Les populations du sud
États des lieux et perspectives

la transition sanitaire

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- La baisse de la mortalité et ses composantes
- De la mortalité à la morbidité globale
- la mortalité parmi les enfants

Mortalité (rappel)

- Mortalité: décès/habitants
- Espérance de vie à la naissance: survie transversale
- Taux de mortalité par âge: mortalité infantile, néonatale, infanto-juvénile etc.
- Taux de mortalité par cause
- Charge de morbidité (*burden of disease*): les années valides perdues par la morbidité et la mortalité

Début de la baisse de la mortalité

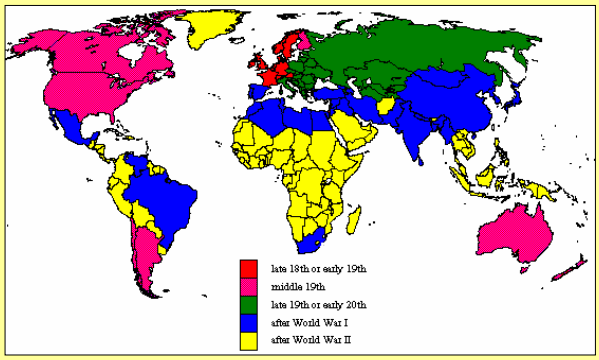
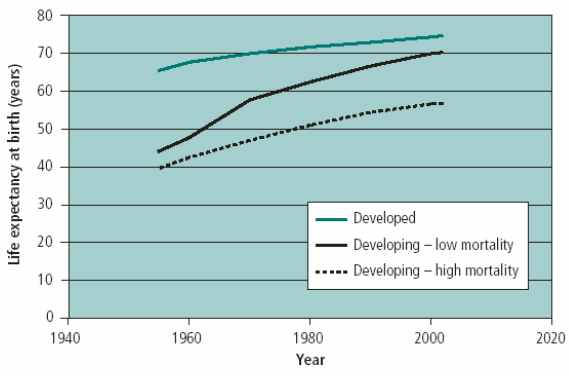


Figure 1.1 Life expectancy at birth: developed and developing countries, 1955–2002



Note: The term developed countries includes Australia, Canada, European countries, former Soviet countries, Japan, New Zealand and the USA. High-mortality developing countries include those in sub-Saharan Africa, and countries with high child and adult mortality in Asia, Central and South America and the Eastern Mediterranean. Other developing countries are referred to as "developing – low mortality".

Abdel Omran. The Epidemiologic Transition: A Theory of the epidemiology of population change. Milbank Quarterly. 1971;49:509-538

Un des plus importants concepts de l'épidémiologie est celui de la transition épidémiologique (ou sanitaire) développé par Omran.

Il passe d'une vue isolée des maladies à une vue systémique de la mortalité

During the epidemiologic transition, a long-term shift occurs in mortality and disease patterns whereby pandemics of infection are replaced by degenerative and man-made diseases...

Ce que proposait Omran était un schéma de baisse de la mortalité par famille de cause.

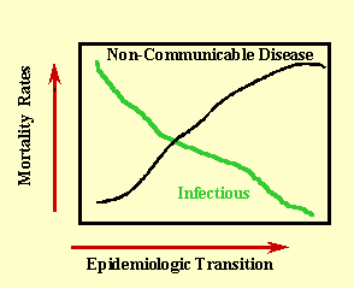
Il a identifié un modèle assez consistent de transition

Des maladies infectieuses vers les maladies dégénératives et non transmissibles

Stages of the Epidemiologic Transition

- Pestilence and Famine
- Receding Pandemics
- Degenerative and man-made diseases

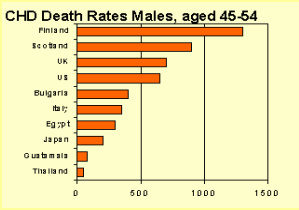
Trois étapes dans cette transition

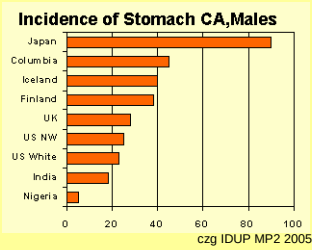


Le schéma sous sa forme simplifiée.

Répartition des décès par cause selon le stade de transition.

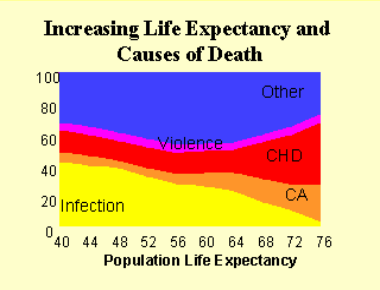
Ces deux dimensions de la mortalité évoluent de manière inverse





La Finlande est la première en termes de maladies cardiaques coronariennes (Coronary heart diseases). Il est intéressant de comparer avec le reste du monde.

Même remarque pour les cancers de l'estomac



Autres

Violences

Cardio-vasculaires

Cancer

Infections

Deux explications de la transition de la mortalité dans les pays en développement

médecine

développement

Interventions des professionnels

Meilleur revenu et Meilleur nutrition

Meilleure santé

Interventions et progrès médical

Deux exemples:

- La malaria
- La lutte contre les diarrhées

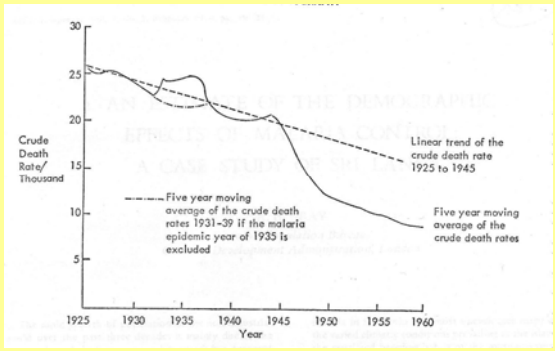
- Autres exemples: campagnes d'immunisation, contrôle des famines, stérilisation de l'eau potable, destruction de vecteurs, etc.

Contrôle de la malaria

- Précédemment, le paludisme était une cause directe ou indirecte majeure de mortalité dans les pays en zones tropicale, comme Maurice ou le Sri lanka
- L'épandage de DDT (développé dans les années quarante) autour des maisons et foyers a éliminé les moustiques, vecteurs de la maladie, et rompu la chaîne de transmission vers les personnes
- L'introduction des campagnes de pulvérisation du DDT a coïncidé avec une chute aprfois brutale des taux de mortalité

  exemple Sri Lanka 1945-1955

Mortalité au Srilanka depuis la période coloniale



Contribution du contrôle de la malaria control à la baisse de la mortalité

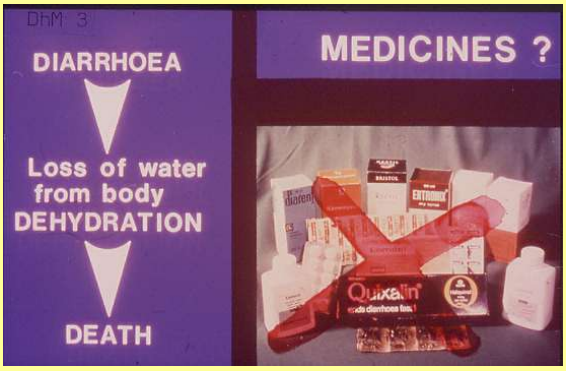
Avant 1945

niveaux de mortalité par district corrélés au « spleen rate »

Après les campagnes de DDT

Chute de la mortalité de 50%

Homogénéisation de la mortalité sur l'île



Réhydration par voie orale: ingrédients et méthodes simples

ORT 1993-6

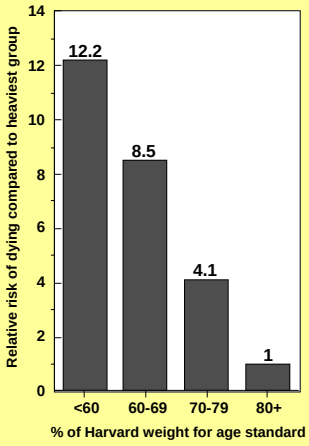
	Épisodes annuels de diarrhées (millions)	% traités par les méthodes ORS/RHF
China	360	85
India	310	67
Nigeria	110	86
Pakistan	90	97
Bangladesh	70	96
Brésil	50	83
Éthiopie	50	95
Congo, Dem. Rep.	50	90
Indonésie	40	99

L'effet développemental

Plus de revenus
- ➢ Plus de nourriture diversifiée
  - ➢Meilleure nutrition
    - ➢Résistance accrue à l'infection
      - ➢Meilleure chance de survie

Relative risk of dying in the next 6 months by % of the Harvard weight for age norm

Indian infants aged 1 to 36 months



Croissance observée et normes (observatoire au Guatemala)

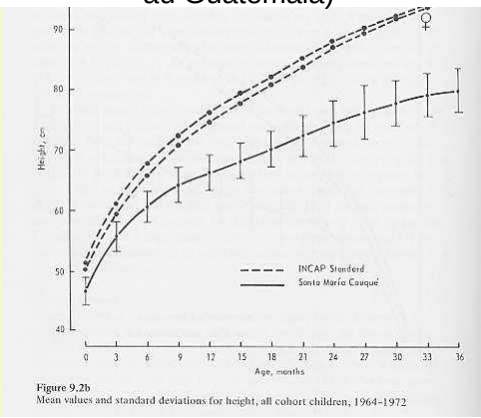


Figure 9.2b
Mean values and standard deviations for height, all cohort children, 1964-1972

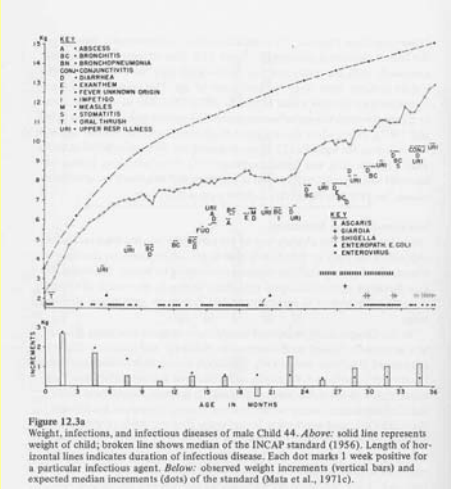


Figure 12.3a
Weight, infections, and infectious diseases of male Child 44. *Above:* solid line represents weight of child; broken line shows median of the INCAP standard (1956). Length of horizontal lines indicates duration of infectious disease. Each dot marks 1 week positive for a particular infectious agent. *Below:* observed weight increments (vertical bars) and expected median increments (dots) of the standard (Mata et al., 1971c).

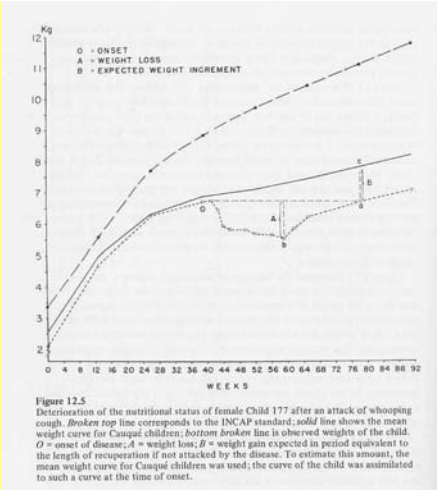


Figure 12.5
Deterioration of the nutritional status of female Child 177 after an attack of whooping cough. *Broken top* line corresponds to the INCAP standard; *solid* line shows the mean weight curve for Cauqué children; *bottom broken* line is observed weights of the child. *O* = onset of disease; *A* = weight loss; *B* = weight gain expected in period equivalent to the length of recuperation if not attacked by the disease. To estimate this amount, the mean weight curve for Cauqué children was used; the curve of the child was assimilated to such a curve at the time of onset.

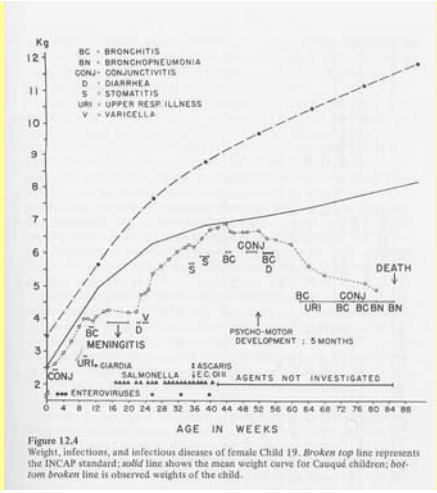


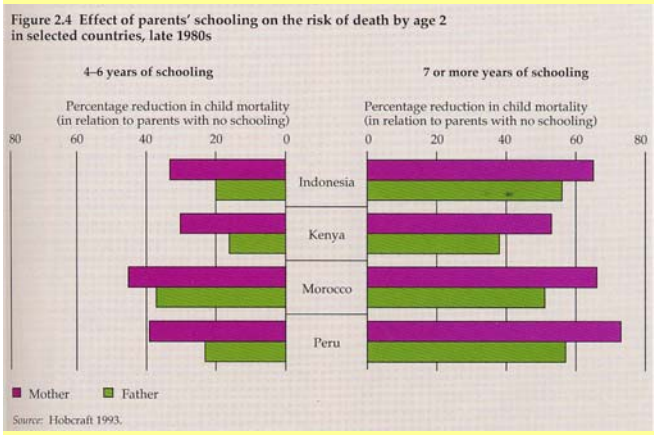
Figure 12.4
Weight, infections, and infectious diseases of female Child 19. *Broken top* line represents the INCAP standard; *solid* line shows the mean weight curve for Cauqué children; *bottom broken* line is observed weights of the child.

Le statut nutritionnel joue un rôle critique, mais dépend également

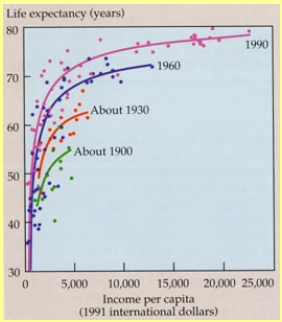
du passé infectieux

des facteurs comportementaux (éduction de la mère etc.)

du statut socioéconomique (lien instable ou ambigu)



The changing relationship between life expectancy and income (Preston et al)



Low income countries: dissociation of decline in U5MR & concurrent income trends, 1980-95

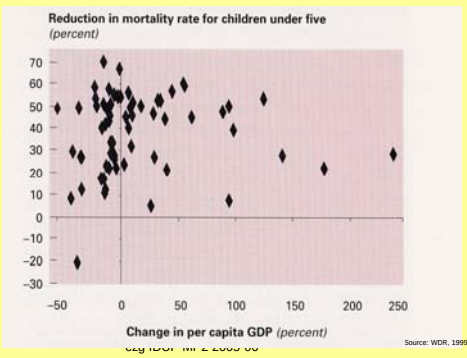
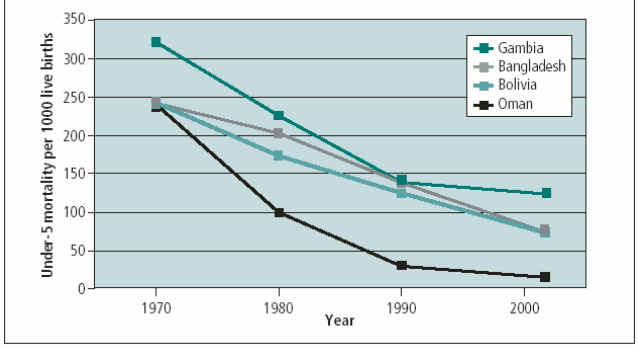


Figure 1.7 Countries with large absolute reductions in child mortality since 1970



Quelques recettes pour la baisse de la mortalité

- Transfert des savoirs en santé publique
- Interventions sur des régions limitées
- Éducation de la population
- Autonomisation féminine
- Démocratisation

The global burden of disease (GBD)
charge globale de morbidité

- The GBD study is a collaboration between the WHO, the World Bank and the Harvard School of Public Health
- GBD refers to the collective impact of disease on the world population. It is a product of complex and interwoven demographic, economic, social, political, religious and environmental factors
- GBD is a measure of the amount of disease, disability, and death in the world today. Disease burden can be attributed to
  - *specific diseases* (e.g. HIV, TB, obesity, diabetes) and also
  - *risks for ill health* (unsafe sex, overcrowding, smoking, excess cholesterol)
- The measurement of GBD was initiated to address the problems associated with the preventable diseases in each region of the world. It also helps to calculate how much of risks to health could be avoided in future years
- An essential development of this project was a single indicator of total disease burden – the DALY….

Disability Adjusted Life Year DALY
années de vie ajustées sur l'incapacité

- The only differences in the rating of a death or disability should be due to age and sex, not to income, culture, location, social class.
- Everyone in the world has right to best life expectancy in world
- DALY = YLL + YLD
  - Years of Lost Life (due to mortality)
  - *Years Lost to Disability (due to injury & illness)*

Years of Lost Life: Examples

Age at Death	Female	Male
0	82.5	80.0
1	81.8	79.5
5	78.0	75.4
15	68.0	65.4
25	58.2	55.5
35	48.4	45.6
50	34.0	31.0
80	8.9	7.5
100	2.0	1.5

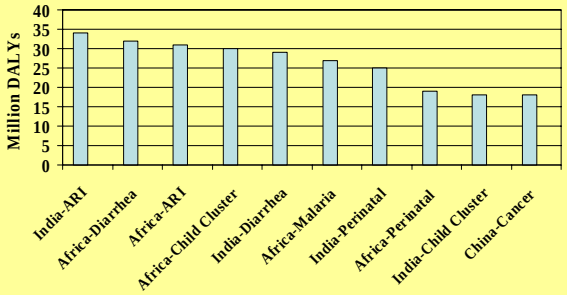
Examples of Disability Weights

- 0-0.02 Vitiligo on face
- 0.02-0.12 Diarrhea, sore throat
- 0.12-0.24 Radius fracture in stiff cast
- 0.24-0.36 Below the knee amputation
- 0.36-0.5 Down syndrome, COPD
- 0.5-0.7 Unipolar depression, tetanus
- 0.7-1.00 Psychosis, quadriplegia

World DALYS Lost (1990)

	Pop million	Deaths million	Crude Death Rate	DALYs million	DALYs Per Death
LDCs	4120	39.6	0.0010	1240	31.3
MDCs	1140	10.9	0.0010	140	12.8
World	5260	50.5	0.0010	1380	27.3

Top Ten Diseases - 1990



Africa = Sub Saharan Africa

Impact on Women and Children

	Percent of Population	Percent of Lost DALYs
LDCs	67%	76%
MDCs	62%	50%
World	66%	73%

GBD Estimates from 1990 to 2000

- Population: 5.3/6.0 billion (+15%)
- Deaths: 50/56 million (+10%)
- DALYs: +6.7%
- DALYS/capita: -7%

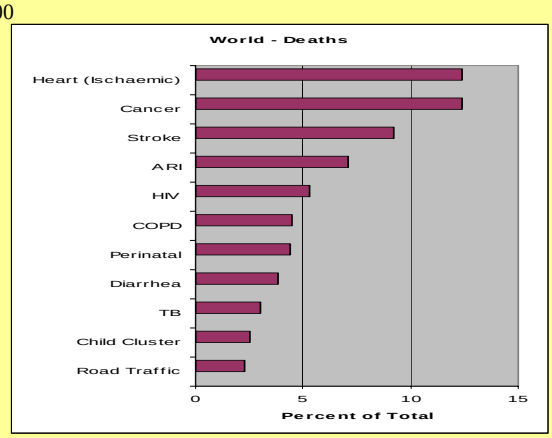
World Health Report, 2001

Changes in Important Diseases: 1990-2000

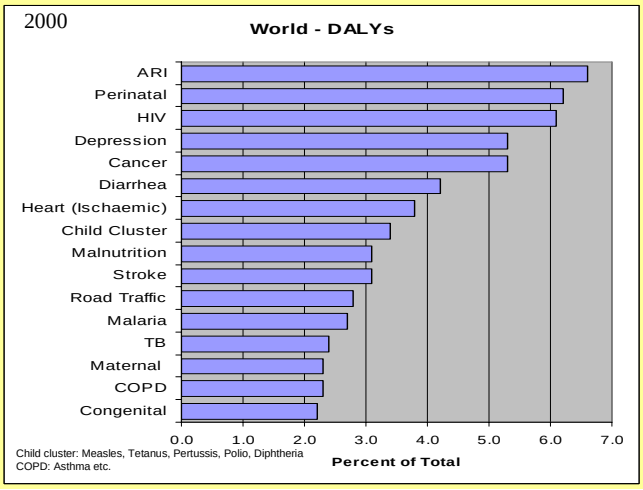
- HIV: 0.8/6.1% (8.1x in absolute terms)
- TB: 2.8/2.4% (0.93x)
- Malaria: 2.3/2.7% (1.3x)
- ARI: 8.5/6.6% (0.84x)
- Diarrhea: 7.3/4.2% (0.62x)
- Lung Cancer: 0.65/0.8% (1.3x)
- Depression: 4.7/5.3 (1.21x)

World Health Report, 2001

2000



2000



Child cluster: Measles, Tetanus, Pertussis, Polio, Diphtheria
COPD: Asthma etc.

Risks rather than specific diseases

- An alternative way at looking at ill health is to consider risks for disease rather than diseases themselves.
- A risk is defined as the probability of an adverse health outcome or a factor that raises this probability
- A single risk factor may underlie several diseases; e.g. unsafe sex is a risk for HIV/AIDS, many other sexually transmitted diseases and teenage pregnancy
- It is often more useful to direct health interventions against risks rather than specific diseases
- DALYs have been assigned to health risks as well as diseases

Relationship between risks to health and disease burden

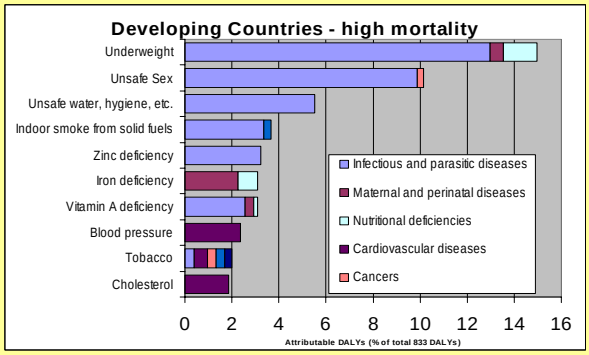
Major factors have been identified which threaten the health of people living in different regions of the world. These global risks are widely spread in populations and are strongly related to patterns of living and particularly to consumption.

The vast majority of threats to health are more commonly found in the poor and in those with little education and lowly occupations. Therefore, the leading risks to health identified in developing countries are also the leading health risks at the global level.

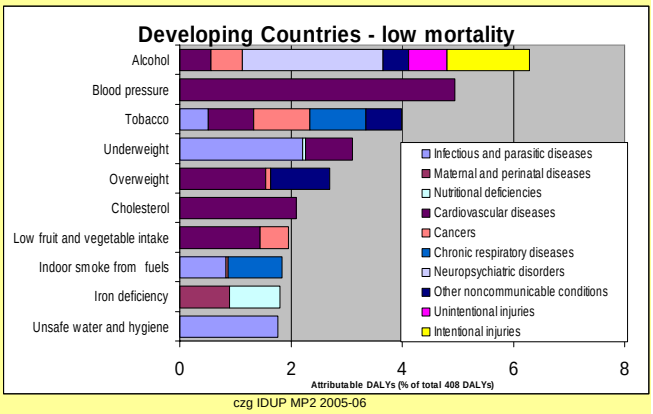
Leading risks to health

- Underweight – the leading risk factor for disease and death in the world today. Particularly affects young children, women during pregnancy and the elderly
- Unsafe sex - the main factor in the spread of HIV/AIDS. > 99% of HIV infections in Africa are attributable to unsafe sex
- Unsafe water
- Poor sanitation and hygiene - about 2 million deaths from childhood infectious diarrhoea still occur every year in the developing countries of the world
- iron deficiency
- in-door smoke from solid fuels. Half of the world's population is exposed to in-door pollution, mainly the result of burning solid fuels for cooking and heating. Globally, it is estimated that 36% of all lower respiratory infections and 22% of chronic obstructive pulmonary disease are associated with this in-door pollution.

Burden of disease attributable to 10 selected leading risk factors in high-mortality developing countries



Burden of disease attributable to 10 selected leading risk factors in low-mortality developing countries



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