Sustainable ageing societies: Indicators for Effective Policy-Making
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Policy brief:

Monitoring Morbidity, Mortality and Longevity Developments in the UNECE Region, and their effect on long term population trends: the most policy-relevant indicators

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Aim

The aim of this paper is to provide the essential guidelines for development of comparative social indicators in the domains of morbidity, mortality and longevity in the UNECE Region, and their effect on long-term population trends. The set of indicators should be relatively stable over time to ensure continuity. We propose guidelines that fulfil the main criteria listed for EU social indicators; that is

- each indicator should be policy relevant at the national and EU level;
- comparable across EU member states;
- available using harmonized sources;
- measurable over time;
- easily understood;

1. Demographic and epidemiological transition in the UNECE Region

2. Essential guidelines for the development of indicators for monitoring morbidity, mortality and longevity developments in the UNECE Region

Towards an UNECE Ageing Survey

1. Demographic and epidemiological transition in the UNECE Region

- 1.1 An ageing population and the emergence of the chronic diseases
- 1.2 The lengthening of life and the emergence of extremely old persons

1.1 An ageing population and the emergence of the chronic diseases

The fall in infant mortality during the 19th and early 20th century, a result of increased food availability, decline in infectious diseases and improvement of hygiene, gave a greater number of newborn the opportunity to live a "normal" lifespan (Kannisto, 2001). This epidemiological transition (Omran, 1971) led to population ageing and to the emergence of chronic morbidity. In this context, ageing-related diseases and their consequences became an important social issue, resulting in the *International Classification of Impairments, Disabilities, and Handicaps: A manual of classification relating to the consequences of disease* (ICIDH), published by WHO in 1980:

Disease or disorder > Impairment > Disability > Handicap

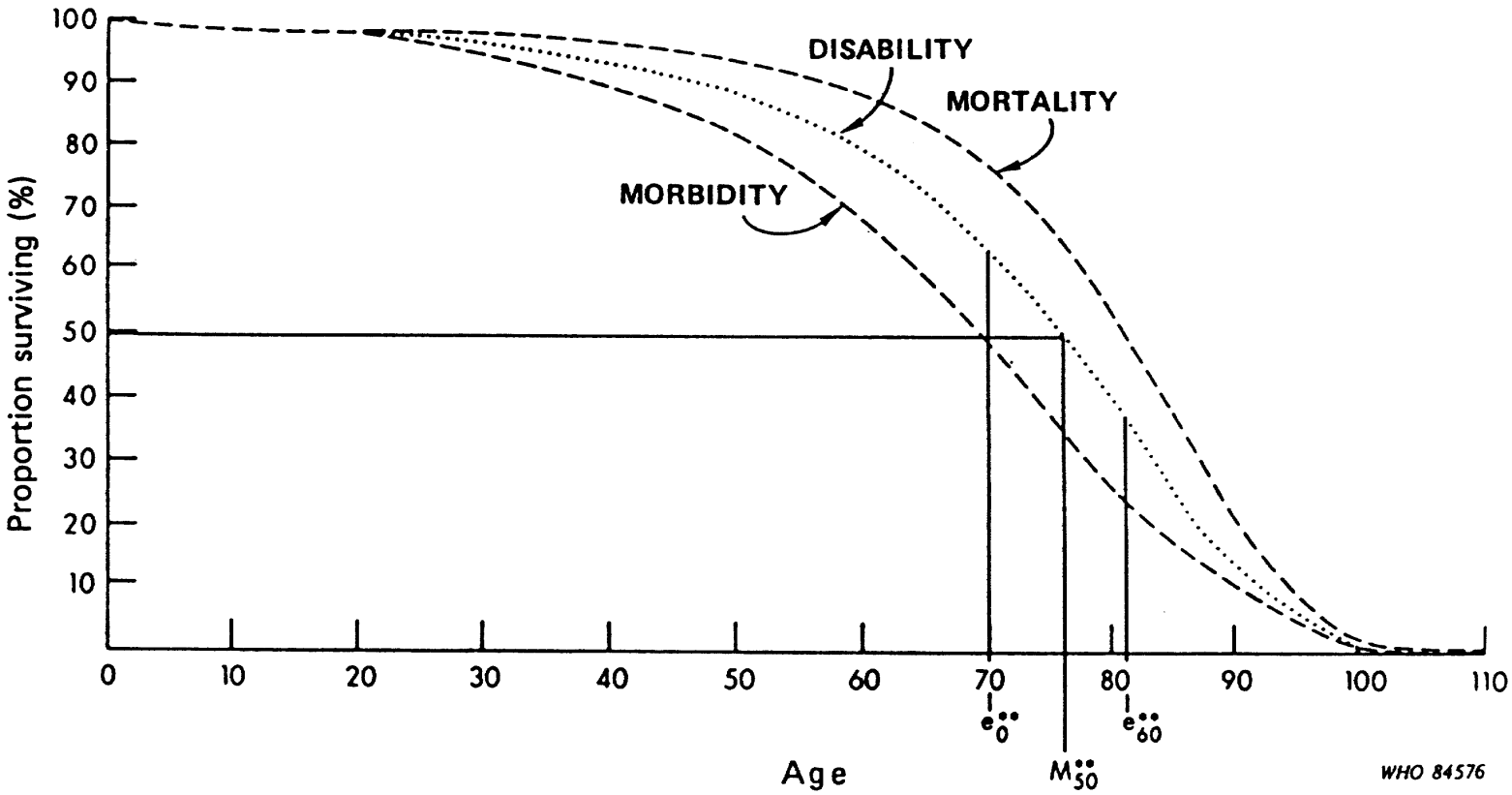
(Intrinsic situation) (Exteriorized) (Objectivized) (Socialized)

The study of the disablement process during the 1980s and the 1990s resulted in several new concepts: functional limitation, activity restriction, unmet need, physical dependency, loss of autonomy, social integration, and quality of life, and many indicators have been proposed to measure these concepts.

One of the most important questions was whether total life expectancy was increasing faster or slower than life expectancy in good health (i.e. without chronic disease, functional limitation, activity restriction). This question led to the development of a new family of indicators, health expectancies. The general model of health transition proposed by WHO in 1984 (see Figure 2) distinguished life expectancy, disability-free life expectancy and morbidity-free life expectancy, and its strength lies in its ability to assess the likelihood of different health scenarios: a pandemic of chronic diseases and disabilities (Gruenberg, 1977; Kramer, 1980), a compression of morbidity (Fries, 1980), contradictory evolutions including the scenario of dynamic equilibrium (Manton, 1982), or a postponement of all morbid events (diseases, disabilities and mortality) at older ages (Strehler, 1975).

The health expectancy approach has now been extended to incorporate the modern concepts of the disablement process: chronic morbidity, functional limitation, activity restriction, physical dependency and progressively more attention has been devoted to mental health expectancy.

Figure 2: The general model of health transition (WHO, 1984).



e_0^{**} and e_{60}^{**} are the number of years of autonomous life expected at birth and at age 60, respectively.
M_{50}^{**} is the age to which 50% of females could expect to survive without loss of autonomy.

1.2 The lengthening of life and the emergence of extremely old persons

In addition to the reduction in infant mortality, social and economic developments contributed to a reduction in the mortality of older people. This was a result of the considerable improvement in living conditions experienced by the successive cohorts, including the wider availability of health and medical services. When this phase began shortly after WWII, it initially applied to a population in bad health in comparison with the current population of the same age. Thus the fall in mortality increased the prevalence of chronic diseases and disability by first increasing the survival rates of sick persons. This is the morbidity expansion scenario proposed by Gruenberg (1977) and Kramer (1980). Gradually, medical progress slowed down the progression of chronic diseases involving a kind of equilibrium with the mortality decline, as proposed by Manton, for example the cardiovascular revolution. Progressively, the health of older people improved with the arrival of new cohorts who have been exposed longer to the social, economic, medical and technical advances resulting in a compression of morbidity, a phase that Western countries are currently experiencing today. However continued progress, in particular in the built environment and services provided to the oldest-old along with further fall in mortality has led to the emergence of extremely old populations such as centenarians and to new concepts like frailty. These new phenomena could result in a return to an expansion of morbidity.

In summary the UNECE Region is characterized by four elements:

- an increase in the survival rates of sick persons;
- a control of the progression of chronic diseases;
- an improvement in the health status and health behaviours of new cohorts of old people;
- an emergence of very old and frail populations.

All these elements coexist today and future scenarios will depend on their respective weights. All should be monitored.

2. Essential guidelines for the development of indicators for monitoring morbidity, mortality and longevity developments in the UNECE Region

- **2.1 Domains to be covered**
- **2.2 Technical characteristics of the indicators**
- **2.3 Data collection**

These three main points require careful examination when proposing set of indicators.

2.1 The broad domains to be covered correspond to the demographic and epidemiologic history of the UNECE Region. In more detail they are:

- Longevity: referring to life duration;

- Chronic morbidity and co-morbidity: referring to diseases and ultimately causes of death. Co-morbidity is a key issue for the oldest-old;

- Disability: Referring to functional limitations and activity restrictions. The distinction between functioning at the body level and activity at an individual level is essential to properly monitor the disablement process. It provides a framework for health interventions aiming to prevent, limit or slow down the disablement process;

- Independent life, autonomy, social integration: underlining the three main dimensions of activity at the society or community level (i) physical independence in daily activities (personal care, household care, work and leisure), (ii) mental autonomy in daily decisions and (iii) social integration;

- Frailty: Referring to the ability to mobilize resources (physical and mental) to cope with stress. Loss of resources (weight, muscle, memory, vision) are the main characteristics of the current oldest-old;

- Quality of life: The main target is to increase the quality of life not merely the quantity.

2.2 Technical characteristics of the indicators

• Prevalence, ratios and numbers: For specific domains, it is important to have not only ratios, such as the prevalence of disability per 100 or 1000 persons but also the crude numbers. With the increase in life expectancy, some numbers, for instance the number of nonagenarians, centenarians, frail or demented persons, are increasing rapidly and are key for those planning health and social care services. In addition speed indicators, such as the Centenarian Doubling Time (CDT) are helpful. Special attention should be paid to the choice of denominators, whether current population or cohort of origin;

• Measures of central tendency and dispersion: Not all older people are sick, frail or disabled and as well as the average (mean or modal) level of disability, it is also important to know the distribution of the population through the various continuums. Specifically with regard to longevity, the mode of life durations, indicating the most typical life durations, appear to be much more relevant than life expectancy at birth which confounds premature mortality with longevity. Life expectancy at birth is a poor indicator of the most typical life durations;

• Health expectancies: We need simple global indicators, easy to understand, combining mortality and morbidity, longevity and quality of life to answer the basic questions raised by the demographic and epidemiological transition in the UNECE Region (see above). Such a set of indicators has been proposed by the Euro-REVES group for the EU Health Monitoring Program (Robine and Jagger, 2003) and will be regularly computed within the new EU Public Health Programme (2003-2008).

2.3 Data collection

• Harmonization of the survey instruments: Monitoring morbidity, mortality and longevity developments in the UNECE Region implies harmonised national health and ageing surveys. Current initiatives such as SHARE (Survey of Health, Ageing and Retirement in Europe), partially comparable with ELSA (English Longitudinal Survey on Ageing) and HRS (Health and Retirement Survey in the United States) and the preparation of EHIS (European Health Interview Survey) by Eurostat are moving forwards to this end;

• Health examination component including cognitive physical tests: The introduction of a health examination component (with physical and cognitive tests) in health and ageing surveys will increase comparability. This may also be achieved through the development of other methods such as vignettes that allow interviewees to rank the same "clinical" cases. All such techniques will increase bridge information for post-harmonisation and calibration to complement pre-harmonisation;

• Cross-sectional surveys versus panel studies: During the last decade, several panel studies on ageing allowed monitoring of the incidence of health problems and computed more sophisticated period health expectancies using a multi-state life table approach. However basic monitoring requires first repeating cross-sectional surveys to ensure the continuity of chronological series. Panel studies are not without methodological problems including attrition, selection and wave effects such as learning effects for cognitive tests.

Towards an UNECE Ageing Survey

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Thank you!