Health and Health Care Challenges with Population Aging

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Strengthening the Scientific Foundation for Policymaking to Meet the Challenges of Aging in Latin America and the Caribbean
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New Challenges in Health and Health Care

• Aging population strongly linked to health and health care
• Switch to chronic conditions
• Increased life expectancy at older ages
• Changes in health related behaviors and life circumstances
• Population which has lived with both the burden of infection and chronic disease
• Switch to prevention and care for chronic conditions
• Long term treatment and increasing survival with disease
The Morbidity Process in an Aging Population has multiple dimensions and times for intervention

Understanding the process is possible through survey questions and Measurement Hypertension States in 4 Countries: Age 68+

Mexico’s problem of Undiagnosed Hypertension: Mexican Family Life Study

Mexico has undergone a physiological revolution: Mexico has worse cardiovascular risk than the U.S.

Physiological Dysregulation Summary Risk Score 1 Point for Each Indicator in risk range (Range 0-6); High Systolic Blood Pressure, High Diastolic Blood Pressure, High Total Cholesterol, Low HDL cholesterol, Plasma Glucose, Obesity: Mexican National Health and Nutrition Survey 2006 (ENSANUT 2006).

Prevalence of Overweight (BMI ≥ 25): Females

Measured High Systolic Blood Pressure: Females

Age

% of Population

- US
- Japan
- Mexico
- Tsimane
- Taiwan
- England
- China
- Indonesia
Value of longitudinal studies

• Cross sectional studies provide the prevalence of health problems which could have occurred at any time in someone’s life. They do not necessarily reflect current conditions.

• Understanding the meaning of the prevalence of a condition requires knowing changes in the process, e.g. heart disease prevalence can increase because the risk has increased or because people have been treated and survived longer.

• Incidence rates are the basis of planning models, e.g. FEM model, which has been used to project future with assumptions about socioeconomic, demographic, health, treatment changes.
Morbidity Processes that Change Health for Individuals

- Biological Risk
- Diseases
- Conditions
- Impairments
- Functioning
- Loss
- Disability
- Death
Three classes of BMI trajectories over 9 waves for American men: HRS

Panel A. Stable overweight class (92.9%)

Panel B. Obese gaining class (2.8%)

Panel C. Obese losing class (4.3%)

Effect of a 5-Year Delay in onset of Alzheimer’s Reduces Population with AD in 2050 by 41%

Model of Demographic, Socioeconomic, Behavioral and Biological Influences on Health Outcomes

Demographic Factors
- Age
- Sex
- Race/Ethnicity
- Nativity

SES
- Education
- Income
- Wealth
- Occupation
- Neighborhood
- Childhood conditions

Genes

Health Behaviors
- Exercise
- Drinking
- Diet
- Smoking

Social Psychological Factors
- Social support
- Personality

Health Care
- Access
- Insurance Coverage
- Medication Use

Biological Risk
- Cardiovascular Risk
- Metabolic Factors
- Inflammation and Infection Markers
- HPA and SNS
- GeMarkers
- Vitamin/Minerals
- Antioxidant status
- Cognitive Risk
- Gene Expression and Methylation

Health Outcomes
- Mortality
  - All cause & cause-specific
- Chronic Diseases and Conditions
- Disability
- Physical functioning
- Frailty
- Mental Functioning
- Cognitive Functioning

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Active Life Expectancy by Childhood Health and Childhood and Adult SES

Source: Montez and Hayward, *Demography*, 2014 Apr;51(2):413-35
Value of Longitudinal studies with Social, Economic, Biological, Family, Environment, Health, Health Care

- Allow investigation of the process of health change within individuals
- Basis for projection of future health and health care needs/costs
- Allow linking of many different influences on health outcomes
  - Life time social and economic circumstances
  - Psychological factors
  - Medical interventions – value of interventions
- Differences within subgroups within the country – geographic, demographic or social
- Differences across countries provide valuable insights