Demographics of Aging and Geriatric Syndromes

Gerry Gleich M.D.
Geriatrics Interclerkship
April 7, 2009
Demographic Trends for Older Adults

12.5% of the U.S. population is currently over 65

By 2030 it is expected there will be 68 million Americans older than 65 or 20% of the population
Old Age Ain’t for Sissies
Life Expectancy

In 1900 life expectancy was 47.3 years
By 1950 life expectancy was up to 68.2 years
Current life expectancy is about 78 years
Women outlive men - for every 100 women in the over 65 age group there are only 69 men. Current life expectancy for women is 80.2 years for men it is 73.2 years.
Life Expectancy

At age 65 life expectancy is about 19 more years
At age 75 life expectancy is about 12 more years
At age 85 life expectancy is about 7 more years
Life expectancy The upper, middle, and lower quartiles of life expectancy for women and men at selected ages are shown. Data from Walter, LC, Covinsky, KE, JAMA 2001; 285:2750.
Race and Aging

The geriatric population is becoming more ethnically diverse in the U.S. Currently the non-hispanic white are 73.6% of the elderly but expected to decline to 60.5% by the year 2030. Increases in the Hispanic-American and Asian-American populations are expected.
Marital Status and Aging

In the community 75% of men over 65 are likely to be married and living with their spouse
41% of women over 65 are married and living with their spouse
47% of women over 65 are widows
13% of men over 65 are widowers
Living Arrangements

Likelihood of living alone increases with aging
In the 65-74 age group 31% of women and 13% of men live alone
In the over 75 age group 52% of women and 21% of men live alone
Living Arrangements

Only 4-5% of the over 65 age group live in nursing homes - the rest live in the community

47% of the over 95 age group live in nursing homes

1.4% of the 65-74 age group live in nursing homes
Living Arrangements

95% of the over 65 age group live in the community
Support systems exist - elder care agencies, home nursing, meals on wheels, age centers
Informal supports - family members, friends, neighbors
Adult Day Care
PACE (Program for all-inclusive care) Model
Education

Between 1970 and 2001 the percentage of elderly who had completed high school increased from 28% to 70%.

By 2030 estimated that 83% will have completed high school.

By 2030 estimated 24% with bachelor’s degree up from 15%.
Economics of Aging

Before Medicare was enacted in 1959 35% of those over age 65 were living below the poverty line as only 60% received Social Security. By 1994 only 12% were living below the poverty line as over 92% received cash benefits from Social Security. By 2004 poverty rate has declined to 9.8% for those over age 65.
Health Care Costs
U.S. National Health Expenditures, 2006

Source: Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group.
Figure 2.
Spending on Health Care as a Percentage of Gross Domestic Product, 1960 to 2005

(Percent)

Source: Congressional Budget Office based on data on spending on health services and supplies, as defined in the national health expenditure accounts, maintained by the Centers for Medicare and Medicaid Services.

Note: Amounts for Medicare are gross federal spending on the program. Amounts for Medicaid include spending by the federal government and the states.
Figure ES-1. International Comparison of Spending on Health, 1980–2004

Average spending on health per capita ($US PPP)

United States
- Germany
- Canada
- France
- Australia
- United Kingdom

Total expenditures on health as percent of GDP

United States
- Germany
- Canada
- France
- Australia
- United Kingdom

Life expectancy in the 14 highest ranking and selected other WHO countries by sex, 2006

**Males**

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<th>Life expectancy at birth</th>
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**Females**

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**Ranked by person**

1. Japan
2. Switzerland
3. Australia
4. Iceland
5. Italy
6. Sweden
7. Spain
8. Austria
9. France
10. Canada
11. Norway
12. Singapore
13. Israel
14. New Zealand
15. Greece
16. Ireland
17. Malta
18. UK
19. Portugal
20. USA
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<td>37</td>
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Health Care Costs

12.5% of the population is over 65
They account for 36% of the health care costs
The sickest 5% account for 37% of the cost
The least expensive 50% account for only 6% of the total cost
Medicare Enrollment Soars

Source: Health Care Financing Administration
We Are About to Break the Bank
Some Possible Solutions

Development of a Health Care System with cost containment features
Focus on quality
Primary care
Payment reform
Education payment reform
Why Study Geriatrics?

- Changing Demographics
- Control Costs
- Improve quality of life and care
- Normal age-related changes vs. pathologic
- Minimize morbidity
- Maximize function
- Biopsychosocial model of care
Geriatrics is Challenging

Age is not an accurate predictor of condition or function
Co-morbidities are common
Presentation of illness is altered (non-specific)
Homeostatic control is less efficient
Functional Status

The single best predictor of institutionalization is impaired functional status.
Self-reported function is an accurate predictor of health risks and costs.
23% of older adults report some functional limitation in either ADLs or IADLs much higher percentage for the oldest segments.
ADL: Activities of Daily Living

Bathing
Dressing
Transferring
Toileting
Grooming
Feeding
Mobility
Average Percent Needing Help with Activities of Daily Living (ADL) - 1982 to 1994

- Using toilet
- Bathing
- Dressing
- Getting around inside
- Getting in/out of bed
- Eating

Percent

Age 65+
IADL: Instrumental Activities of Daily Living

- Telephone
- Meal preparation
- Managing finances
- Taking medications
- Doing laundry
- Doing housework
- Shopping
- Managing transportation
Average Percent Needing Help with Instrumental Activities of Daily Living (IADL) - 1982 to 1994

- Telephoning
- Taking medicine
- Managing money
- Traveling
- Getting around outside
- Grocery shopping
- Cooking
- Laundry
- Light work
- Heavy work

Percent
General Principles of Age-related Changes

- You dry out as you age
- You get stiffer with aging
- Genetic errors and cancer risk increase with time
- Homeostatic mechanisms are stressed
Organ System Age-related Changes: Skin

Thinner
Drier
Reduced sweat and sebum
More injury prone
Less elastic
OLAY
with SHEA BUTTER
intensive moisturizers for dry skin

2 white bars

135 g (4.75 oz) each • TOTAL NET WT 270 g (9.5 oz) 2 moisturizing bars
Musculoskeletal system

Decreased muscle mass
Decreased innervation
Slowed reaction time
Bone mass declines
Bone section through hip

Normal Bone

Bone with Osteoporosis
Factors Contributing to Osteoporosis and Osteomalacia

- Medications
- Hormonal changes
- Vitamin D and Calcium deficiencies
- Smoking
- Inactivity
- Medical disorders
Nervous System

Changes in neurotransmitter levels
Decreased cerebral blood flow
Brain mass declines
Vision

Presbyopia from lens and iris changes, declining vision leads to functional problems.
Visual impairment affects 20-30% of those over 75
Cataracts and refractive error can be corrected and improve quality of life
Age–related macular degeneration (ARMD) is common and may lead to blindness. Laser surgery or intravitreal anti-angiogenesis injections may help. Anti-oxidant vitamins may slow progression
Glaucoma is common (affects >2.25 million over age 40) and treatable
Hearing – decline in central auditory processing, thicker ear drum, changes in the cochlea lead to decline in hearing.

Hearing loss is common and affects 25% of those over 75
Taste and Smell

Decreased ability to taste and smell
Unpalatable medical diets may lead to malnutrition
Cardiovascular

Increased systolic and diastolic BP, LV wall thickness and stiffness

Decreased adrenergic response, maximal heart rate, cardiac output, LV relaxation and compliance, diastolic filling
Pulmonary

Loss of elasticity leads to restrictive and obstructive disease

Decreased resting pO2 seen with less perfusion of lower lung fields

Less vigorous cough and slower less effective mucociliary clearance increases susceptibility to infection.
GI

Alterations in dentition and swallowing are important.

Autonomic dysfunction and inactivity may lead to constipation.
Renal

Clinically important steady decline in function
Hematopoietic

Red cell life span is unchanged
Lymphocyte levels decline
Neutrophil levels remain constant
Platelets unchanged
Genitourinary

Women have menopause and its consequences, atrophy of vulva and vagina, involution of glandular and stromal tissue in the breast. Men have prostatic hypertrophy decreased erectile and ejaculatory function. Sexual function is an interplay of physical, cultural, and psychosocial factors.
Cialis is here.
Homeostenosis

You are only as strong as the weakest link in the chain
Stress theory
Common presenting complaints should make alarms sound in your head to think comprehensively.
These presenting complaints are likely to have multifactorial causes.
1. CALL DENTIST ABOUT MISSING DENTURES.
2. CALL DOCTOR ABOUT EMBARRASSING NEW DISCOMFORT.
Some Common Geriatric Syndromes

Cognitive impairment
Incontinence
Falls
Weight loss or failure to thrive
Polypharmacy
Dizziness and Syncope
Pressure Ulcers
Osteoporosis and Osteomalacia
Dementia

Falls

Polypharmacy

Weight Loss

Social support

Incontinence

Special senses

Environmental

Functional Decline
Cognitive impairment

Many causes

- Delirium
- Dementia
- Depression
- Sensory impairment
Incontinence

Affects 15-30% in the community and over 50% in long term care
Urinary tract disorders
Neurological disorders
Functional disorders
Environmental problems
Social problems
Falls

Leading cause of death from injury for those over 65
Medical disorders
Gait Disorders
Motor problems
Sensory problems
Risk taking behaviors
Special senses
Environmental
The elderly account for 33% of drug costs in the U.S.

The risk of an adverse drug reaction is proportional to the number of drugs a person is taking.

The average elderly person is on 4.5 prescription drugs and 3.5 OTC drugs at any given time.
Failure to thrive

Bio
Psycho
Social
Psychosocial Aspects of Aging

Common themes
- Loss
- Loneliness
- Education
- Personality style
- Religion / Spirituality
Successful Aging

higher educational level
no smoking
moderation in drinking
religion / spirituality
flexibility of thought - a positive outlook
support systems in place
eating breakfast daily
What features pictured predict successful aging?
The 2000 Year Old Man in the Year 2000
The Book

Including How to Not Die and Other Good Tips

Mel Brooks and Carl Reiner
as told to each other