INTERNATIONAL VARIATIONS IN MORTALITY 3.3.09
# & THE EPIDEMIOLOGICAL TRANSITION

Variations in mortality

- between social groups, between regions + between small areas
- will consider these next time

Variations between societies/nations

- Variations in mortality rates, life expectancy + between countries + global regions
- will focus on these today
- explanations are complex
- likely to be reflected by differences in countries' social + economic profiles
- epidemiological transition is a useful model/tool for bench-marking

Variations in child mortality

Figure IV.8. Infant mortality rates by major area,
estimates and medium variant: 1950-2050
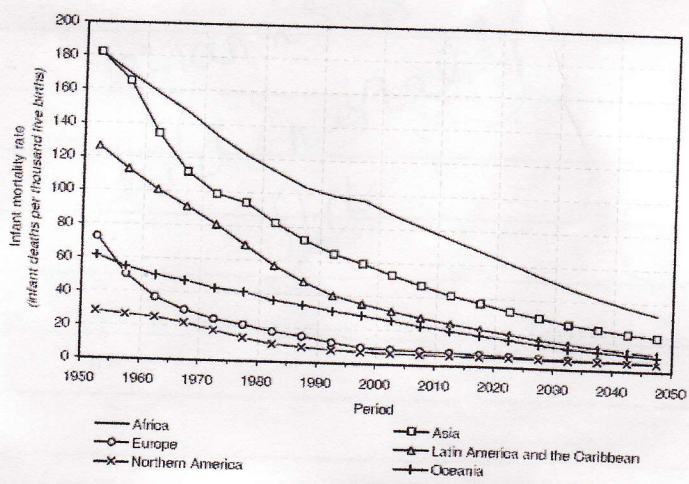
Source: UN, World Population Prospects: The 2002 Revision, volume III: Analytical Report

Measuring Variations

- Around the world, the most comprehensive & systematic statistics are on death/mortality

- International Classification of Disease
- No death certificates for 30% & 50% of deaths in Guatemala & Ecuador respectively (Curto de Casas, 1993)
- Questions of reliability & consistency

- Lots of different measures of health outcomes:
  - mortality rates - crude death rates; Standardized Mortality Rates (SMRs)
  - Life expectancy at birth a useful statistical indicator
  - Plus morbidity (living with health problems).

- Need to be careful about using crude death rates
  - Need to consider underlying demography
  - Can use direct or indirect standardisation to take account age-distribution.
  - see Moon, Gould & colleagues (2000); Unwin et al (1997).

International Variations

Life Expectancy

Temporal/national variations in life expectancy 1975-1990

- Sub-Saharan Africa average life expectancy ≈ 52 years in 1990
- Established Economic Markets (EMEs) - average was 76 years in 1990

• Greatest improvements in China, Middle Eastern crescent & Latin America
- here rapid economic development & demographic transition
- initially high fertility & mortality declining

• Lowest rates improvements in former Socialist Economies (FSE) of Eastern Europe & former USSR

• Sub-Saharan African: life expectancy rates are comparatively lower & rates of improvement are much less that than other low- & middle-income countries

• Relationship Life Expectancy & income inequality (Wilkinson, 1996)

Murray & Lopez (1997) Lancet, 349, 1436-42

- Show developed world accounts for 7.2% of global burden of disease
- 90% of disease burden carried by developing world

Explanations for these variations

- Likely to reflect differences in the social & economic profiles of countries
- and be associated with lack of resources/amenities that support health

WHO - define resources relevant to health status as:

"... the right kind of food in sufficient quantities, safe drinking water, good sanitation, & universal free primary education ... the chance to choose healthy lifestyles ... adequate housing, employment opportunities ... & good health care."

UNICEF - report on child well-being & poverty ranked England poorly

Hunter (1990) Social Science & Medicine 31, 433-44

- attempted comprehensive overview of health status at global scale
- multivariate (cluster) analysis/classification World Bank data.

- Identifies 5 separate levels of health development
- lowest characterised by infra-structural problems & aid / investment crisis

- Improvements health status cannot be separated from economic development

• Western 'biomedical medical' doesn't necessarily help.

• Global variations in mortality rates, life expectancy & 'life loss' (DALYS) are frequently related in the literature to:

  – demographic processes
  – epidemiological processes
  – summarised by the demographic & epidemiolog-ical transition models

Demographic transition

• Population growth results from a lag in decrease in birth rates during a social change

• Process is known as demographic transition – movement through the transition doesn't necessarily mean 'progress' (nor need it be linear & uni-directional)

• It is a generalised model – there are inevitably exceptions

Epidemiological transition

• Epidemiological Transition model was proposed by Omran (1971, 1983)

• Sometimes known as Health Transition