Demography of Aging
in United States

Lynda Burton
What demographic facts / statistics related to health of aging persons are important enough to memorize?

- Current number
- Peak number
- Year when baby boomers reach peak
- Number (%) living alone
- Number in poverty
- Life expectancy
- Trends in educational attainment
- Support ratios
Figure 1: Number of Persons 65+, 1900 - 2030 (numbers in millions)

Note: Increments in years are uneven.
(Sources: Projections of the Population by Age are taken from the January 2004 Census Internet Release. Historical data are taken from "65+ in the United States," Current Population Reports, Special Studies, P23-190. Data for 2000 are from the 2000 Census and 2003 data are taken from the Census estimates for 2003.)
Indicator 1 - Number of Older Americans

Number of people age 65 and over, by age group, selected years 1900-2000 and projected 2010-2050

Note: Data for 2010-2050 are projections of the population. Reference population: These data refer to the resident population. Source: U.S. Census Bureau, Decennial Census and Projections.
Basic building blocks of population:
  » fertility
  » mortality
  » migration
Changes in Age Structure – RELATIVE SIZE of the older population
Also important in measuring the impact of population aging is the relative size of the older population, or the proportion in various age groups.

AGING AT BASE VS. AGING AT THE APEX
There are two ways that a population can age proportionally: We call them aging at the base and at the apex because of the changes they make on a population pyramid.

Aging at the Base—occurs when fertility declines and new birth cohorts are smaller than previous ones. These declines were the main source of population aging in the first half of the 20th century.

Aging at the Apex—Increased survival at older ages leads to addition of people to the pyramid at the top, called Aging at the Apex. This form of population aging has characterized the latter half of the century, and is is an increasingly important part of population aging in fact in the last 10-15 years, 2/3 of all the aging of the U.S. population has been due to declining older age mortality.

Source: Soldo and Agree, America’s Elderly, PRB Population Bulletin
Age Structure Changes: 1998-2050, by Country’s Stage in Development

More Developed

Less Developed

Which means that…
In sheer numbers, there are far more elderly persons in less developed countries; almost two thirds of the world’s elderly live in LDCs now. This is expected to rise to 80% by the middle of the next century.

In percentage terms, the elderly population is expected to rise to over 20% of the population in less developed regions in the next 50 years, an increase of over 400%

Definitions

• Life expectancy at birth
• Life expectancy at age 65
• Maximum life span
• Aged dependency ratio (support ratio)
• How to think about life expectancy
Extension of maximum life span?

- Caloric restriction
- Life enhancement products
- Evidence of mutations of aging genes (nematodes)
- Olshansky—Science 2001—obesity and longevity
- Westendorp—organism encoded for early survival and reproduction, not longevity
The Future of Human Life Expectancy:  
Have We Reached the Ceiling or is the Sky the Limit?

--After remaining fairly constant for most of human history, life expectancy has nearly doubled in the past century.

--Maximum life span-longest number of years a human being has lived—has increased. Will this continue?

--James Fries estimated mean age of 85, SD of 7 years

--Olshansky and Carnes speak of “biological warranty.” If human life could live to 100, then there should be little decline around the average age of 75-80.

--Mortality reduction school of thought—death rate for oldest old decreases over time.
The United States even exceeds countries of Western Europe and Japan in Oldest Old survival (above age 80), although the quality of data on age at death at these very old ages is always questionable. This advantage is hypothesized to be related to lifestyle changes (i.e. reduced smoking, increased exercise, and lower fat diets) that caught on much earlier and more pervasively in the United States than in Europe.

In fact, Japan has moved in the opposite direction. With their rapid economic development, they have begun eating substantially higher-fat diets and have increased levels of sedentary behavior and rates of smoking.
Life expectancy at birth and age 65, selected countries, female, 2002

<table>
<thead>
<tr>
<th></th>
<th>e0</th>
<th>e65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Spain</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Germany</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Sweden</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>US</td>
<td>26</td>
<td>18</td>
</tr>
</tbody>
</table>
Percent of the Population Aged 65 and over for Regions of the World: 2000 and 2030

<table>
<thead>
<tr>
<th>Region</th>
<th>2000</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>5.9</td>
<td>12</td>
</tr>
<tr>
<td>Europe</td>
<td>14</td>
<td>21.6</td>
</tr>
<tr>
<td>Latin America</td>
<td>5.6</td>
<td>11.9</td>
</tr>
<tr>
<td>Near East</td>
<td>4.4</td>
<td>8.4</td>
</tr>
<tr>
<td>Northern Am.</td>
<td>12.4</td>
<td>20.0</td>
</tr>
<tr>
<td>Sub saharan</td>
<td>2.9</td>
<td>3.7</td>
</tr>
</tbody>
</table>
Indicator 1 - Number of Older Americans

Percentage of the population age 65 and over, by county and State, 2004

Reference population: These data refer to the resident population. Source: U.S. Census Bureau, July 1, 2004 Population Estimates.
Indicator 2 - Racial and Ethnic Composition

Population age 65 and over, by race and Hispanic origin, 2004 and projected 2050

Note: The term "non-Hispanic white alone" is used to refer to people who reported being white and no other race and who are not Hispanic. The term "black alone" is used to refer to people who reported being black or African American and no other race, and the term "Asian alone" is used to refer to people who reported only Asian as their race. The use of single-race populations in this report does not imply that this is the preferred method of presenting or analyzing data. The U.S. Census Bureau uses a variety of approaches. The race group "All other races alone or in combination" includes American Indian and Alaska Native, alone; Native Hawaiian and Other Pacific Islander, alone; and all people who reported two or more races.

Reference population: These data refer to the resident population.
Family Structure and Living Arrangements
Figure 2: Marital Status of Persons 65+ - 2003

(Based on Internet releases of data from the 2003 Current Population Survey of the U.S. Bureau of the Census)
Indicator 5 - Living Arrangements

Population age 65 and over living alone, by age group and sex, selected years 1970-2004

Reference population: These data refer to the civilian noninstitutionalized population.
Increasing Educational Attainment
Indicator 4 - Educational Attainment

Educational attainment of the population age 65 and over, selected years 1965-2004

Note: A single question which asks for the highest grade or degree completed is now used to determine educational attainment. Prior to 1995, educational attainment was measured using data on years of school completed.
Decennial Census data from 1950 to 2000 used to construct this indicator in Older Americans 2000 and 2004 have been replaced with data from the Current Population Survey beginning in 1965.
Reference population: These data refer to the civilian noninstitutionalized population.
**Indicator 4 - Educational Attainment**

Educational attainment of the population age 65 and over, by race and Hispanic origin, 2004

<table>
<thead>
<tr>
<th>Category</th>
<th>High school graduate or more</th>
<th>Bachelor's degree or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>73</td>
<td>19</td>
</tr>
<tr>
<td>Non-Hispanic white alone</td>
<td>78</td>
<td>20</td>
</tr>
<tr>
<td>Black alone</td>
<td>53</td>
<td>11</td>
</tr>
<tr>
<td>Asian alone</td>
<td>65</td>
<td>30</td>
</tr>
<tr>
<td>Hispanic (of any race)</td>
<td>38</td>
<td>8</td>
</tr>
</tbody>
</table>

Note: The term “non-Hispanic white alone” is used to refer to people who reported being white and no other race and who are not Hispanic. The term “black alone” is used to refer to people who reported being black or African American and no other race, and the term “Asian alone” is used to refer to people who reported only Asian as their race. The use of single-race populations in this report does not imply that this is the preferred method of presenting or analyzing data. The U.S. Census Bureau uses a variety of approaches.

Reference population: These data refer to the civilian noninstitutionalized population.

Wealth and Poverty
Indicator 7 - Poverty

Poverty rate of the population, by age group, 1959-2004

Data are not available from 1960-1965 for the 18-64 and 65 and over age groups.
Reference population: These data refer to the civilian noninstitutionalized population.
Indicator 8 - Income

Income distribution of the population age 65 and over, 1974-2004

Note: The income categories are derived from the ratio of the family's income (or an unrelated individual's income) to the corresponding poverty threshold. Being in poverty is measured as income less than 100 percent of the poverty threshold. Low income is between 100 percent and 199 percent of the poverty threshold. Middle income is between 200 percent and 399 percent of the poverty threshold. High income is 400 percent or more of the poverty threshold.

Reference population: These data refer to the civilian noninstitutionalized population.

Indicator 9 - Sources of Income

Aggregate income by source for the population age 65 and over, selected years 1962-2004

Note: The definition of "other" includes, but is not limited to, public assistance, unemployment compensation, worker's compensation, alimony, child support, and personal contributions.

Reference population: These data refer to the civilian noninstitutionalized population.

## Support ratios: 1980-2030

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Youth</th>
<th>Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>76.2</td>
<td>56.4</td>
<td>19.4</td>
</tr>
<tr>
<td>1990</td>
<td>70.2</td>
<td>48.8</td>
<td>21.4</td>
</tr>
<tr>
<td>2000</td>
<td>69.6</td>
<td>48.5</td>
<td>21.1</td>
</tr>
<tr>
<td>2010</td>
<td>66.5</td>
<td>44.8</td>
<td>21.7</td>
</tr>
<tr>
<td>2020</td>
<td>74.6</td>
<td>46.2</td>
<td>28.4</td>
</tr>
<tr>
<td>2030</td>
<td>84.4</td>
<td>48.2</td>
<td>36.2</td>
</tr>
</tbody>
</table>

Total is number of people 0 to 19 and 65 and over per 100 people age 20 to 64. Youth is number of people 0-19 per 100 people 20 to 64; elderly is people 65 and over; oldest old is people 80 and over. An Aging World, U. S. Census Bureau 2000
Support ratios

Total is number of people 0 to 19 and 65 and over per 100 people age 20 to 64. Youth is number of people 0-19 per 100 people 20 to 64; elderly is people 65 and over; oldest old is people 80 and over. An Aging World, U. S. Census Bureau 2000
Indicator 14 - Mortality

Death rates for selected leading causes of death among people age 65 and over, 1981-2003

Per 100,000

- Diseases of heart
- Malignant neoplasms
- Cerebrovascular diseases
- Influenza and pneumonia
- Chronic lower respiratory diseases
- Diabetes mellitus
- Alzheimer's disease

Note: Death rates for 1981-1998 are based on the 9th revision of the International Classification of Disease (ICD-9). Starting in 1999, death rates are based on ICD-10, and trends in death rates for some causes may be affected by this change. For the period 1981-1998, causes were coded using ICD-9 codes that are most nearly comparable with the 113 cause list for ICD-10 and may differ from previously published estimates. Rates are age-adjusted using the 2000 standard population.

Reference population: These data refer to the resident population.

Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System.
Major Research Areas

- Demography & population
- Biodemography, longevity, & genetics
- Population, economic, & policy forecasting
- Health, chronic illness, & disability
- Health care & health policy
- Income, savings, work, & retirement
- Family support systems
- Socioeconomic status & health
- Minority populations
- Dementia/Alzheimer’s Disease
- Comparative international research