

Demographics, the older person in the society
Trends in disabilities

T. Mets

Gerontology & Geriatrics

VUB

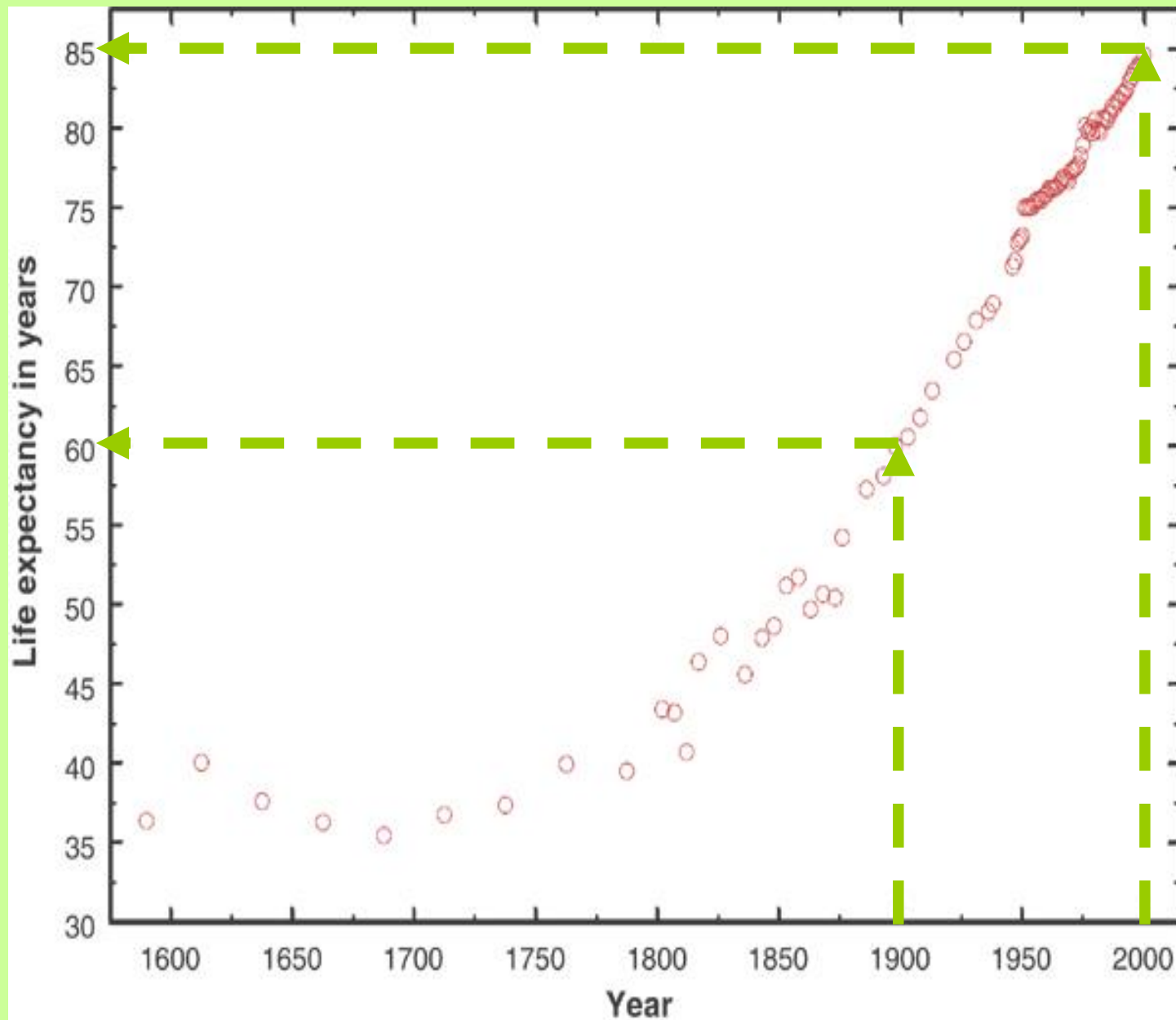
16 11 2018

tmets@vub.ac.be

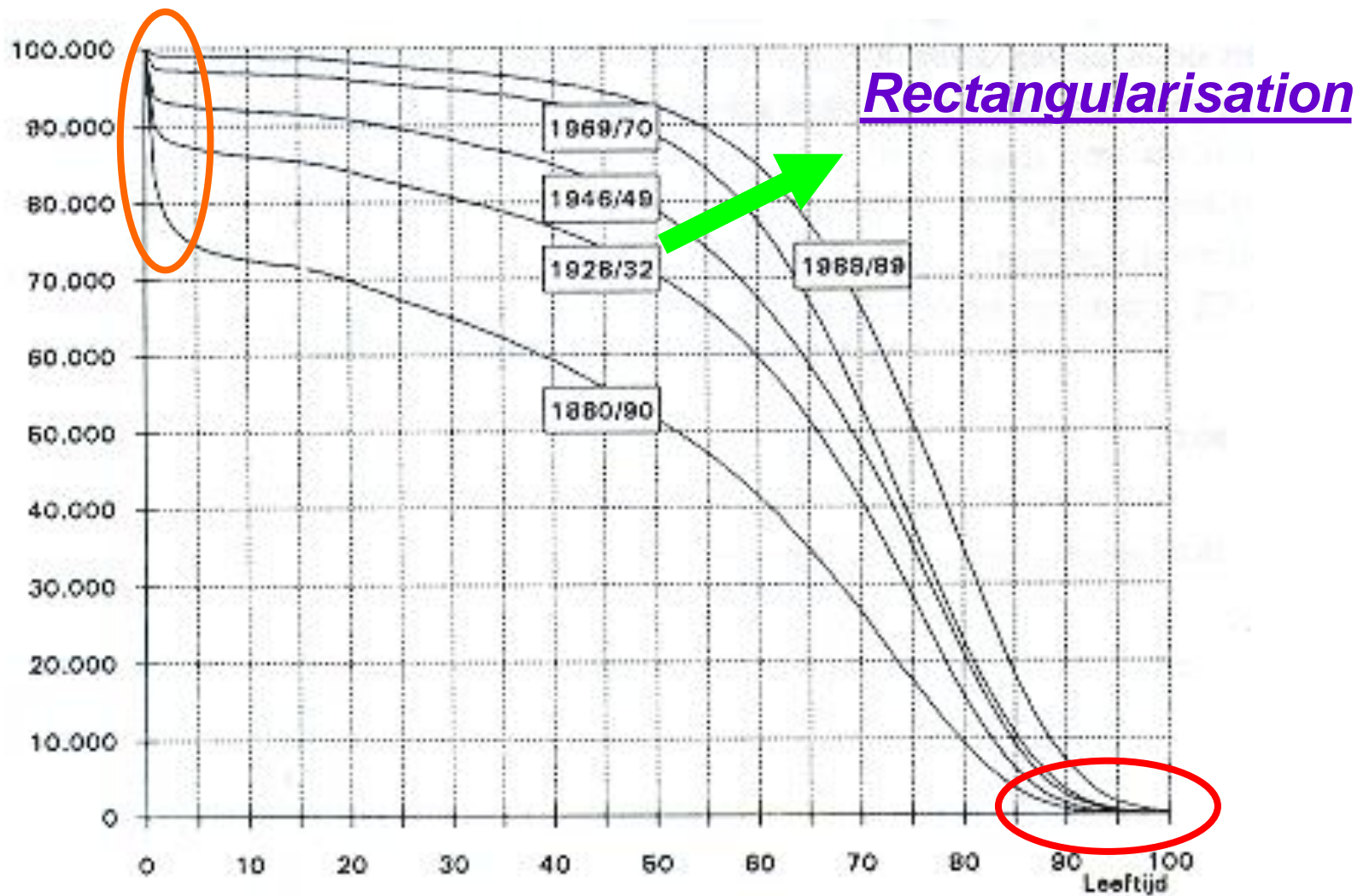
BELGIAN INTERUNIVERSITY COURSE IN GERIATRIC MEDICINE

BVGG - SBGG

- Life expectancy
- Demographic transition
- Aging at the global level
- Gender differences
- Socio-economic aspects
- Trends in disabilities

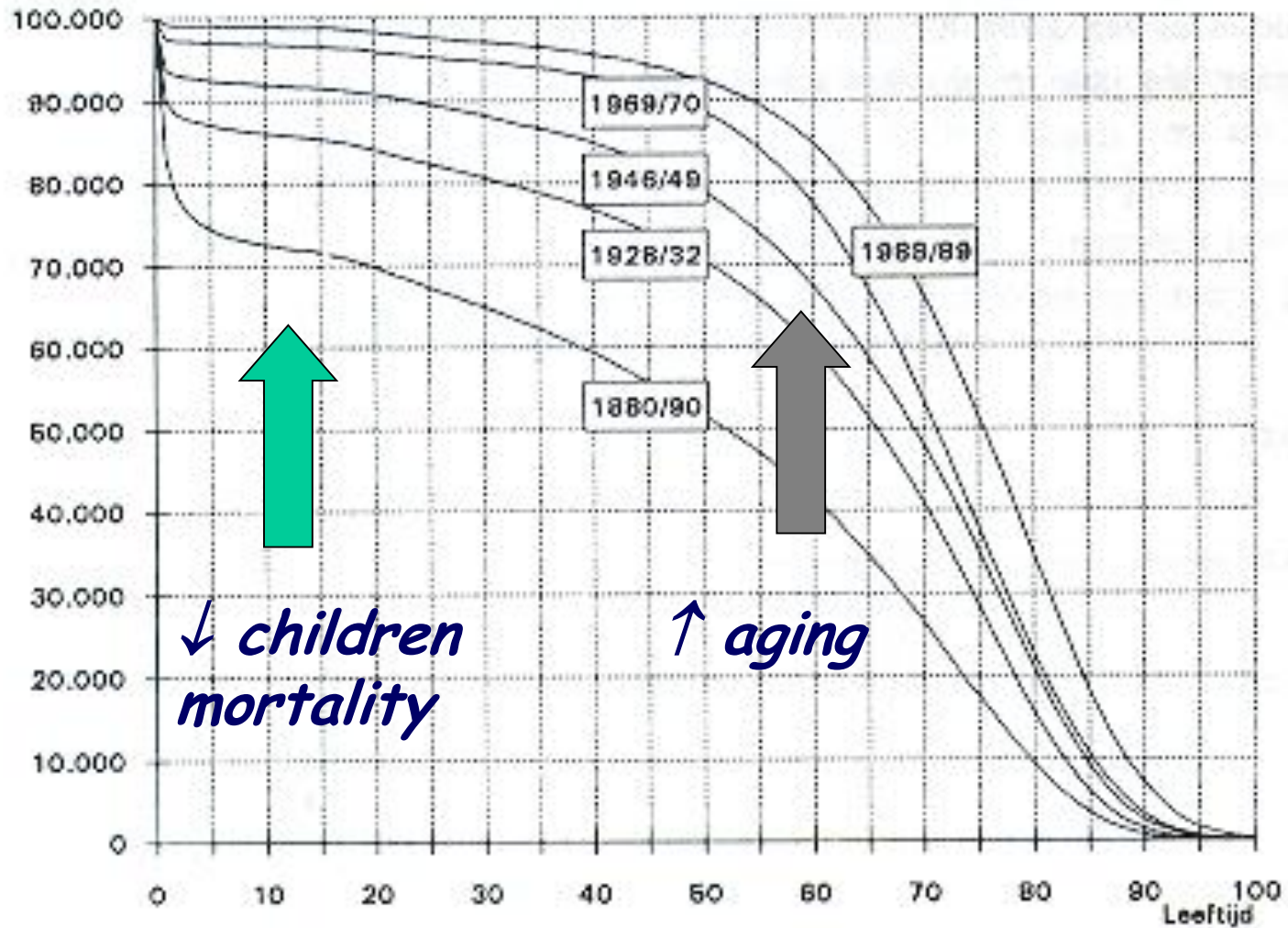


Female life expectancy in the record holding country, 1600-2000.



Survival curve for men, Belgium

Van der Haegen H. Over sterfte. CBGS Monografie 1991/1; Brussel, 1991



Survival curve for men, Belgium

Van der Haegen H. Over sterfte. CBGS Monografie 1991/1; Brussel, 1991

DK 20/06/09

Oudste man ter wereld op 113-jarige leeftijd overleden in Japan

MIUAKONOJO ● De Japanner Tomoji Tanabe, de oudste man ter wereld, is op zijn 113de overleden. Maar de aflossing van de wacht staat al klaar: de laatste zes jaar verdubbelde het aantal eeuwlingen in het land van de rijzende zon, en dat zou vooral te danken zijn aan het gezonde dieet van de doorsnee Japanner. "Dat klopte in het verleden", zegt voedingsdeskundige Greet Vansant (KU Leuven). "Maar ook zij gaan meer en meer de westerse toer op."



FOTO AFP

■ **Tomoji Tanabe rookte niet, dronk niet, en at het liefst garnalen en soep.**

omringd door familieleden.

Tanabe was in elk niet de enige Japanner die een gezegende leeftijd bereikte. Meer

nog, in zes jaar tijd is het aantal honderdplussers er verdubbeld, tot zo'n 36.000, en de verwachting is dat dat er tegen 2050 ongeveer een miljoen zullen zijn. En dat zou alles te maken hebben met de Japanse keuken.

"Onzin is dat zeker niet", zegt professor Vansant. "Er is een duidelijke relatie tussen levensverwachting en levensstijl, waaronder dus voeding." Tanabe rookte niet, dronk geen alcohol en dronk iedere ochtend een glaasje melk. Zijn lievelingskost was gebakken garnalen en Japanse miso-soep. "Hij verorberde allicht veel rijst en vis, met goede vetzuren", aldus Vansant, die eraan toevoegt dat die relatie levensstijl/leeftijd ook binnen Europa zichtbaar is, "Rond de Middellandse Zee

ligt de levensverwachting toch enkele jaren hoger dan bij ons, onder meer omdat zij meer groenten en fruit eten, meer goede vetten - mono- en polyonverzadigde vetten - binnen krijgen. Vroeger gold dat zeker ook voor Japan, maar je ziet toch dat men daar ook meer en meer de westerse toer op gaat, waardoor je er nu ook meer obesitas ziet opduiken."

Vrouwen worden trouwens nog altijd ouder, want de oudste dame ter wereld is al 115 lentes. De fakkels van oudste man ter wereld is volgens Guinness World Records nu een Brit. Henry Allingham (113) is bovendien een van de laatste twee nog levende veteranen van de Eerste Wereldoorlog. Hij is ook de laatste levende oprichter van de Royal Air Force. (KJ)

'Sigaretten, whiskey en vrouwen' is motto van oudste man

LONDEN • De nieuwe oudste man ter wereld is de Brit Henry Allingham. Hij is 113 jaar oud en dankt die gezegende leeftijd naar eigen zeggen aan 'cigarettes, whisky, and wild, wild women'.

Sinds de Japanner Tomoji Tanabe (113 jaar en 274 dagen oud) vorige week het leven liet, is Allingham 's werelds oudste man, met 113 jaar en 16 dagen. Dat heugelijk nieuws vierde hij door na zijn ontbijt een 'feestelijke dutje' te doen, zoals een woordvoerder van zijn rusthuis meldde. Toch lijkt hij in niets op de ascetische Tanabe. Naar eigen zeggen dankt hij zijn gezegende leeftijd aan "sigaretten, whisky en wilde, wilde vrouwen."

Allingham is één van de drie nog levende Britse veteranen van de Eerste Wereldoorlog en de nog enige levende medeoprichter van de Royal Air Force. Hij heeft drie eeuwen meegemaakt, zes

monarchen, twee wereldoorlogen en achttien wereldbikers. Tijdens de Eerste Wereldoorlog trotseerde hij de loopgraven in Passendale, een ervaring die hij als traumatisch bestempelde. Als oorlogsveteraan stond hij vaak in de schijnwerpers, door regelmatige ontmoetingen met de Queen, politici en soldaten die terugkeerden Irak of Afghanistan. Veel wou hij daarover niet kwijt: "Oorlog is stom. Niemand wint."

Ondanks zijn levensstijl maant hij toch aan tot kalmte: "De truc is zorgen voor jezelf en altijd je limieten te erkennen", aldus de man die in zijn leven twee grote inzinkingen kende, één tijdens de oorlog en één erna.

Allingham is een halve eeuw getrouwd geweest met zijn eerste en enige vrouw Dorothy, met wie hij vlak na de Eerste Wereldoorlog in het huwelijksbootje stapte. Samen kregen ze twee dochters en 33 nakomelingen. (LB)

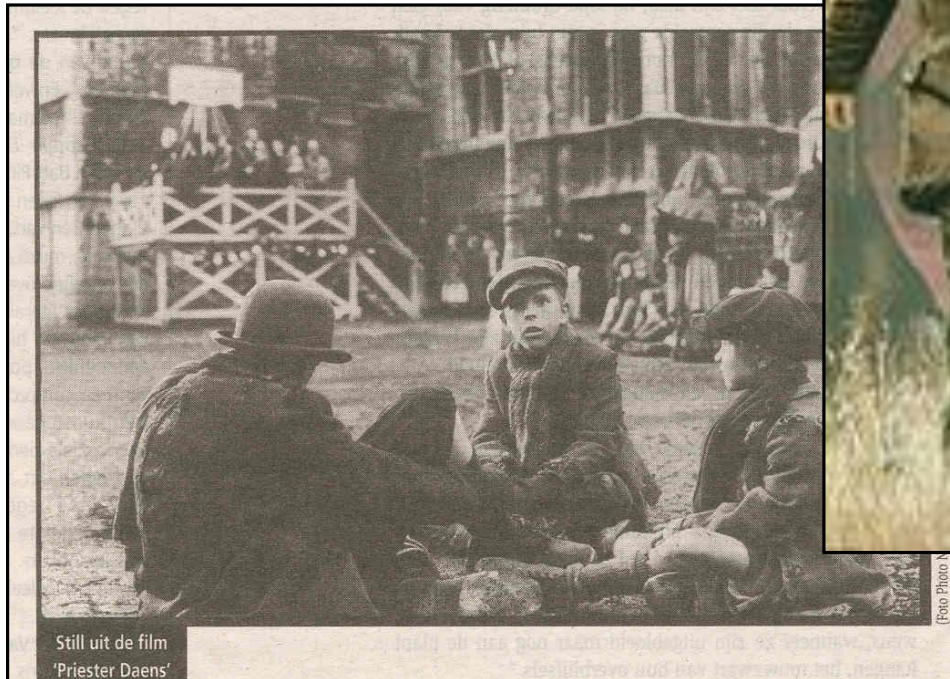


FOTO AFP

■ Oorlogsveteraan Henry Allingham is nu al 113 jaar lang een levensgenieter.

DA 22/06/2009

25 years in 1 century !



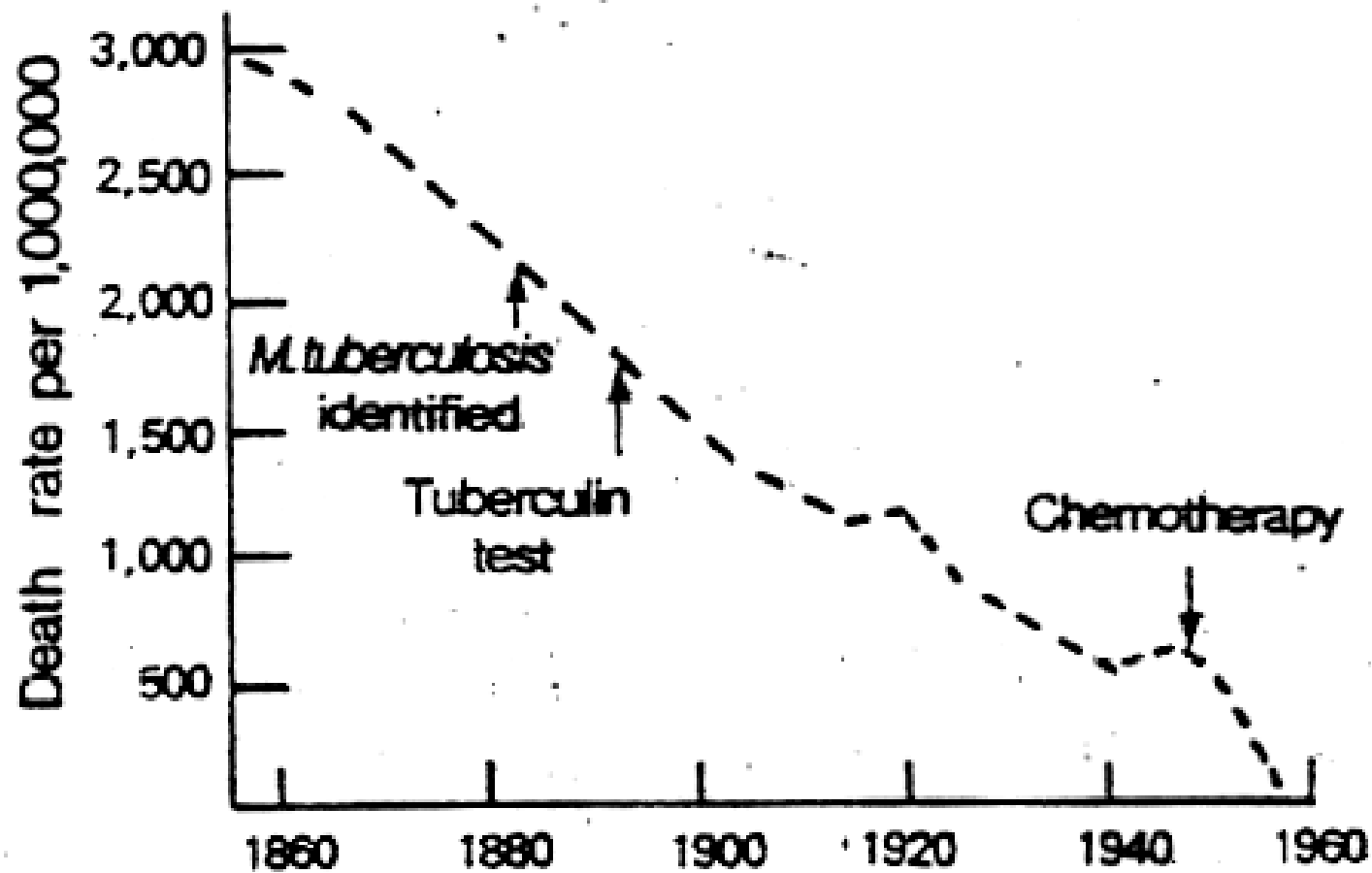


Fig. 2 Respiratory tuberculosis in the total population. Source: Mean death rates from various diseases, England and Wales, 1860-1960.

Brody JA. Nature 1985,315:463.

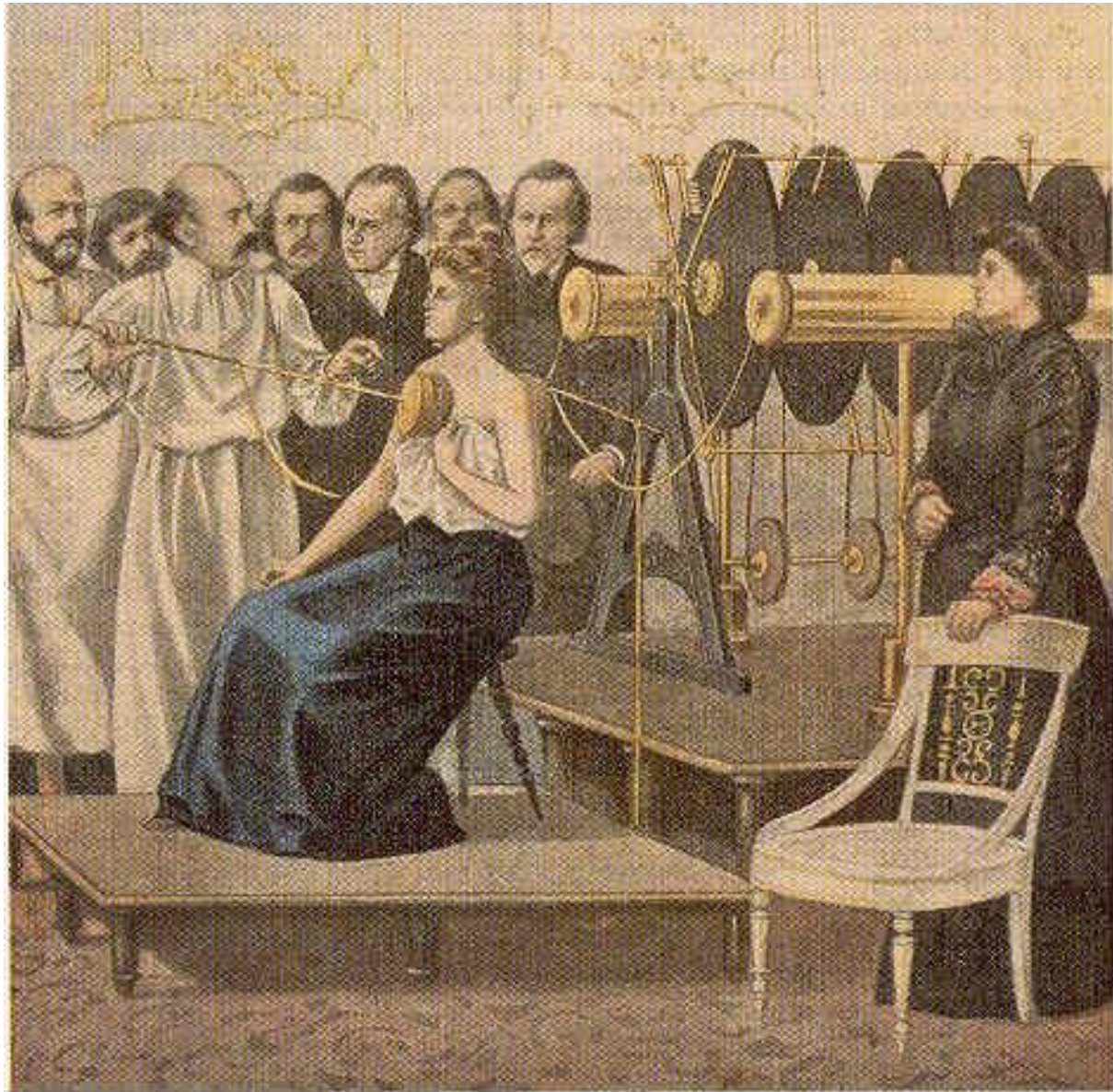
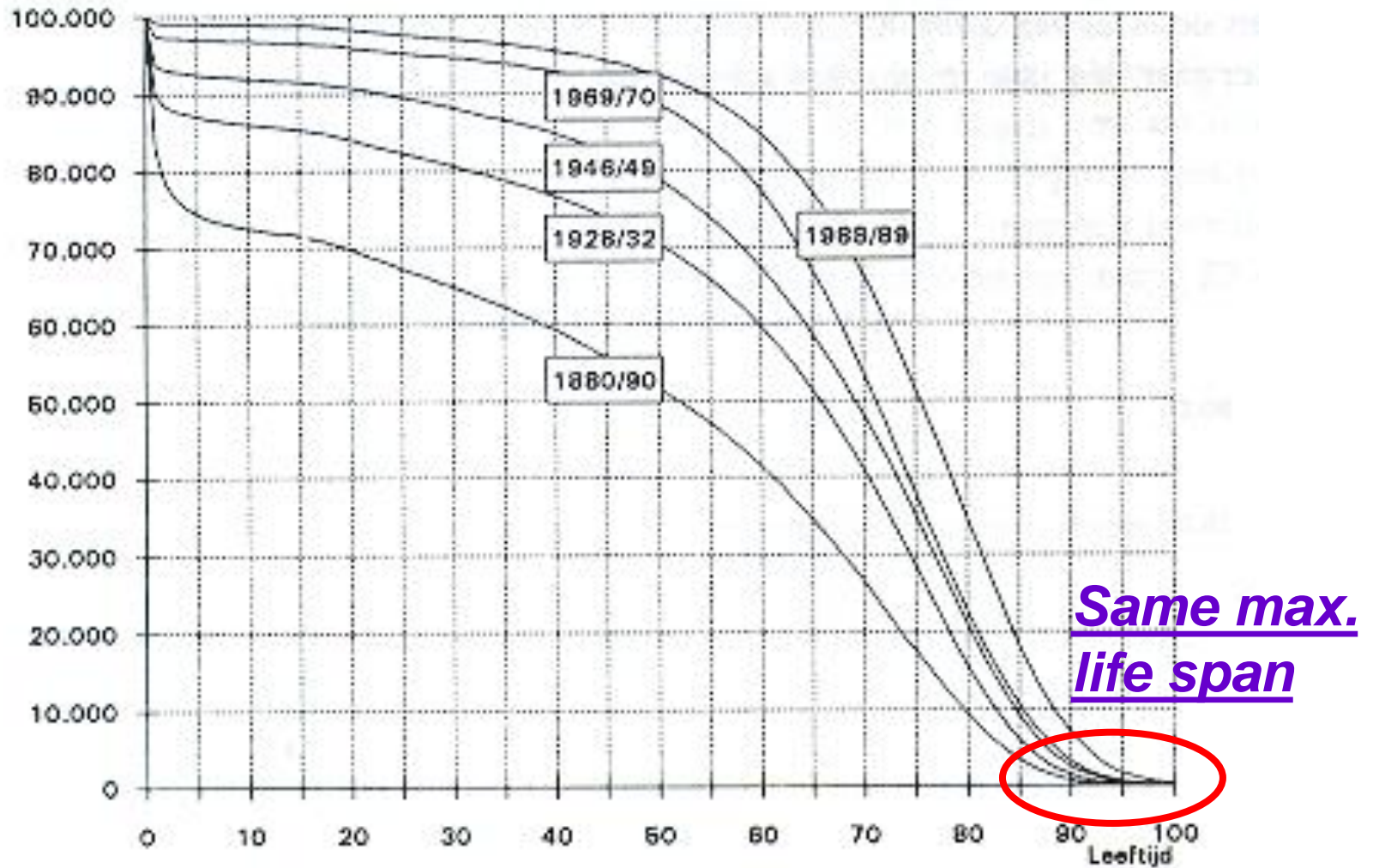


Figure 1 *Attempt at treating tuberculosis* by Francisque Crotte, 1901.



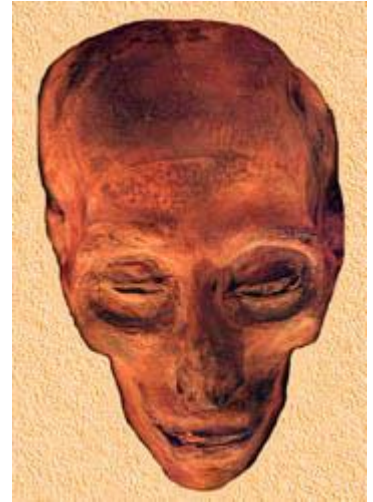
Survival curve for men, Belgium

Van der Haegen H. Over sterfte. CBGS Monografie 1991/1; Brussel, 1991

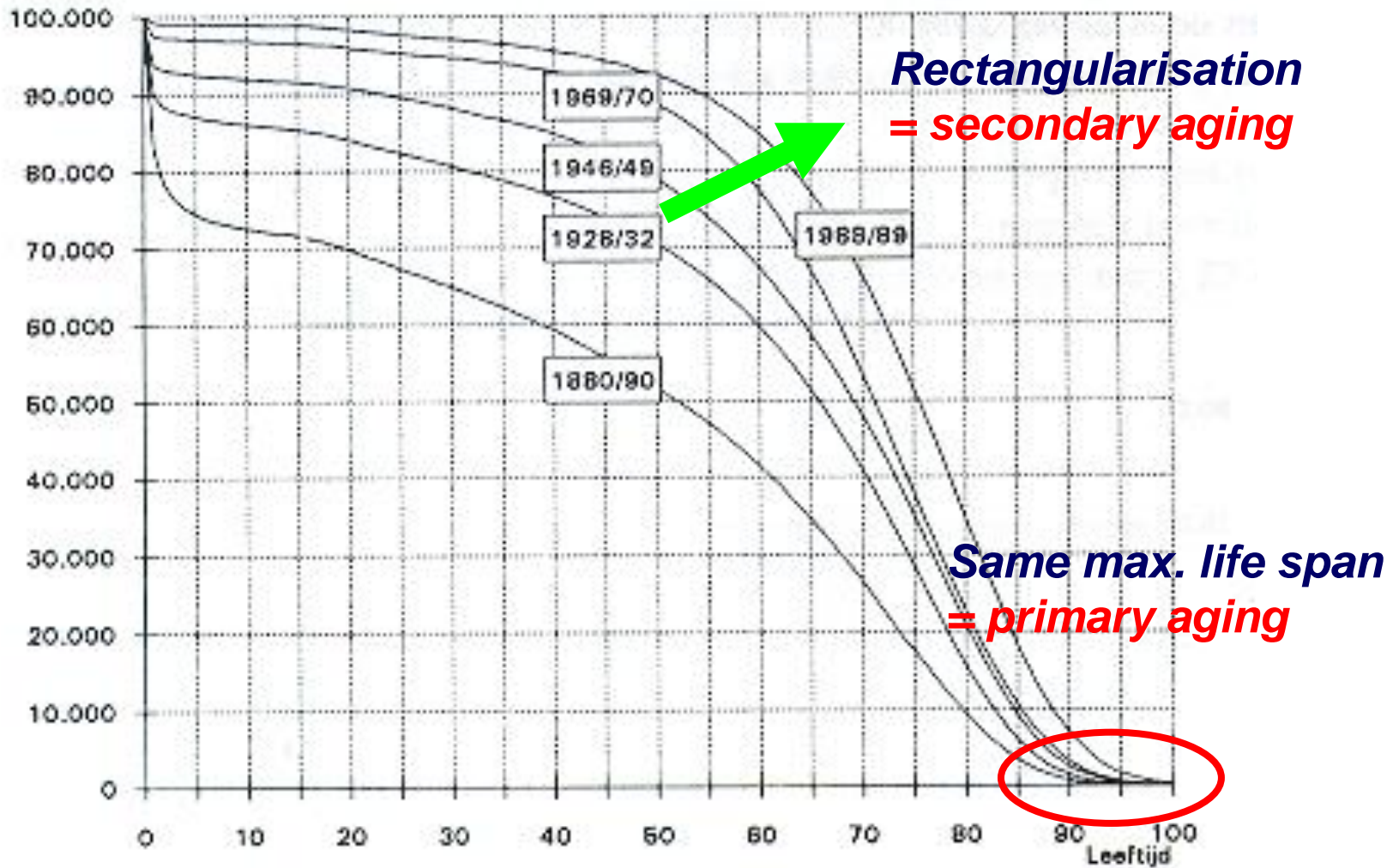


Record holder: Jeanne Calment, who died in 1997, lived to be 122 years and 164 days old.

Nature 2004 428 116



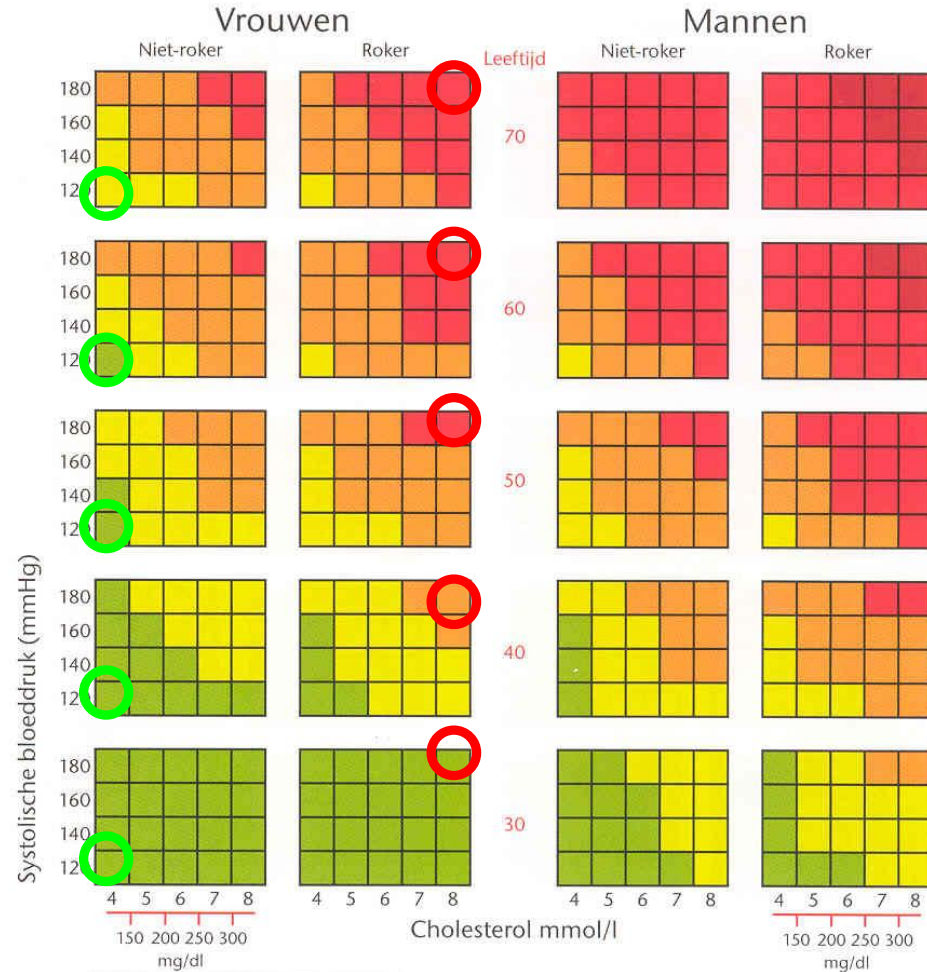
Ramses II, upper portion of a granite figure from Thebes, 1250 BC; British Museum.
> 90 j; farao 1279-13; > 90 children



Survival curve for men; Belgium.

Van der Haegen H. Over sterfte. CBGS Monografie 1991/1; Brussel, 1991

10-jaar risico op cardiovasculaire aandoening bij niet-diabetici*



- Primary aging
- Secondary aging

Meer dan 40%

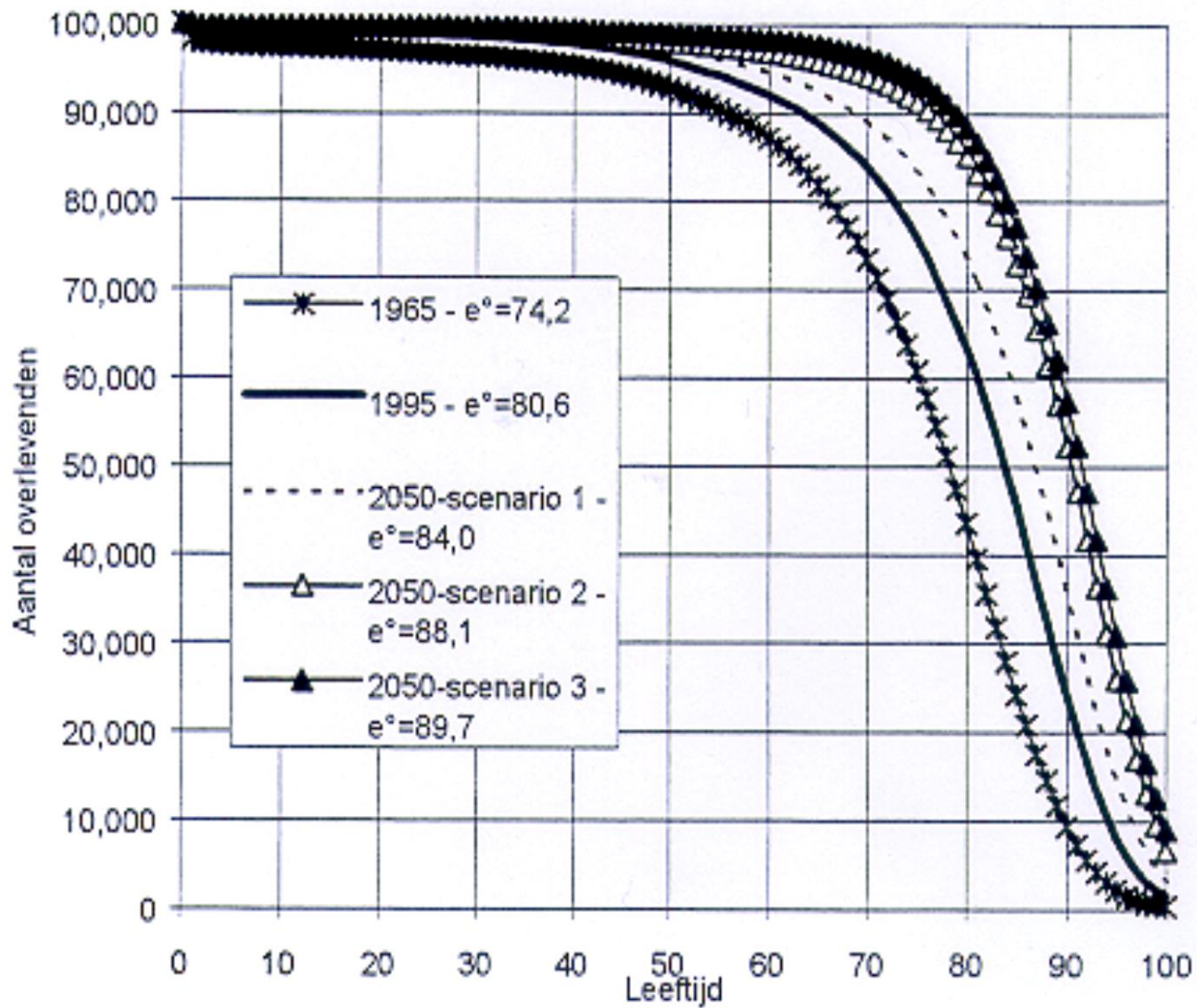
20% - 40%

10% - 20%

5% - 10%

< 5%

European Task Force (*European Heart Journal* 1998)
 10-jaar risico op CV-aandoening bij niet-diabetici,
 in functie van geslacht, leeftijd, systolische bloeddruk,
 totaal cholesterol en roker/niet-roker



Survivalcurve for women (NIS, Belgium)

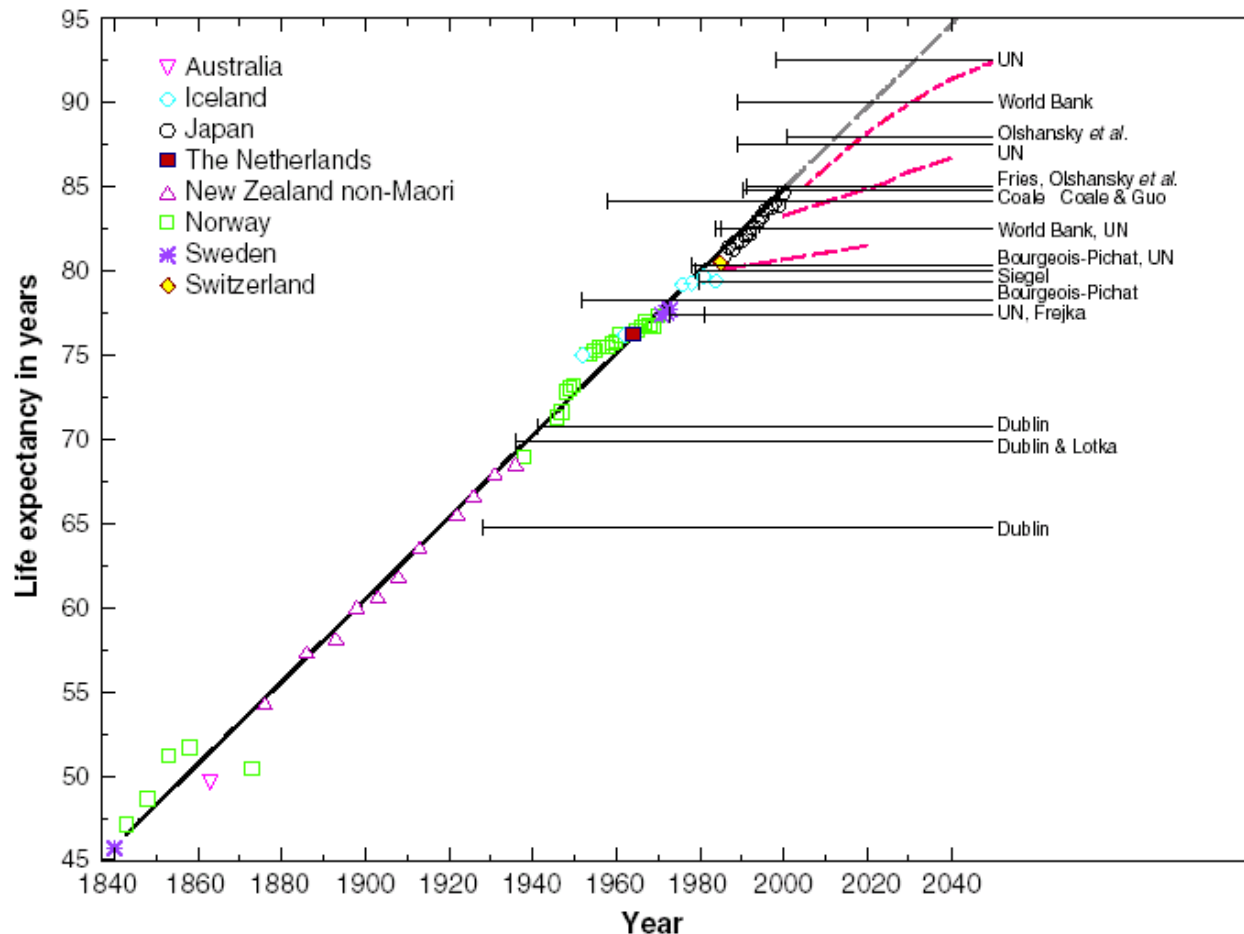
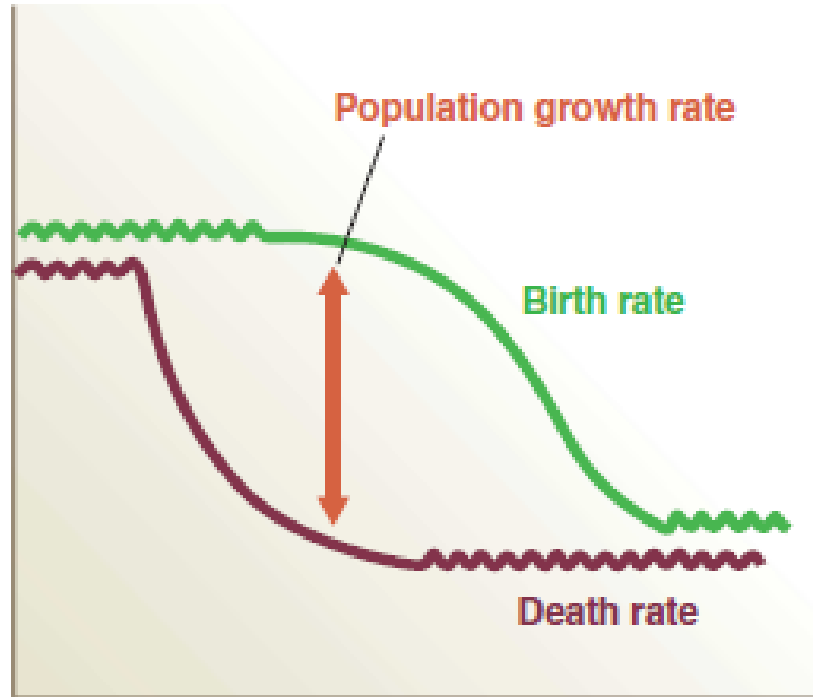


Fig. 1. Record female life expectancy from 1840 to the present [suppl. table 2 (1)]. The linear-regression trend is depicted by a bold black line (slope = 0.243) and the extrapolated trend by a dashed gray line. The horizontal black lines show asserted ceilings on life expectancy, with a short vertical line indicating the year of publication (suppl. table 1). The dashed red lines denote projections of female life expectancy in Japan published by the United Nations in 1986, 1999, and 2001 (1): It is encouraging that the U.N. altered its projection so radically between 1999 and 2001.

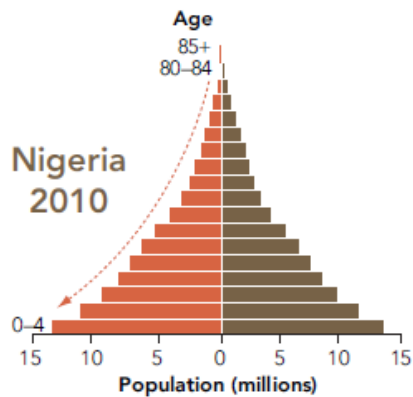
Oeppen et al. Science 2002 296: 1029

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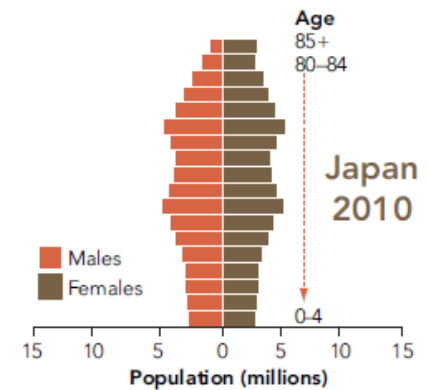
Bloom. Science 2011 333 562

A tale of two countries. A look at Nigeria and Japan today suggests what's ahead. Given Nigeria's high birthrate and large number of women of childbearing age, the population is expected to more than double by 2050, while the population of Japan is expected to decline.



The Demographic Divide		
NIGERIA		JAPAN
158	Population 2010 (millions)	127
5.7	Lifetime births per woman	1.4
6,700,000	Annual number of births	1,090,000
43	Percentage of population below age 15	13
3	Percentage of population over age 65	23
47	Life expectancy at birth	83
75	Infant death per 1000 births	2.6
500,000	Annual number of infant deaths	2,830
326	Population 2050 (millions)	95

SOURCES: (CHART) PRB, 2010; (POPULATION PYRAMIDS) UNPD, 2011



Roberts. Science 2011 333 540

'Double aging'

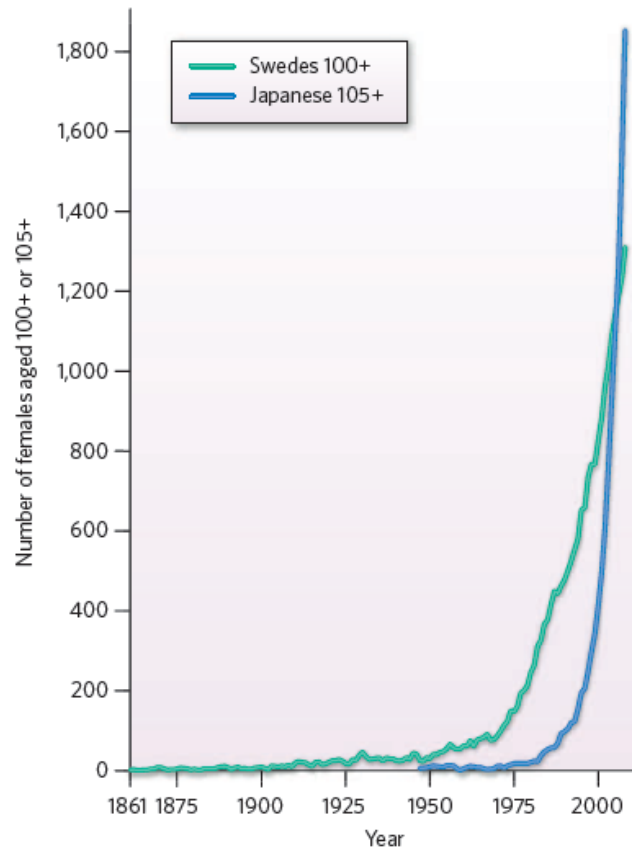
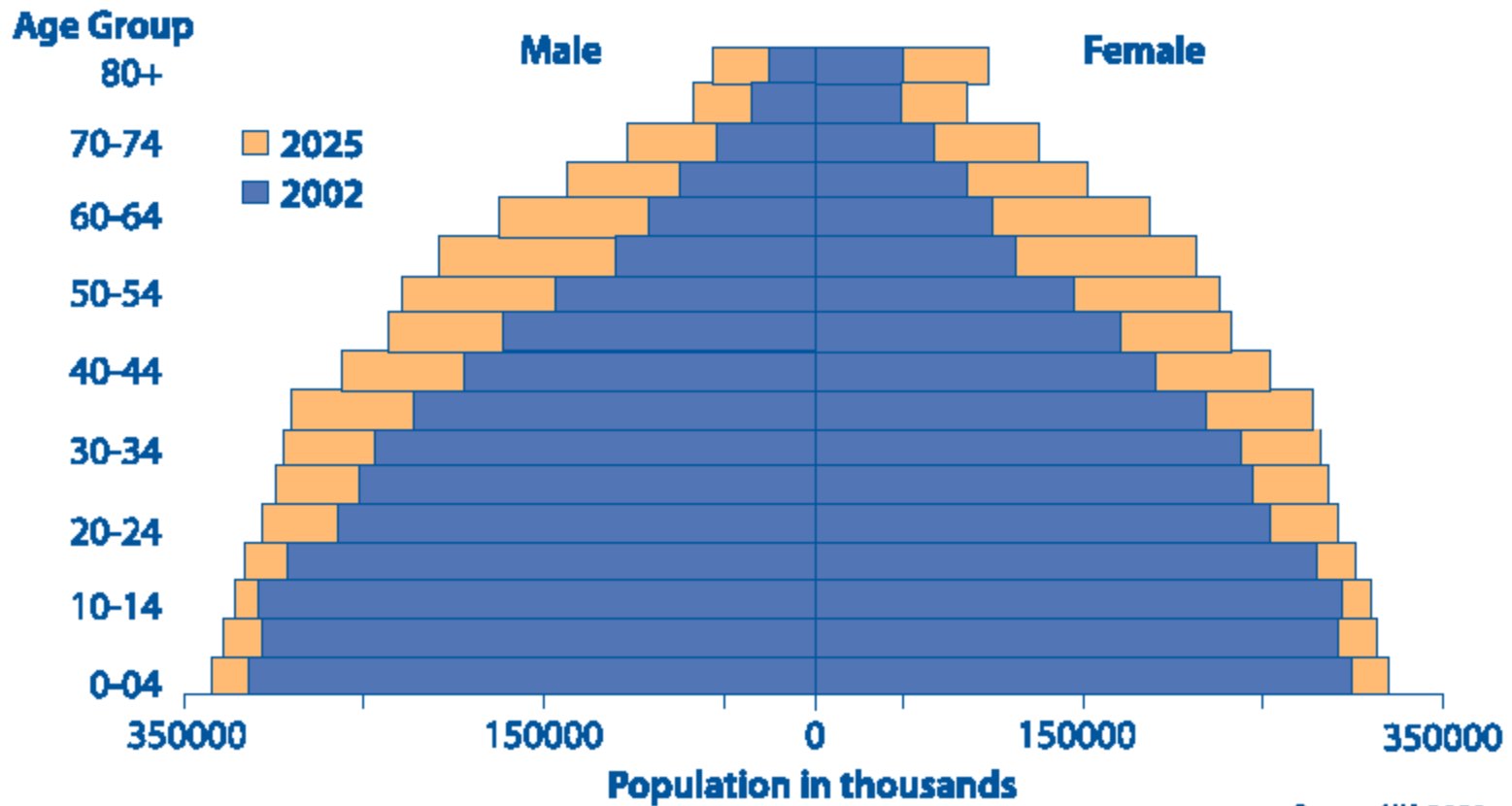


Figure 2 | The emergence of the extremely old. The numbers of females aged 100+ in Sweden from 1861 to 2008 and aged 105+ in Japan from 1947 to 2007. Very old people were rare until roughly half a century ago. Since then, the number of Swedish centenarians has risen rapidly, and since 1975 the number of Japanese women 105 or older has climbed almost vertically. (Data from the Kannisto–Thatcher Database on Old Age Mortality (<http://www.demogr.mpg.de>) supplemented with data from Statistics Sweden and the Japanese Ministry of Health.)

Vaupel Nature 2010, 464: 536
doi:10.1038/nature08984

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Figure 1. Global population pyramid in 2002 and 2025



Source: UN, 2001

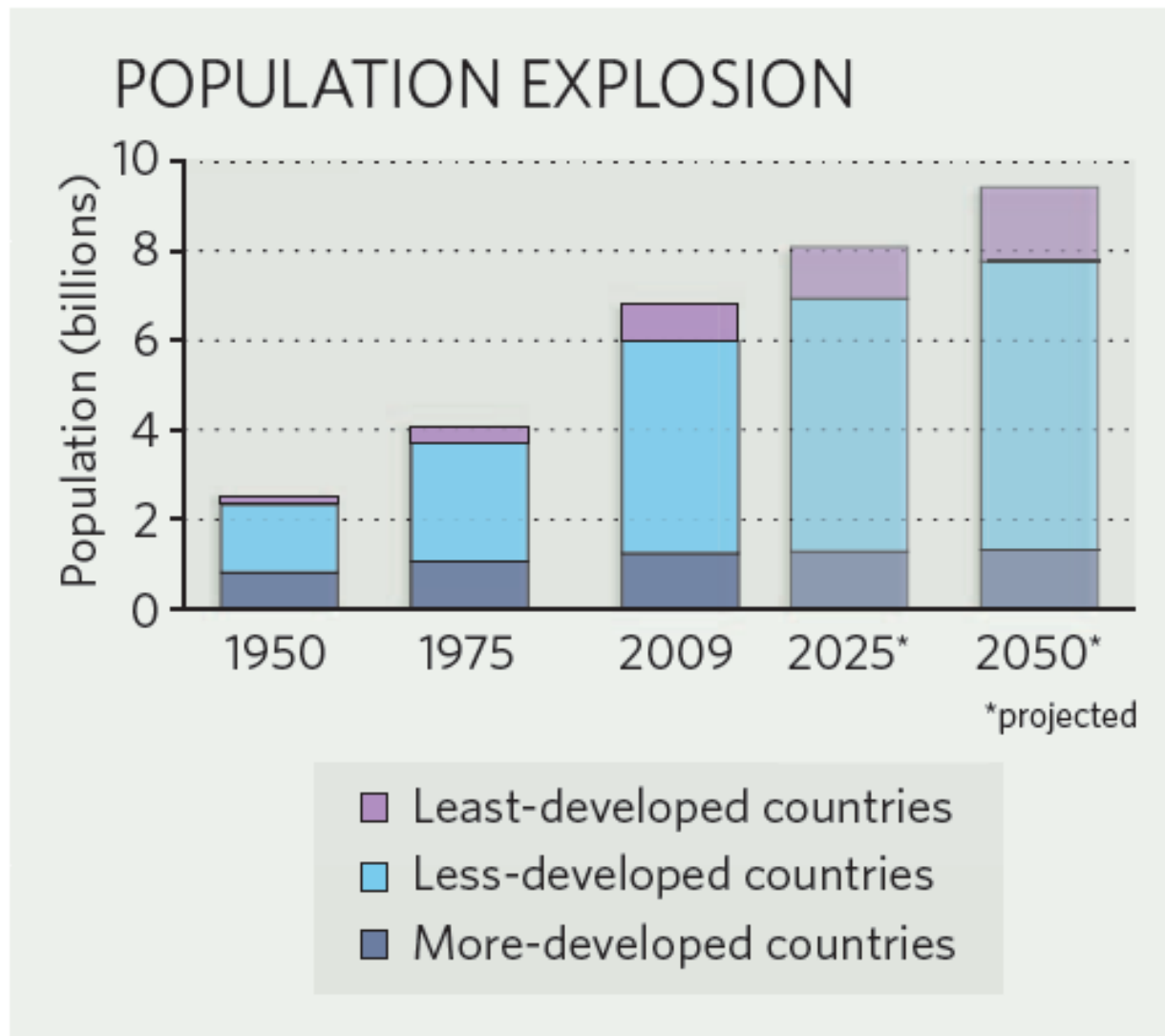
As the proportion of children and young people declines and the proportion of people age 60 and over increases, the triangular population pyramid of 2002 will be replaced with a more cylinder-like structure in 2025.

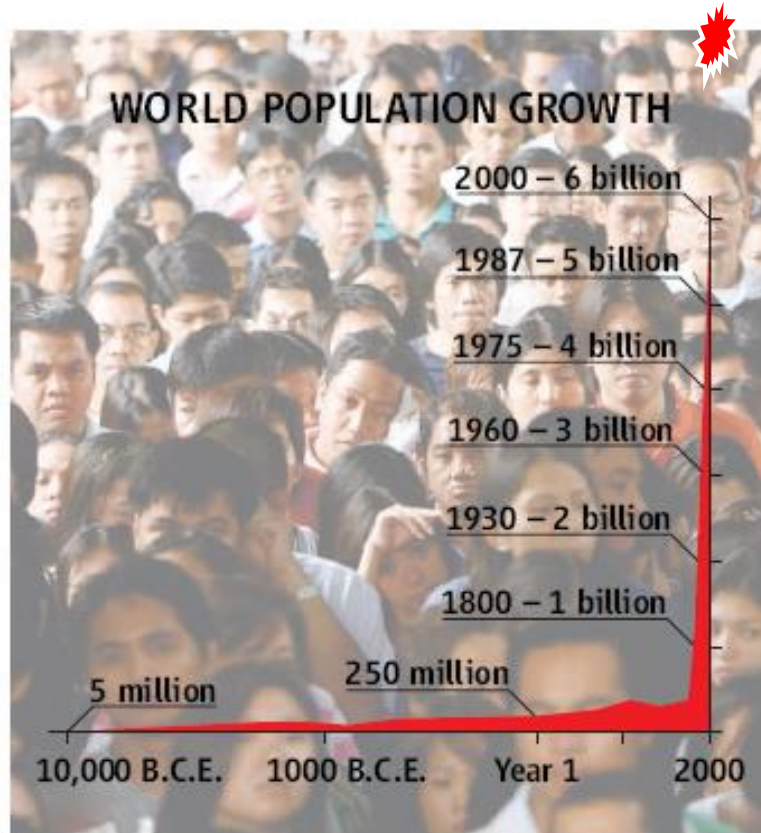
Active ageing: a policy framework

<http://www.who.int/ageing/en/>

<http://www.who.int/ageing/publications/active/en/index.html>

SOURCES: POPULATION REF. BUREAU, UN POPULATION DIV.





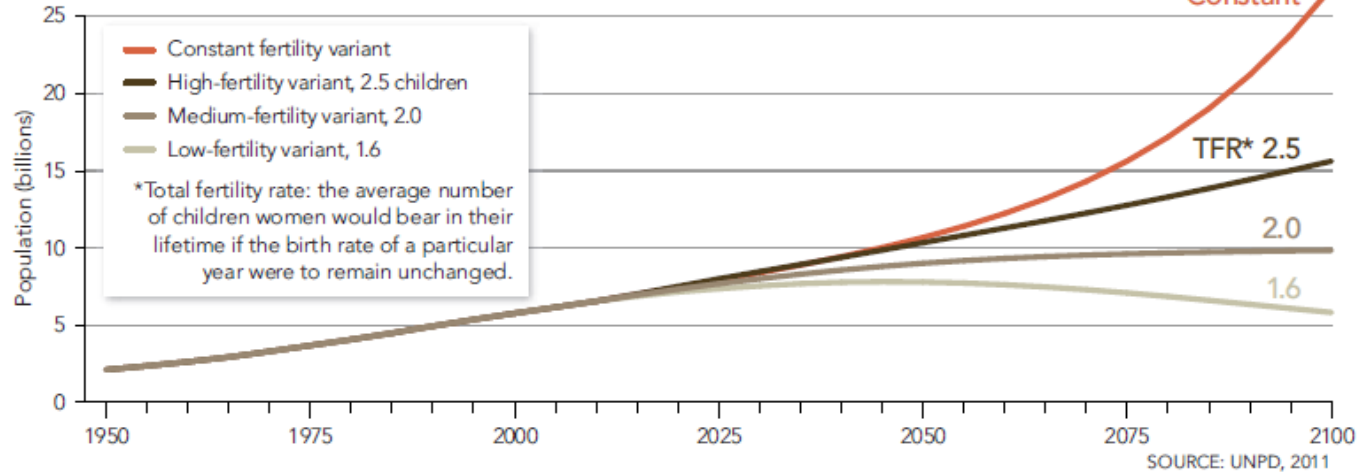
2050: 9.1 billion

Science 2008; 322: 655

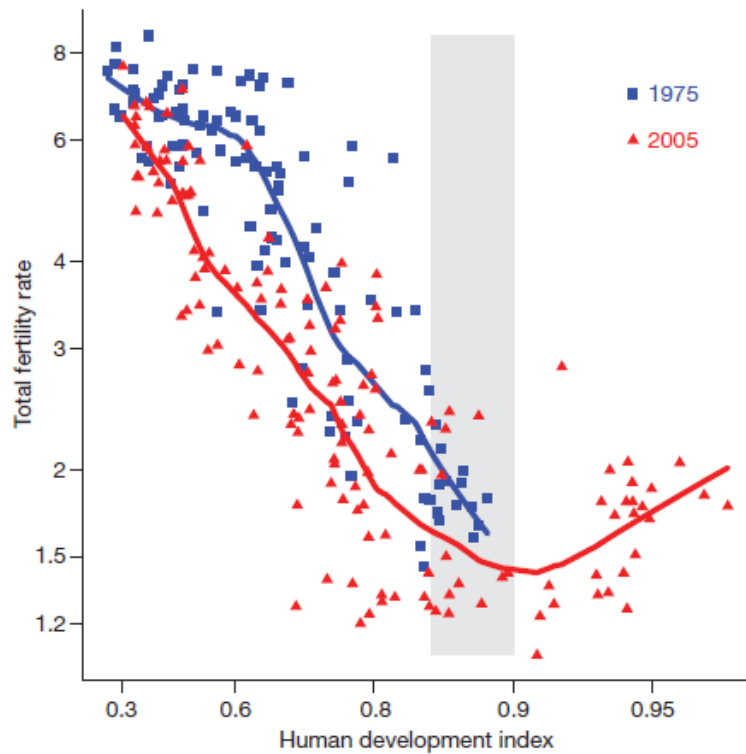
Different assumptions, different scenarios.

The United Nations has peered out to 2100, but those projections are even more uncertain than those for 2050. The medium variant most commonly used assumes the average woman in 2100 will have two children. If she had half a child more, or less, the picture would change dramatically. And if fertility remained constant at current levels ...

U.N. Population Projections, 1950–2100



Roberts. Science 2011 333 540



Cross-sectional relationship between TFR and HDI in 1975 and 2005. The TFR reflects the number of children that would be born to a woman during her lifetime if she experienced the age-specific fertility rates observed in a calendar year. The HDI is the primary index used by the United Nations Development Programme (UNDP) to monitor and evaluate broadly defined human development, combining with equal weight indicators of a country's health conditions, living standard and human capital¹¹. An HDI of 0.9 roughly corresponds to 75 years of life expectancy, a GDP per capita of 25,000 US dollars in year 2000 purchasing power parity, and a 0.95 education index (a weighted sum of standardized literacy rate and primary, secondary and tertiary level gross enrolment ratios). The 1975 data include 107 countries, with 1975 HDI levels ranging from 0.25 to 0.887, and 1975 TFR levels ranging from 1.45 to 8.5; the 2005 data include 140 countries, with 2005 HDI levels ranging from 0.3 to 0.966, and 2005 TFR levels ranging from 1.08 to 7.7. The Spearman's rank correlation between HDI and TFR in 1975 is -0.85 (P,0.01); the Spearman's rank correlation between HDI and TFR in 2005 is -0.84 (P,0.01) for countries with HDI<0.85, and -0.51 (P,0.01) for countries with HDI>0.9. For further details, see Supplementary Information. Countries with a 2005 HDI<0.9 include (2005 HDI in parentheses): Australia (0.966), Norway (0.961), Iceland (0.956), Ireland (0.95), Luxembourg (0.949), Sweden (0.947), Canada (0.946), Finland (0.945), France (0.945), the Netherlands (0.945), the United States (0.944), Denmark (0.943), Japan (0.943), Switzerland (0.942), Belgium (0.94), New Zealand (0.938), Spain (0.938), the United Kingdom (0.936), Austria (0.934), Italy (0.934), Israel (0.922), Greece (0.918), Germany (0.916), Slovenia (0.913) and South Korea (0.911).

Table 1. Countries with more than 10 million inhabitants (in 2002) with the highest proportion of persons above age 60

2002		2025	
Italy	24.5%	Japan	35.1%
Japan	24.3%	Italy	34.0%
Germany	24.0%	Germany	33.2%
Greece	23.9%	Greece	31.6%
Belgium	22.3%	Spain	31.4%
Spain	22.1%	Belgium	31.2%
Portugal	21.1%	United Kingdom	29.4%
United Kingdom	20.8%	Netherlands	29.4%
Ukraine	20.7%	France	28.7%
France	20.5%	Canada	27.9%

Source: UN, 2001

Active ageing: a policy framework

<http://www.who.int/ageing/en/>

<http://www.who.int/ageing/publications/active/en/index.html>

Table 2. Absolute numbers of persons (in millions) above 60 years of age in countries with a total population approaching or above 100 million inhabitants (in 2002)

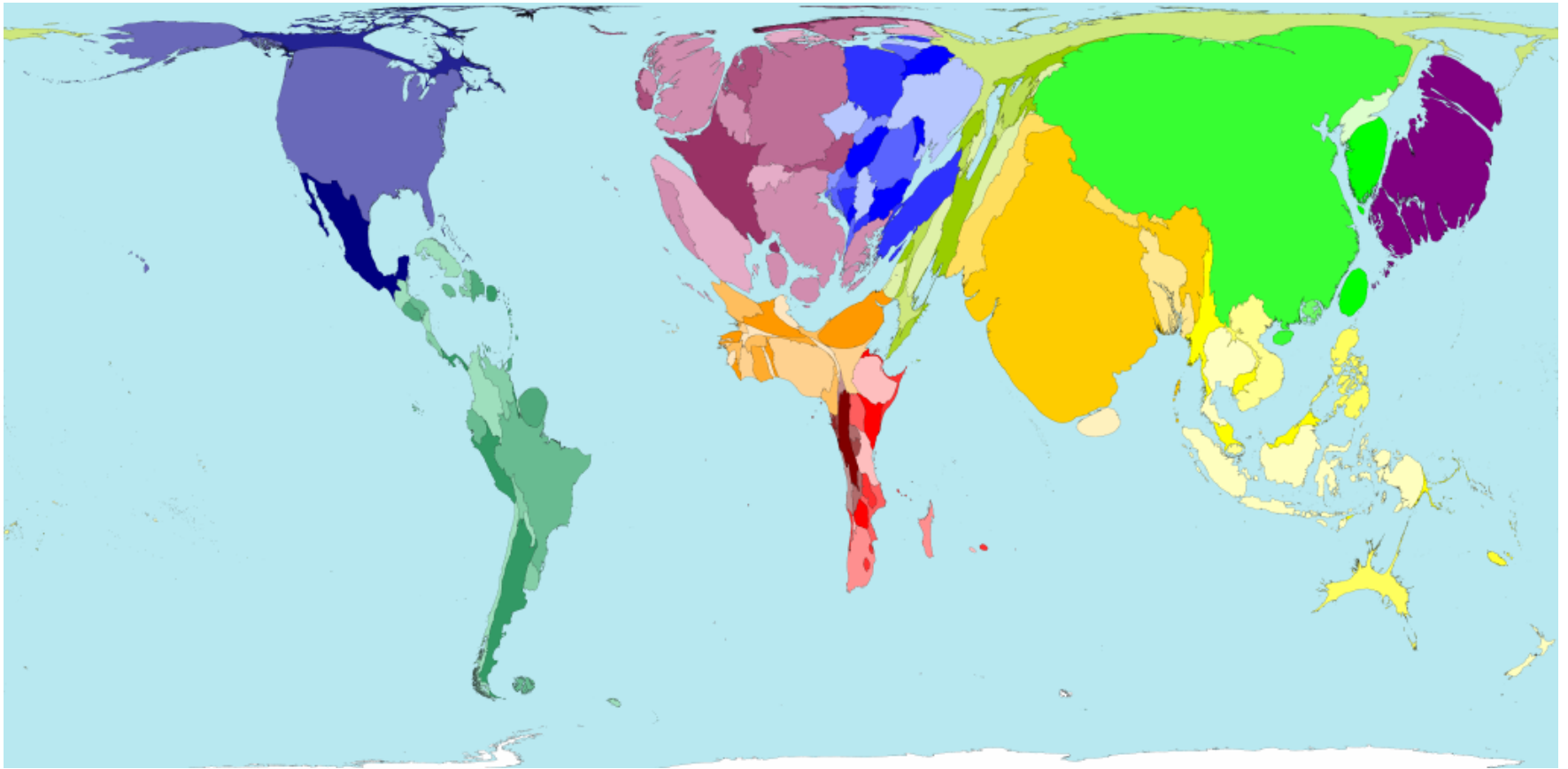
2002		2025	
China	134.2	China	287.5
India	81.0	India	168.5
United States of America	46.9	United States of America	86.1
Japan	31.0	Japan	43.5
Russian Federation	26.2	Indonesia	35.0
Indonesia	17.1	Brazil	33.4
Brazil	14.1	Russian Federation	32.7
Pakistan	8.6	Pakistan	18.3
Mexico	7.3	Bangladesh	17.7
Bangladesh	7.2	Mexico	17.6
Nigeria	5.7	Nigeria	11.4

Source: UN, 2001

Active ageing: a policy framework

<http://www.who.int/ageing/en/>

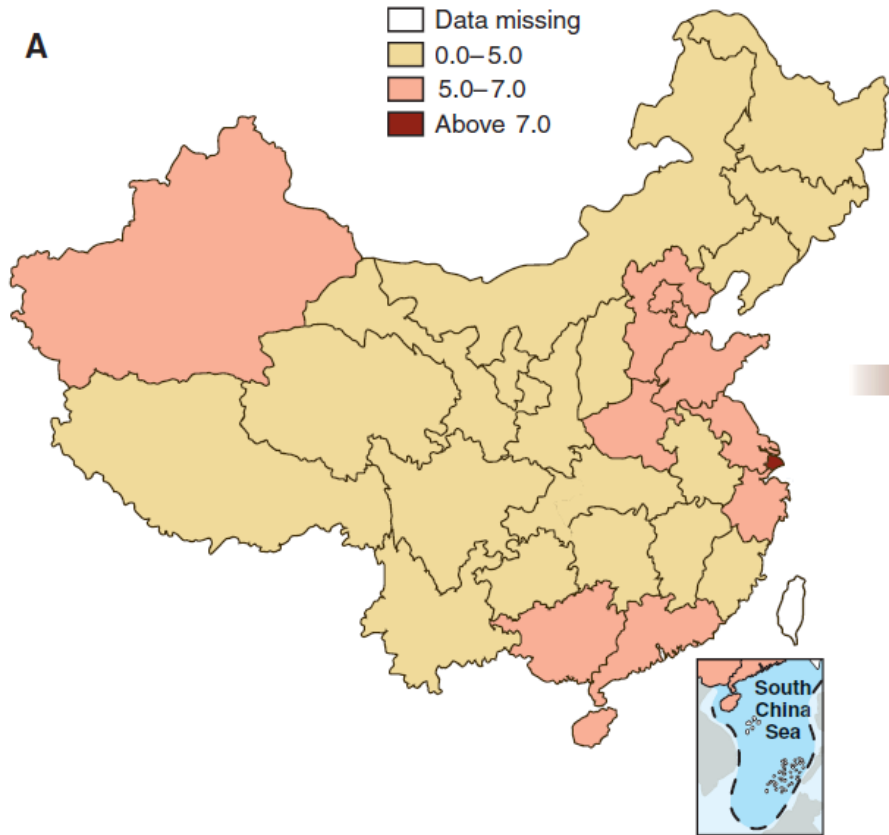
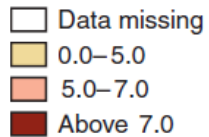
<http://www.who.int/publications/active/en/index.html>



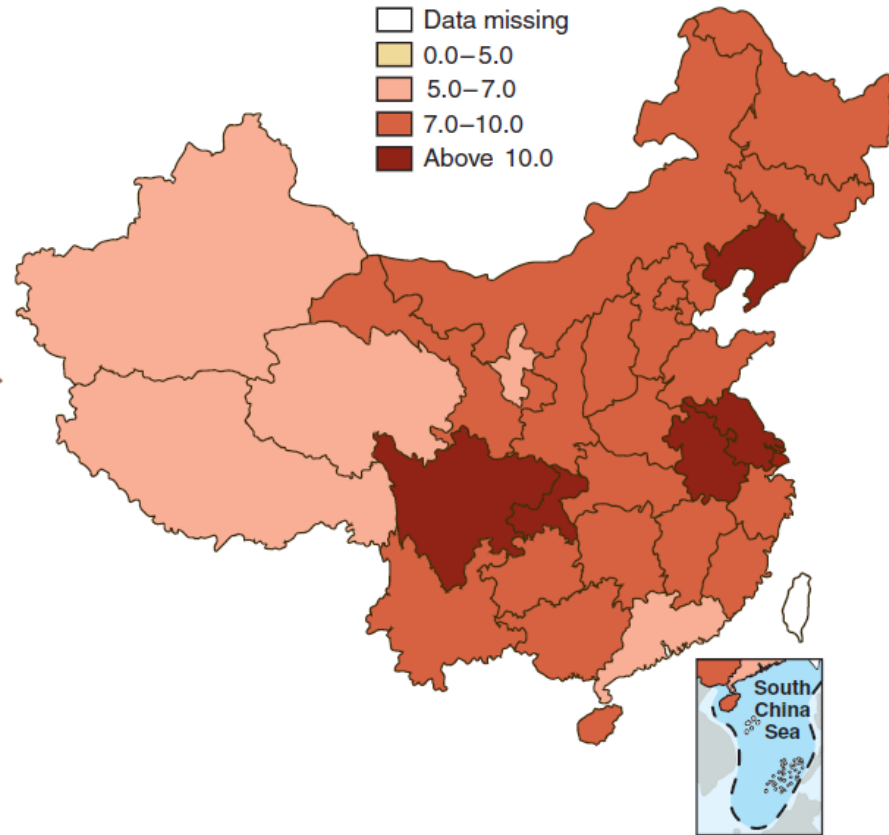
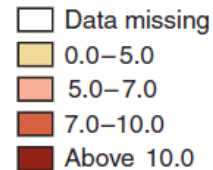
>65y; 2002

<http://www.sasi.group.shef.ac.uk/worldmapper>

Proportion of the population aged 65+ (%), 1982

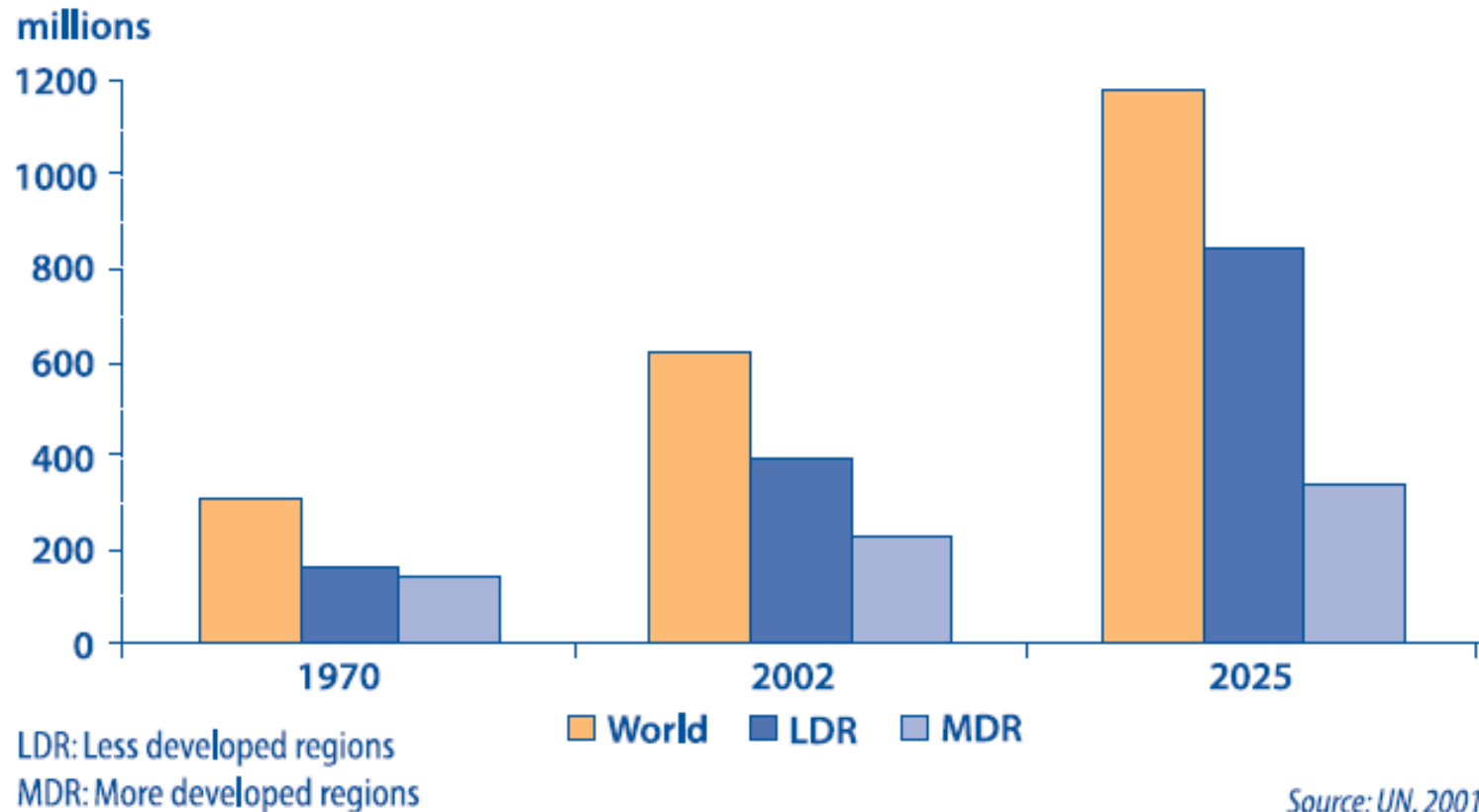


Proportion of the population aged 65+ (%) 2010



Peng Science 2011; 333: 581

Figure 2. The numbers of people over age 60 in less and more developed regions, 1970, 2000 and 2025



Active ageing: a policy framework

<http://www.who.int/ageing/en/>

<http://www.who.int/ageing/publications/active/en/index.html>

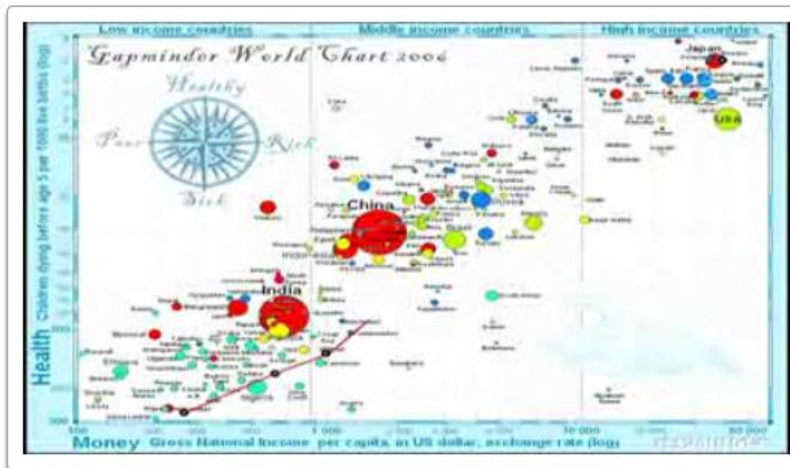


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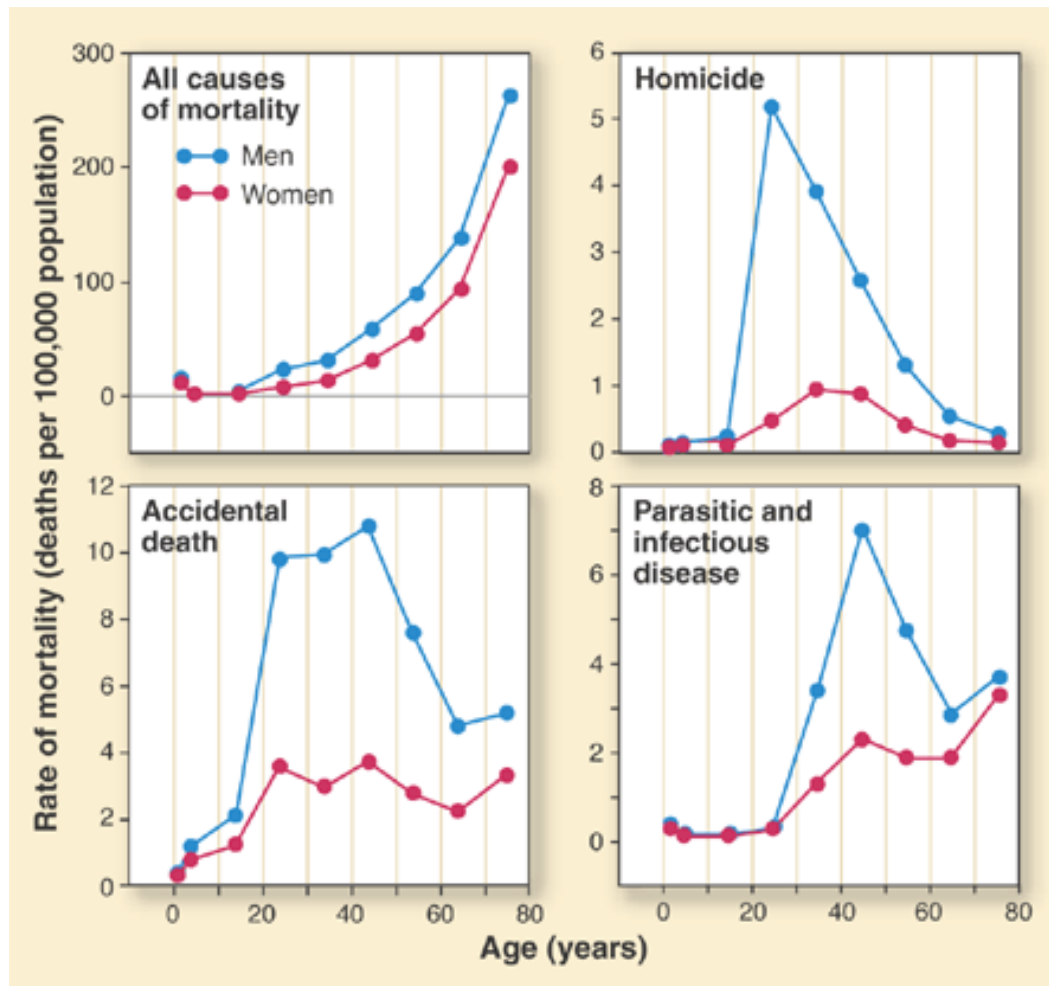
Gender

2017:

♀ 83,3

♂ 80,1

<https://www.volksgezondheidenzorg.info>

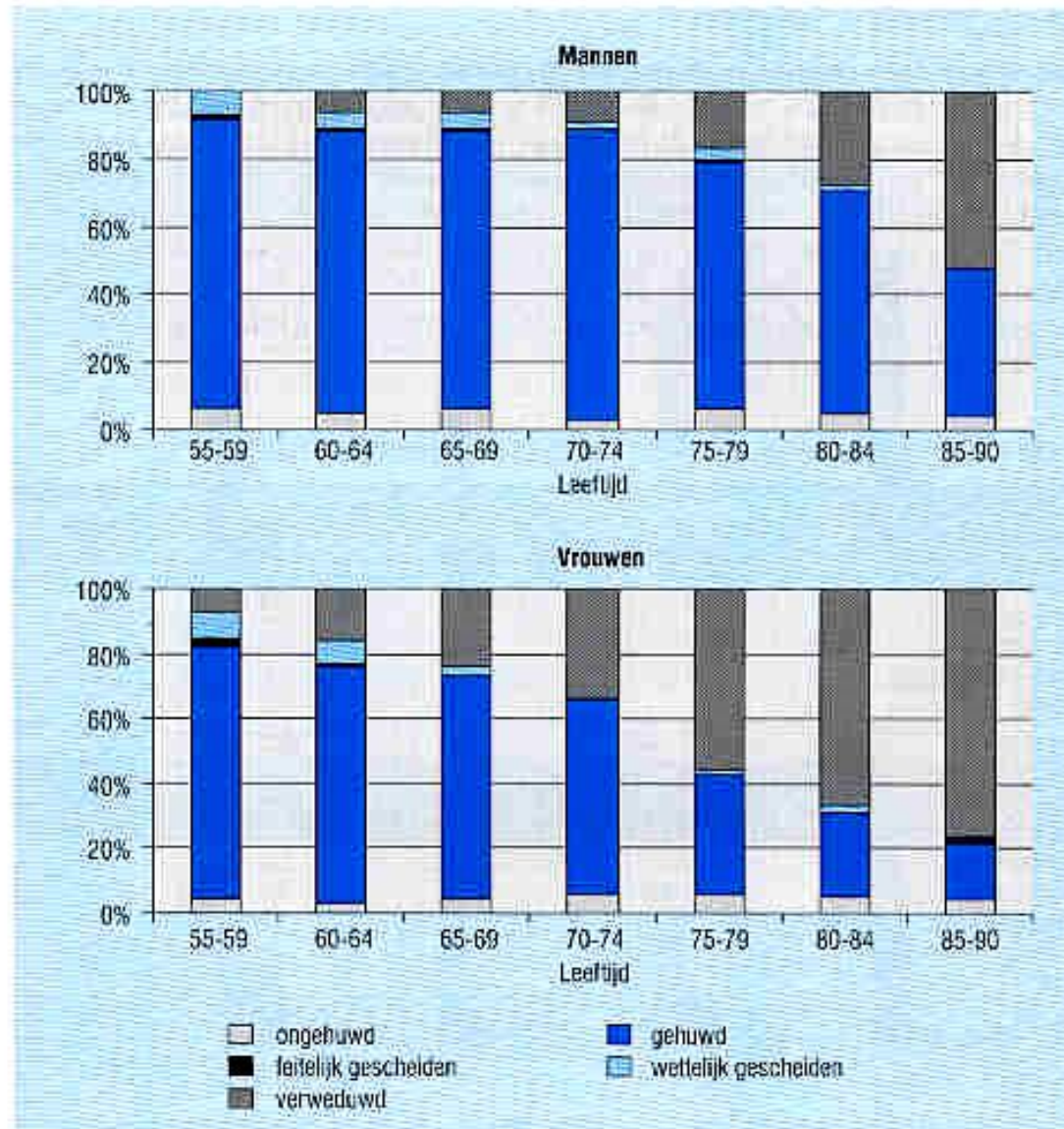


Sex differences in human mortality. The overall mortality rate in males is higher than that in females from puberty onward (**top left**). The other three graphs show sex differences in mortality rate due to homicide, accidental death, and parasitic and infectious diseases. For all three causes, mortality rate is higher in men than in women, but the timing of the onset of male-biased mortality varies across causes. For death through homicide and accidental causes (**top right, bottom left**), the increase in male-biased mortality begins immediately after puberty. For death caused by parasitic and infectious diseases (**bottom right**), the sex difference in mortality rate becomes apparent much later. [Data for 1997 USA population from (1) (www.who.int/whois)]



Wallis
DRESS TO KILL

Figuur 4.1 De burgerlijke staat, naar leeftijd en geslacht (in %)



Jacobs et al. Op latere leeftijd: de leefsituatie van 55-plussers in Vlaanderen. CBGS. Garant 2004.

- Life expectancy
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Tabel 3.1 Het hoogst behaalde diploma of getuigschrift¹ en de hoedanigheid van het beroep², naar leeftijd en geslacht (in %)

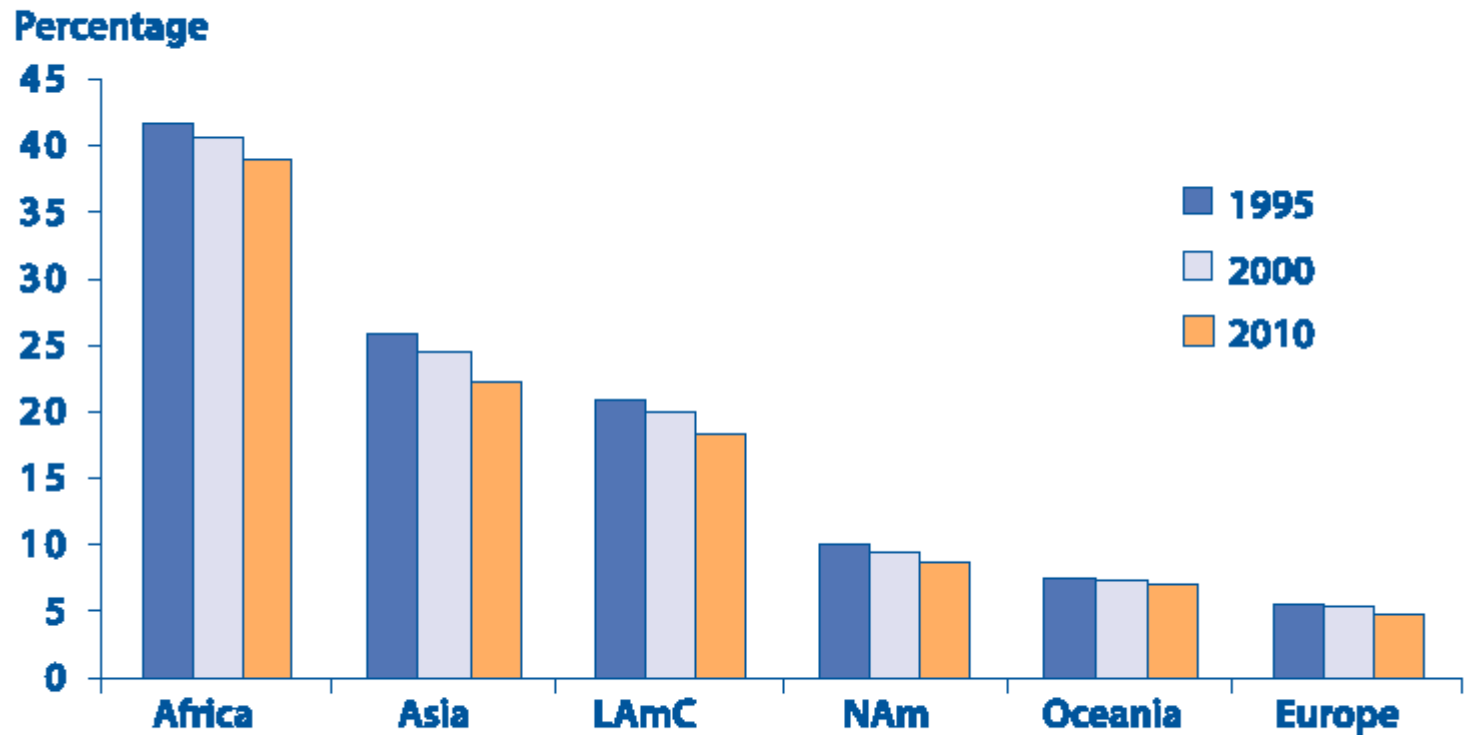
	Mannen				Vrouwen				Totaal
	55-64	65-74	75-90	Totaal	55-64	65-74	75-90	Totaal	
Opleiding									
Geen diploma	2	9	7	6	6	11	18	11	9
Lager onderwijs	23	37	46	32	24	41	50	37	35
Lager middelbaar	27	23	19	24	26	22	17	22	23
Hoger middelbaar	25	19	16	21	27	17	11	19	20
Hoger onderwijs	23	12	11	17	17	9	4	11	13
n(100%)=	476	410	220	1.106	491	477	338	1.306	2.412
Beroep									
Nooit betaald werk verricht	1	4	4	2	14	31	35	25	14
Ongeschoold arbeider	15	23	25	20	26	24	28	26	23
Geschoold arbeider	23	21	19	22	12	7	5	8	15
Lagere bediende	11	13	9	12	19	15	12	16	14
Hogere bediende	27	18	15	21	15	8	5	10	15
Zelfstandige/vrij beroep	16	15	23	17	10	10	13	11	14
Andere	7	6	5	6	4	5	2	4	5
n(100%)=	478	414	224	1.116	464	443	311	1.218	2.334

¹ Zowel dag- als avondonderwijs; exclusief de categorie 'andere' (n=50)

² Het betreft het laatst uitgeoefend beroep (betaalde arbeid met of zonder officieel statuut)

Jacobs et al. De leefsituatie van 55-plussers in Vlaanderen. CBGS. Garant 2004.

Figure 9. Percentage of labour force participation by people 65 and older, by region



LAmC: Latin America and the Caribbean

NAM: North America

Source: ILO, 2000

Active ageing: a policy framework

<http://www.who.int/hpr/ageing/ActiveAgeingPolicyFrame.pdf>

Tabel 3.5 De evaluatie van het inkomen, naar gezinstype en leeftijd (in %)¹

Gezinstype en leeftijd		De mate waarin men kan rondkomen				n(100%)=
		Zeer moeilijk of moeilijk	Eerder Moeilijk	Eerder gemakkelijk	Zeer gemakkelijk of gemakkelijk	
Alleenwonende man	55-64	20	20	34	26	35
	65-74	16	11	25	48	44
	75-90	14	25	30	30	56
	Totaal	16	19	30	36	135
Alleenwonende vrouw	55-64	16	17	27	38	96
	65-74	17	27	23	33	116
	75-90	12	16	37	34	151
	Totaal	15	20	30	35	364
Woont uitsluitend met echtg./partner	55-64	12	18	28	40	559
	65-74	14	16	31	39	576
	75-90	14	18	30	36	254
	Totaal	13	17	29	39	1.390
Woont met echtg./partner en kind(eren)	55-64	11	19	29	39	203
	65-74	12	12	39	38	69
	75-90	*	*	*	*	*
	Totaal	11	16	31	40	287
Totaal		14	17	30	38	2.360

¹ de categorieën 'weet niet' en 'geen antwoord' zijn niet weergegeven in de tabel

* niet berekend omwille van te kleine aantallen. Andere gezinstypes worden om dezelfde reden niet weergegeven.

Jacobs et al. De leefsituatie van 55-plussers in Vlaanderen. CBGS. Garant 2004.

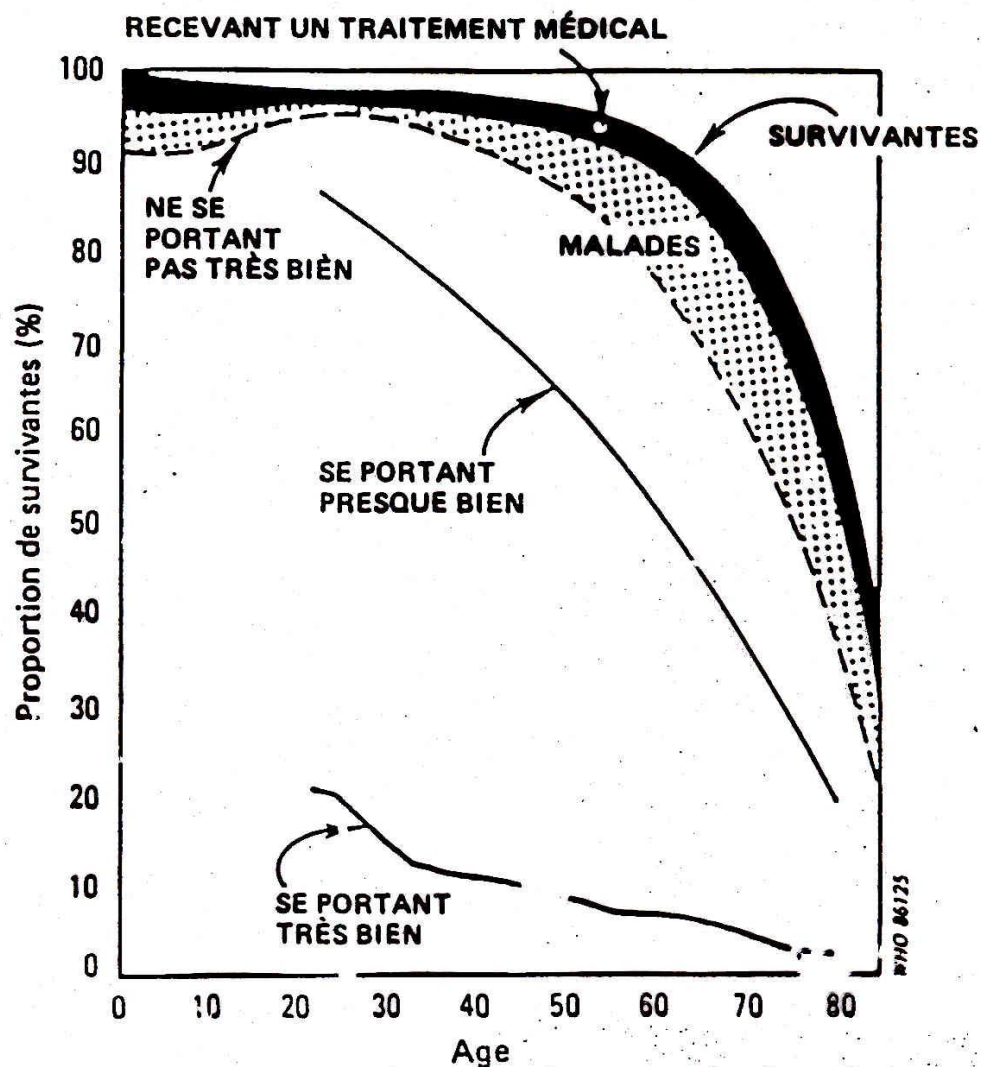
- Life expectancy
- Demographic transition
- Aging at the global level
- Gender differences
- Socio-economic aspects
- Trends in disabilities



Growing old gracefully

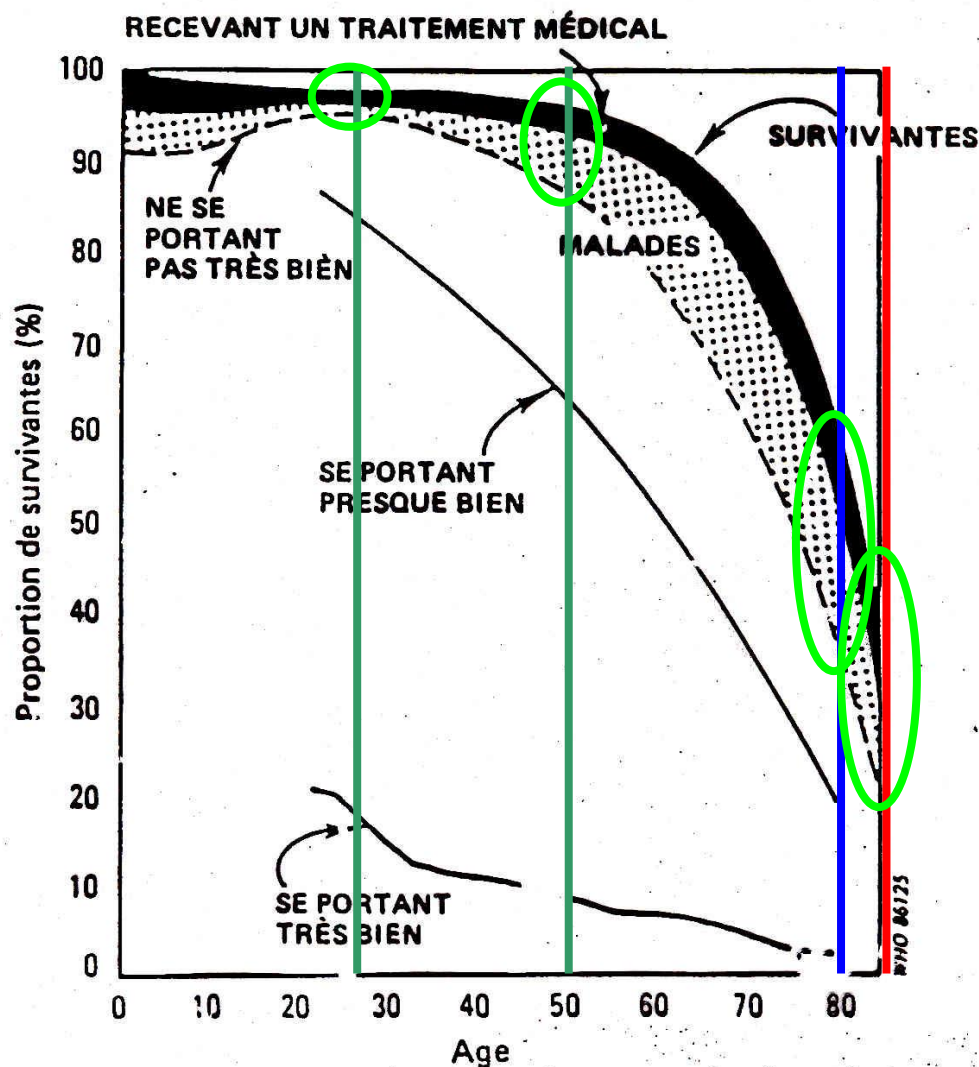
Nature 2004 428 116

Fig. 5. Courbes de survie (femmes) correspondant à divers états de santé, établies en combinant des données d'enquêtes et des statistiques démographiques, Japon, 1979^a



^a Reproduit avec l'aimable autorisation de Koizumi, A. Towards a healthy life in the 21st century. In: *Population aging in Japan. Proceedings of an International Symposium on an Aging Society: Strategies for the 21st Century. Japan 24-27 November 1982.* Nihon University.

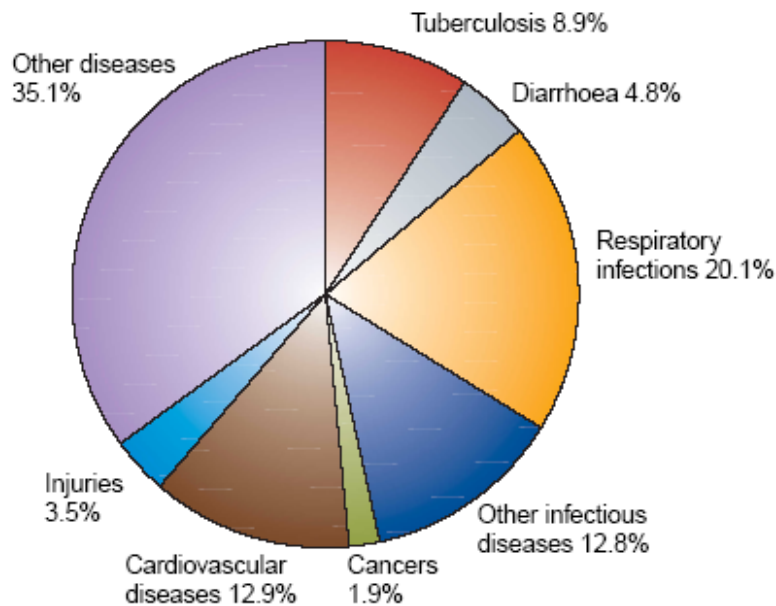
Fig. 5. Courbes de survie (femmes) correspondant à divers états de santé, établies en combinant des données d'enquêtes et des statistiques démographiques, Japon, 1979^a



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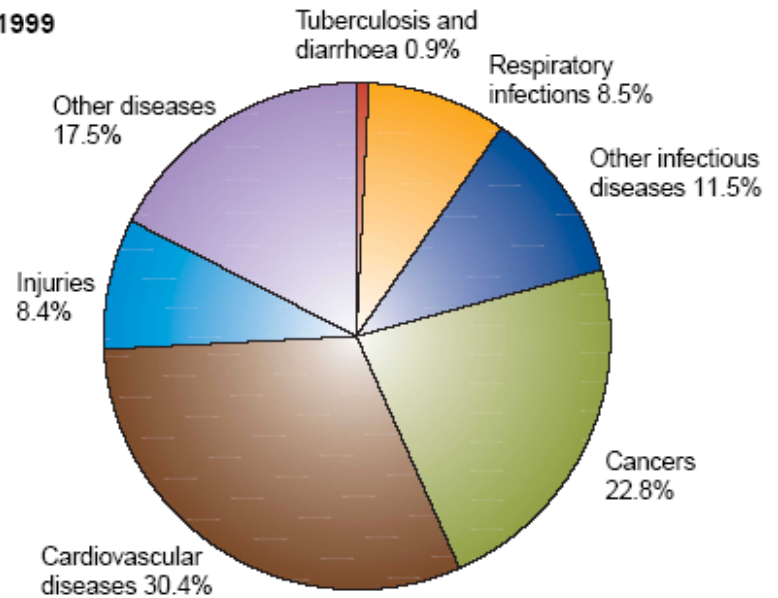
Health transition

1909



Total infectious disease deaths = 46.6%
Total cancer and cardiovascular deaths = 14.8%

1999



Total infectious disease deaths = 20.9%
Total cancer and cardiovascular deaths = 53.2%

Figure 1 Proportions of total deaths from major cause-of-death categories, 1909 and 1999, in Chile². This country illustrates the full transition from developing to developed status during the twentieth century.

Weiss Nature Med 2004 10 S70

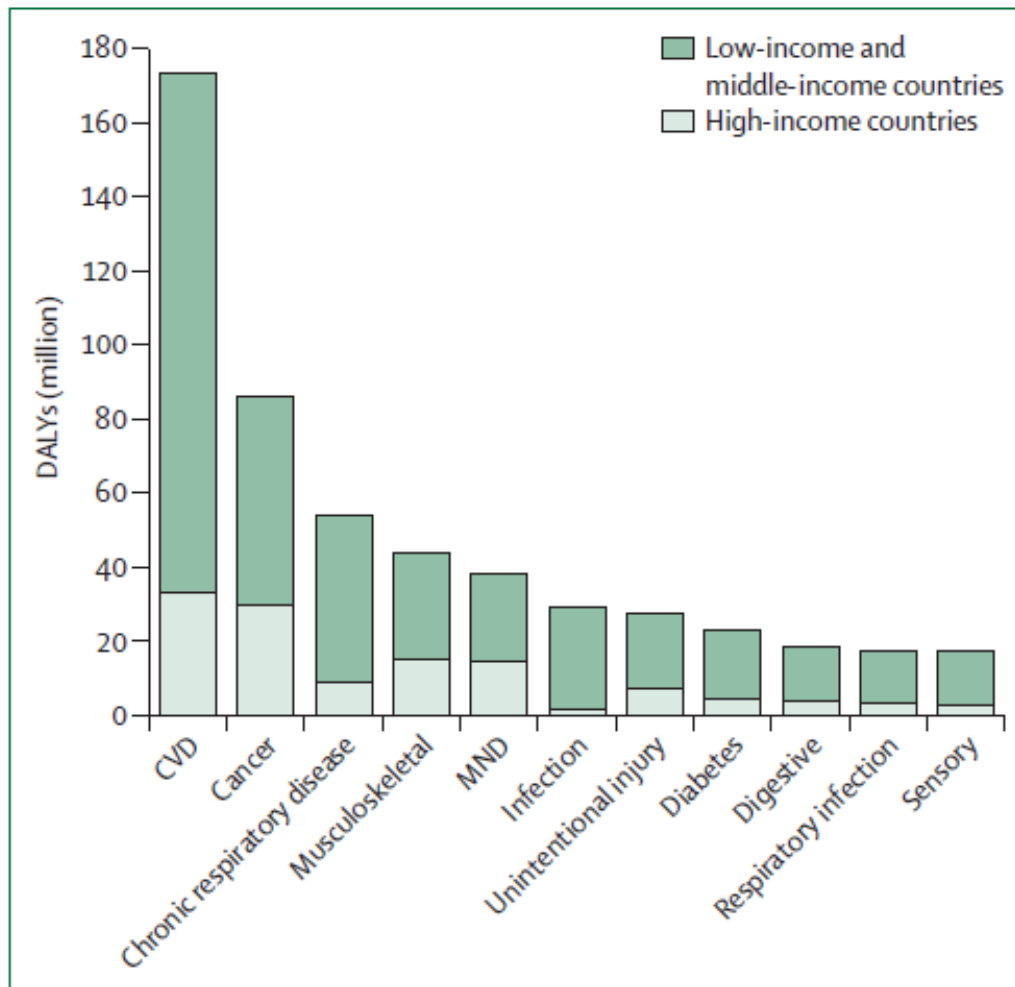


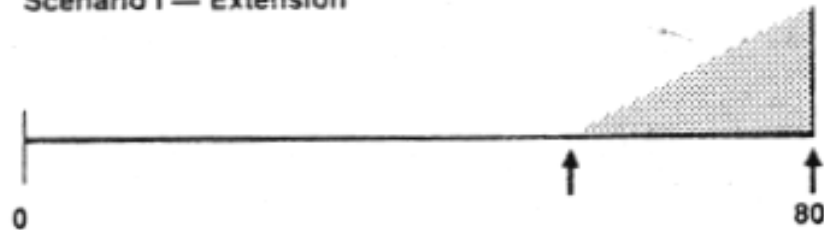
Figure 1: Leading contributors to burden of disease in people aged 60 years and older in 2010—DALYs (million) by cause and World Bank income
 DALYs=disability-adjusted life years. CVD=cardiovascular and circulatory diseases. MND=mental and neurological disorders, combining the IHME GBD mental and behavioural disorders and neurological disorders groups.

Prince Lancet 2015;385:549

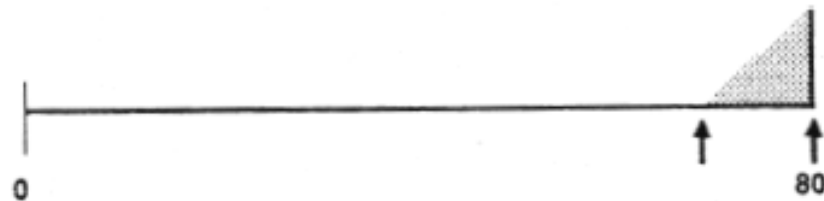
Hypothetical Present Morbidity



Scenario I — Extension



Scenario II — Compression

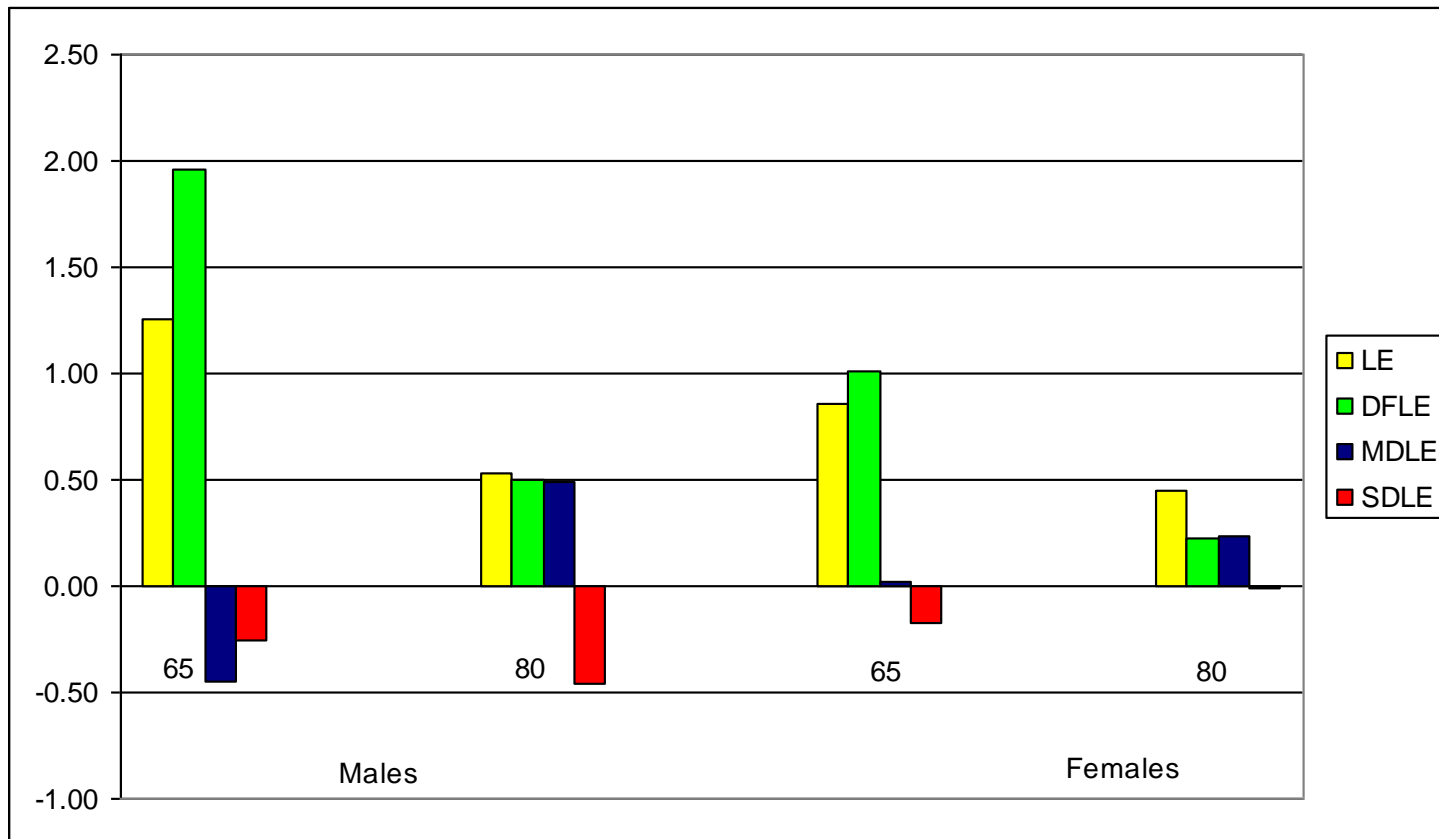


Compression of morbidity.

The future of population health is dependent upon relative movement of the two arrows, the first representing the average age of initial onset of disease or infirmity and the second representing average age at death. If the first moves more rapidly than the second, there is compression of morbidity.

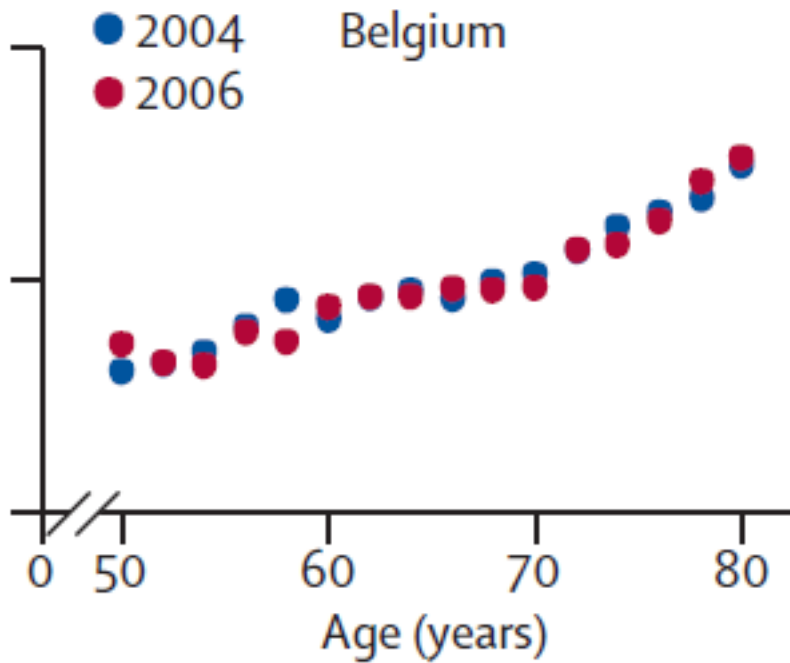
Fries JF et al. Lancet 1989; 1: 481

Change in total life expectancy (LE), disability free LE (DFLE) and LE with moderate (MDLE) and severe (SDLE) disability at ages 65 and 80 by gender, 1997-2004, Belgium

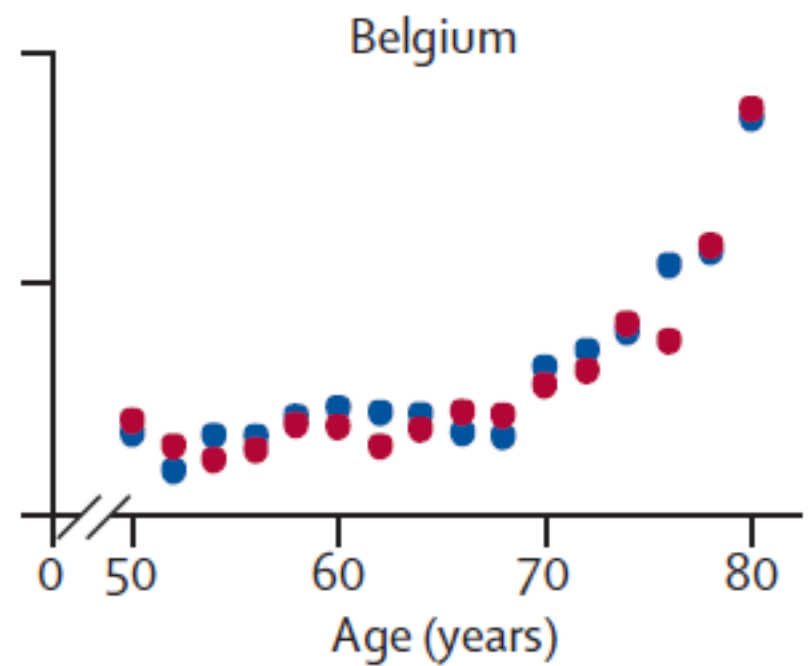


Van Oyen - Congres BVGG, Oostende 2007

ADL



iADL



Chatterji et al. Lancet 2015;385:563



Further reading:

Lancet 2015;385: "Health in an ageing world"

Suzman 484; Prince 549; Chatterji 563; Banerjee 587

Foreman, Lancet 2018;392:2052

*Sander M et al. The challenges of human population ageing.
Age & Ageing 2015; 44: 185.*