 1980: "Modifiable Aspects of Aging"

Aging Marker

- Cardiac reserve -----
- Dental decay -----
- Glucose tolerance -----
- Intelligence tests -----
- Memory -----
- Osteoporosis -----
- Physical strength -----
- Physical endurance -----
- Pulmonary reserve -----
- Reaction time -----
- Serum cholesterol -----
- Social ability -----
- Skin aging -----
- Systolic blood pressure -----

Personal Behavior

- Exercise, non-smoking
- Prophylaxis, diet, hygiene
- Wgt control, exercise, diet
- Training, practice
- Training, practice
- Wgt-bearing exercise, diet
- Exercise, weight control
- Exercise
- Exercise, non-smoking
- Training, practice
- Diet, wgt control, (statins)
- Practice/engagement
- Sun avoidance (sunscreens)
- Salt limitation, weight control, exercise, (anti-hypertensives)

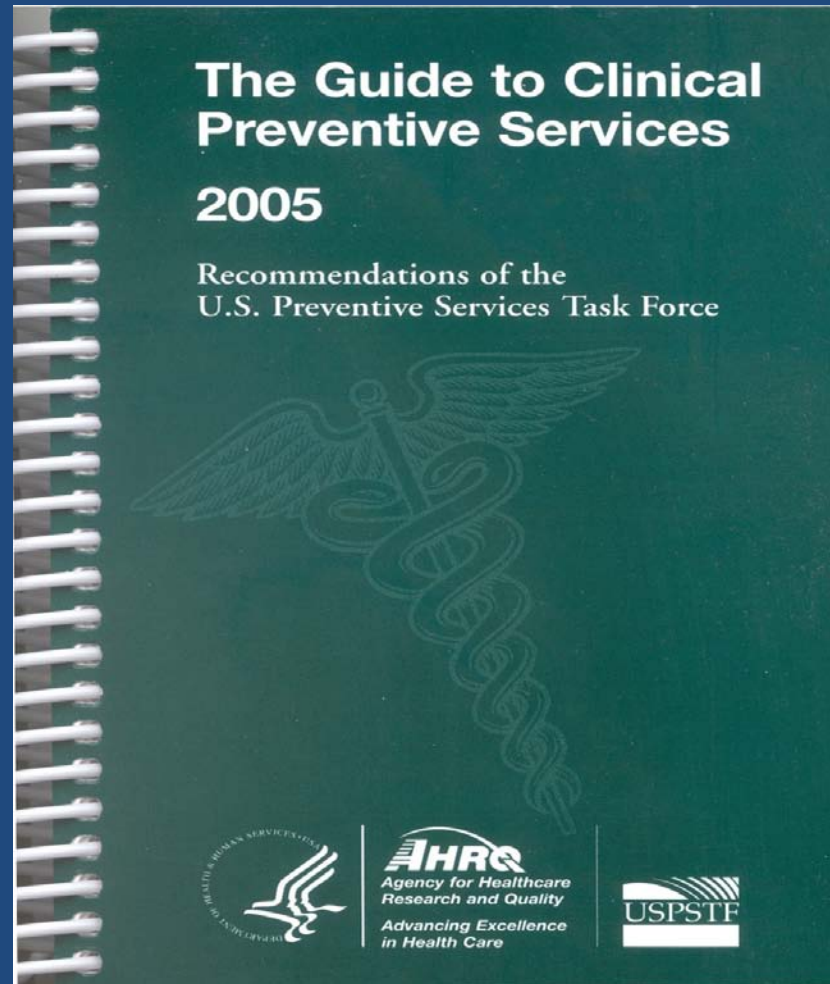
The Stages of Life

- Fetal/prenatal
- Childhood (birth-adolescence)
- Adolescence (to age ~25)
- Middle age: ~25-75
 - First half (25-50) : special window of opportunity for preventing age-related diseases

Age 50: “the Old Half Way Point”

- Second half (50-75)
- Old age (75+)
- Oldest old (85+)

The Physician's Bible of Preventive Gerontology



Available free or on-line and PDA downloadable from www.preventiveservices.ahrq.gov

Latter Middle Age – Second Half (ca. 50-75)

- **Continue optimal nutrition:**
 - maintain/obtain optimal BMI & waist circumference;
 - micronutrients as essential to maintaining muscle and bone strength
- **Continue regular exercise: aerobic and resistive (maintain lean body mass and strength)**
- **Avoid/minimize toxic exposures: substance abuse, excessive sunlight, environmental hazards**
- **Immunizations increasingly important: influenza, pneumonia, tetanus, ?H. zoster (shingles)**

Latter Middle Age – 50-75 (cont'd)

- **Periodic health screening and clinical examinations: increasing concentration on management of chronic, often still subclinical problems with goal of preventing complications (e.g., hypertension, dyslipoproteinemia, diabetes, osteoporosis, cancer detection and early intervention)**
- **Screening for Colon cancer prevention: fecal occult blood testing (FOBT) annually or colonoscopy every 10 years**

Latter Middle Age – 50-75 (cont'd)

- **Continuous education, including health education: remain intellectually engaged**
- **Remain socially engaged, negotiate retirement transition as appropriate, with forethought and planning (including joint planning by couples for changes in lifestyle, finances, living situation, and their relationship that retirement will bring)**
- **Make the transition to old age as successful and seamless as possible while planning for that transition in realistic terms**

The Triad of Successful Aging Domains

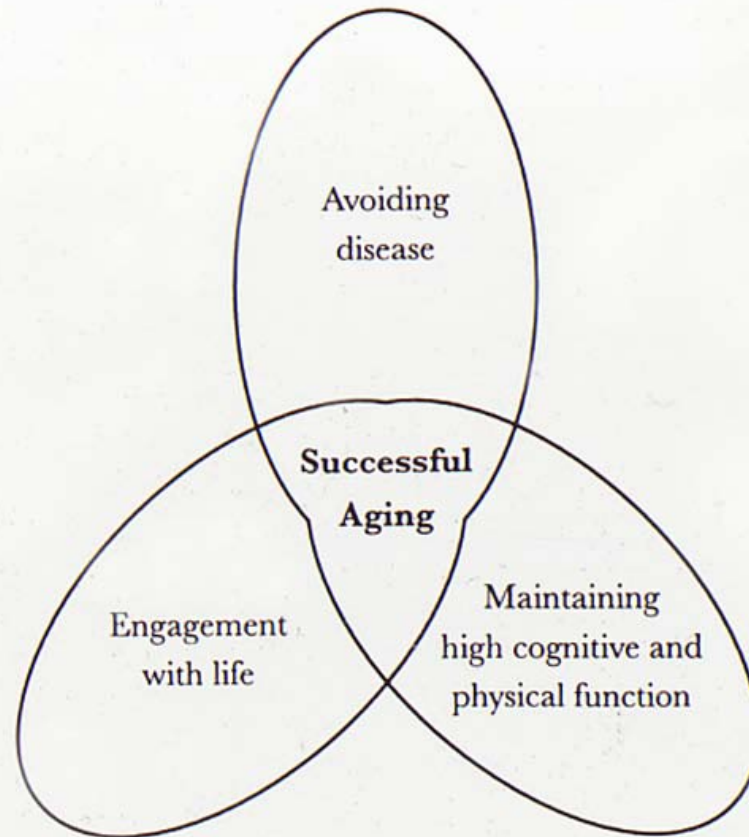


Figure 3. Components of Successful Aging

Age 75:

Crossing the Threshold to Old Age

**Coming to grips with the reality that
age and aging progressively really
matter**

Mortality rises Exponentially with Age (Gompertz' Law)



Old Age (75-85)

- **Emphasis upon maintenance of function in ----**
 - **social**
 - **psychological**
 - **physical domains**
 - **(less focus on specific diseases and more on function and frailty)**

Old Age (75-85)

- Assessment multidimensional & multidisciplinary
- Continued focus on chronic conditions to prevent complications
- Complexity increases as number rises of conditions and treatments multiply

Old Age (75-85)

- **Health Care Practices**
 - **Screening: consider length of likely survival and potential risks of treatment in decision to screen (e.g., PSA; colon Ca; lipids)**
 - **Primary Prevention: Immunization evermore critical & challenging (esp. influenza, pneumonia, tetanus)**

Old Age (75-85)

Health Care Practices (cont'd):

–Secondary prevention increasingly the focus (esp. for CVD):

- +/- continue Bp rx (?less aggressive)
- +/- LDL cholesterol lowering/?continue primary prevention
- Less aggressive HgbA1c/glucose management in diabetics (~7.5 g%)

Old Age (75-85) – cont'd

- Assessment for cognitive function esp. important
- Assess & manage mood/affect
- Assessment & management of continence
- Focus on prevention of falls, accidents, thromboses, iatrogenesis, other geriatric syndromes

i.e., “Preventive Geriatrics”

Preventive Geriatrics: Targeting the Triggers

- **INFECTIONS**
 - Bacterial (e.g. pneumonia, UTIs)
 - Mycobacterial (e.g., tbc)
 - Viral (e.g., influenza)
- **INFARCTIONS**
 - TIA/CVA (Strokes)
 - MI (heart attacks)
 - Other (aortic aneurysms, kidneys, legs)
- **“INFRACTIONS” (Accidents/medical misadventures)**
 - Falls and fractures
 - Food and fluids
 - Pharmacology/iatrogenesis

“Oldest Old” (above 85):

The fastest growing group (%-wise)

- **Continue all of the above --- but with priority on balanced assessment of function: ADLs, IADLs and needs for support**
- **Evaluate for “Geriatric syndromes”**
 - **Dementia present/developing?**
 - **Delirium present/lingering after acute illness?**
 - **Falls?**
 - **Incontinence?**
 - **Frailty?**

Frailty

–Frailty syndrome developing (3 or more of the following)?

- Weight loss
- Weakness
- Exhaustion
- Slowness
- Decreased activity (energy expended)

Oldest Old (above 85) (cont'd)

- Is independence threatened by functional dependency
- Widowhood/social isolation?
- Contemplate relocation for health care, environmental, family, cultural, social, financial reasons
- Plans/thoughts re advanced directives, DPOA, end-of-life care?
- Discussions re palliative/hospice care when end of life approaching

Who Should Care for the Elderly?

- Spouses
- Families
- Friends
- Social Workers
- Nurses: RNs, LPNs
- Aides
- ARNPs (advanced practice nurses)
- Pastors/spiritual counselors
- Physicians
- All of the above – “It takes a village”

Which Physicians Should Be Involved?

Primary Care Physicians

- Family physicians
- General Internists
- Geriatricians

Medical Subspecialists: all kinds (including geriatricians and palliative care subspecialists)

Surgeons & surgical subspecialists

Gynecologists

Anesthesiologists

Dermatologists

Neurologists

Psychiatrists

In other words, all kinds of doctors (except perhaps Pediatricians and Obstetricians) !!!

So what is a Geriatrician anyway?

- We are all internists or family physicians with additional training at the post-residency fellowship level in the medical care of the elderly (~ 75+)
- We specialize in complexity: the oldest, most complex, most vulnerable patients in all settings --- especially hospitals and long term care facilities
- We work with all of the members of the health care team: Geriatrics is a team sport!
 - In clinics
 - In hospitals (especially VA hospitals and clinics)
 - In extended care facilities
 - In the homes of older people
 - In training programs for all specialists & subspecialists
 - In health and social care planning and delivery agencies

Focus on the Final Phase of Life

- The emergence of Palliative Care as a New (and overdue) Medical Specialty
- The central role of frank & thoughtful consideration of how and where that last year of life will be spent
- The expertise and sensitivity in placing COMFORT and dignity of the person at the center of the discussion

Focus on the Last Year of Life: Where your Medicare \$ go

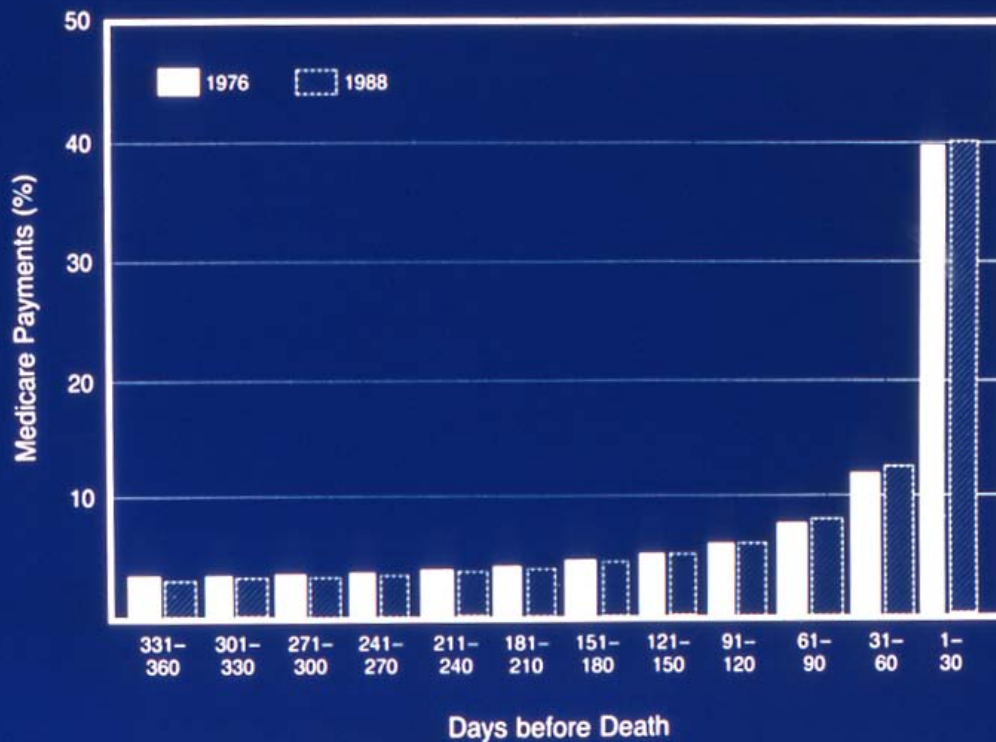


Figure 1. Distribution of Medicare Payments in the Last Year of Life, According to the Number of Days before Death, 1976 and 1988.

For purposes of this analysis, the year was considered to consist of 360 days, divided into intervals of 30 days each.