MORTALITY

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Introduction

During the two last centuries, a dramatic progress in life expectancy was achieved everywhere in the world. After beginning in Northern and Western Europe, as early as the end of the eighteenth century, the health transition spread over the rest of the continent during the nineteenth century. The industrial revolution and the broader economic developments that followed largely provided the foundations for the progress in health that spread to all corners of the globe with considerable time lags but also at different speeds as some countries benefited from the experience of others (formerly Japan, now many of the developing countries) and caught up with their precursors, sometimes even overtaking them. Initially and until quite recently, this resulted in a huge diversity of situations. But, over the past twenty years, without the full range of situations having narrowed, there has been a tendency for most populations to cluster at the higher end of the life expectancy scale.

In the light of this recent clustering it might be thought that the inequalities between the health statuses of countries will soon level out, thereby fulfilling, with the merest of delays, the WHO slogan :"Health for all by the year 2000". Things are perhaps not quite so simple however. On the one hand some countries, and in particular sub-Saharan African countries, are visibly lagging far behind. But, on the other hand if, today, large numbers of developing countries are catching up or even overtaking some developed countries in terms of life expectancy, this has been achieved by intensifying the fight against infectious diseases in populations as yet relatively unaffected by the rise in cancers and cardio-vascular diseases which affected most developed countries in the 1950s and the 1960s (Vallin, 1992). Uncertainty remains about the ability of these countries to face the rise of degenerative pathologies.

The United Nations' world demographic projections show all countries converging towards an upper limit of life expectancy of about 85 years ; is this the most probable of futures in store for humanity ? It presupposes both, that the most advanced countries

will never exceed this level and also that those who are still far behind will eventually succeed in making up for lost time.

1. The persistence of large disparities

Table 1 gives an overview of mortality in each of the main regions of the world for all countries with population of 15 millions or more in terms of the three most widely used indices : crude death rate, infant mortality rate and life expectancy at birth.

The diversity of situation is huge. At one hand of the list of 56 countries chosen here, we have Uganda , with a life expectancy of less than 40 years and at the other hand Japan with a level of exactly 80 years. Looking at the infant mortality rate the inequalities are also very impressive : from 4 per thousand in Japan to 151 per thousand in Afghanistan.

But it is not only between developing and developed countries that there are differences. Similarly, often very broad discrepancies appear in all the regions of the world. The greatest variations occur in South Asia where Afghanistan is almost as far removed from Sri Lanka (which has a life expectancy of 73 years) as it is from many western countries. In South-East Asia, values range from 60 in Myanmar to 72 in Malaysia. In North Africa they range from 55 in Sudan to 69 in Algeria. Even in Tropical Africa where levels are very low (48 years for the whole region), a gap of 20 years separates Uganda from Ghana).

Region or country	Population in 1998 (millions)	Life expectancy at birth (years)	Infant mortality rate (p. 1000)	Crude death rate (p. 1000)
WORLD	**5926**	**65.4**	**57**	**8.9**
Developed countries	**1178**	**74.9**	**9**	**10.1**
Developing countries	**4748**	**63.3**	**63**	**8.6**
Western Europe	***422***	***77.1***	***8***	***10.1***
Germany	82	77.2	5	10.8
France	59	78.1	6	9.3
United Kingdom	59	77.2	7	10.8
Italy	58	78.2	7	10.4
Spain	39	78	7	9.3
Netherlands	16	77.9	6	8.7
Eastern Europe	***307***	***68.5***	***18***	***13.0***
Russia	147	66.6	18	13.9
Ukraine	50	68.8	19	14
Poland	39	72.5	15	9.9
Romania	23	69.9	23	11.5
Japan	***126***	***80.0***	***4***	***8.0***
North America	***301***	***76.9***	***7***	***8.3***
United States	270	76.7	7	8.5
Canada	31	79	6	7.1
Australia & New Zealand	***23***	***78.0***	***6***	***7.6***
Australia	19	78.2	6	7.6
China	***1243***	***69.8***	***41***	***6.9***
Eastern Asia (exc. China and Japan)	***100***	***73.3***	***13***	***5.9***

South Korea	46	72.4	10	6.2
North Korea	22	72.2	22	5.4
Taiwan	22	75	7	6
South-East Asia	***512***	***65.7***	***46***	***7.3***
Indonesia	207	65.1	48	7.5
Vietnam	79	67.4	38	6.8
Philippines	75	68.3	35	5.8
Thailand	61	68.8	29	6.7
Myanmar	47	60.1	79	9.3
Malaysia	22	72.0	11	4.8

Table 1 (cont'd).

Region or country	Population in 1998 (millions)	Life expectancy at birth (years)	Infant mortality rate (p. 1000)	Crude death rate (p. 1000)
South Asia	***1442***	***62.3***	***73***	***8.8***
India	989	62.6	72	8.9
Pakistan	142	64.0	74	7.8
Bangladesh	123	58.1	79	9.6
Iran	64	69.2	35	5.5
Afghanistan	25	45.5	151	20.6
Uzbekistan	24	67.5	44	6.6
Nepal	24	57.3	83	10.9
Sri Lanka	19	73.1	18	5.7
Kazakhstan	16	67.6	35	8.5
South-West Asia	***182***	***68.0***	***51***	***6.6***
Turkey	65	69.0	45	6.4
Iraq	22	62.4	95	8.5
Saudi Arabia	20	71.4	23	4.1
North Africa	***167***	***64.8***	***52***	***7.3***
Egypt	66	66.3	51	6.8
Algeria	30	68.9	44	5.6
Sudan	29	55.0	71	11.5
Morocco	28	66.6	51	6.7
Tropical Africa	***551***	***48.0***	***95***	***16.1***
Nigeria	122	50.1	81	14.7
Ethiopia	58	43.3	115	19.8
Dem. Republic of the Congo (Zaire)	49	50.8	90	14.7
Tanzania	31	47.9	81	15.3
Kenya	28	52.0	66	12.2
Uganda	21	39.6	107	21.7
Ghana	19	60.0	66	9.4
Mozambique	19	45.2	114	18.8
Côte d'Ivoire	16	46.7	87	16.1
Southern Africa	***45***	***54.4***	***62***	***12.3***
South Africa	39	54.7	59	12.2
Central America	***169***	***70.6***	***34***	***5.8***
Mexico	98	72.2	31	5.1
Tropical South America	***271***	***67.9***	***40***	***6.7***
Brazil	162	66.8	42	7.2

Colombia	39	70.4	30	5.8
Peru	26	68.3	45	6.4
Venezuela	23	72.4	21	4.7
Temperate South America	***59***	***73.2***	***21***	***7.2***
Argentina	36	72.9	22	7.9
Source *:* United Nations, 1998 ; Population Reference Bureau, 1998				

Table1: Mortality indices for the 55 countries of more than 15 million inhabitants, in 1995-2000

Only two of the three indices shown in Table 1, life expectancy and the infant mortality rate, are reliable measures of a population's health status.; the third index, the crude death rate is known for being dependent on the age structure of a population. This is immediately apparent from Figures 1a and 1b. The first figure illustrates the close correlation that exists between life expectancy and infant mortality; the second figure shows two separate universes : the industrialised countries with ageing populations resulting from the low fertility levels that have prevailed there for the some time and the developing countries with their broad-based age pyramids indicating large numbers in the younger age groups. In this second figure, we find countries such as Ukraine and Saudi Arabia which have fairly similar expectations of life (69 and 71 years) but a crude death rate that is three times as hign in one as it is in the other (4.1 compared to 14.0). Inversely Germany and Nepal which have the same crude death rate (about 11 per 1000) have a very different level of life expectancy (77 years against 57).

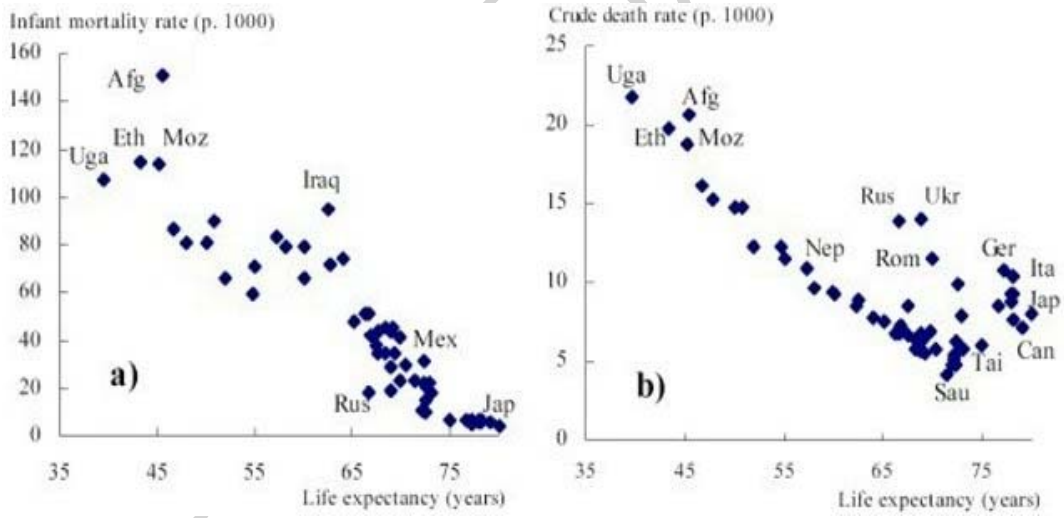

Figure 1: Correlation between life expectancy at birth and infant mortality rate (a), between life expectancy at birth and crude death rate (b) in 1995-2000

The crude death rate is obviously not a good indicator of the health status of a population. However, since a population's growth rate is equal to the difference between the crude death rate and the crude birth rate, it remains of interest to mention it here. Comparing the crude death rate of a country with the true mortality indices thus further highlights the diversity of health statutes by replacing them within their historical context.

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Biographical Sketches

Jacques Vallin is diplômé de l'Institut d'études politiques of Paris and doctor in Economics. He is researcher at INED since 1965, but he also served as a representative of the Population Council in Tunisia (1967-69) then in Algeria (1972-73). He also directed the CEPED (the French Center for Population and Development) for four years (1994-97). Finally, in 1997, JV was elected as Vice-President of the International Union for the Scientific Study of Popultion (IUSSP) to become the President (in 2001).

At INED JV developed research programes on both fields of population growth in developing countries and health, mortality and causes of deaths in France and other developed countries. On the latter he mainly focussed in the past decades on the health crisis in the countries of the former USSR. He published hundreds of scientific articles and several books either as author or as scientific editor. Since the end of the 1990s, one of his main project is to edit in French and in English a 8-Volumes "Treatise of Demography" involving about 120 authors among the best demographers around the world.

France MESLÉ is a Doctor of Medicine and a demographer. She has been researcher at INED (Institut national d'études démographiques, Paris) since 1980 and is currently Head of the Research Unit "Mortality, Health, Epidemiology". She was Responsible for the INED web site from 1997 to 2000 and has been serving as editor of the European Journal of Population since 2000. She is carrying out research projects on mortality and causes of death. She has a special interest in analyses on long-term trends in mortality by cause in developed countries. She published many journal articles and two books on the health crisis that has been hitting Eastern European countries for several decades. She turned more recently to mortality trends analyses in developing countries. More generally, she is developing a further thought on the concept of health transition.