

Epidemiology and the (European) healthcare perspective

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&

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Resource pooling & allocation

Collector of resources → **Third-party payer**

Mobilizing resources/
funding

Purchasing/
contracting/
financing
providers

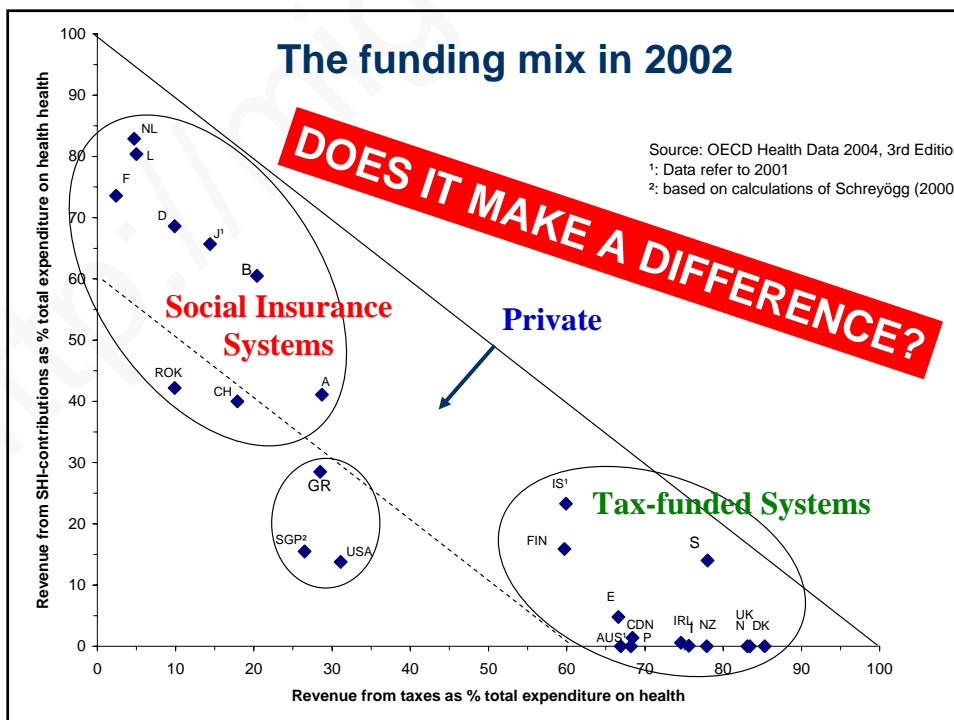
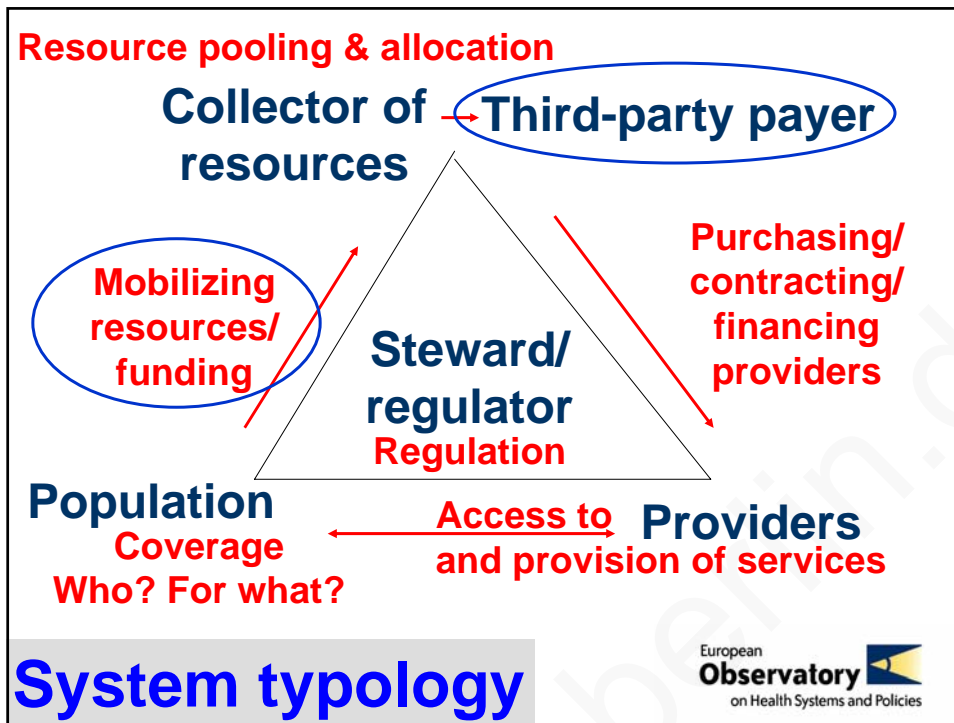
**Steward/
regulator**
Regulation

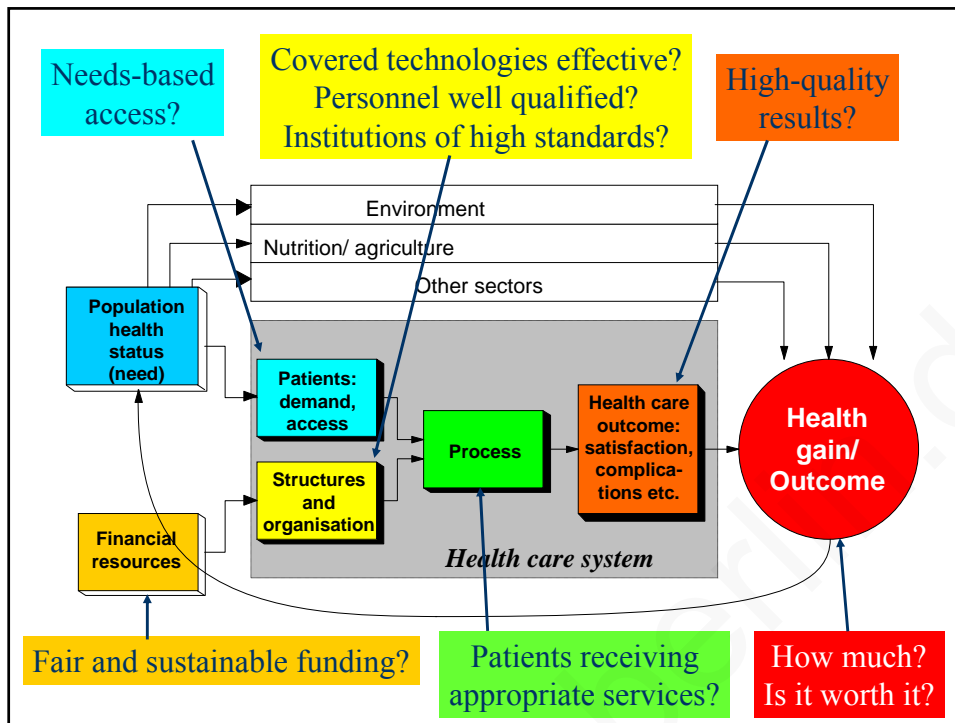
Population
Coverage:
Who? What?
How much?

← **Access to** → **Providers**
and provision of services

Functions

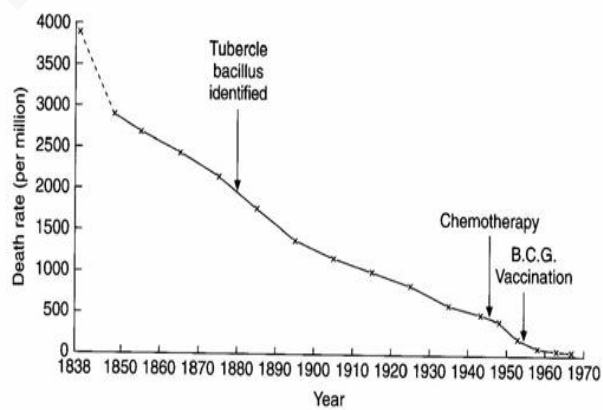






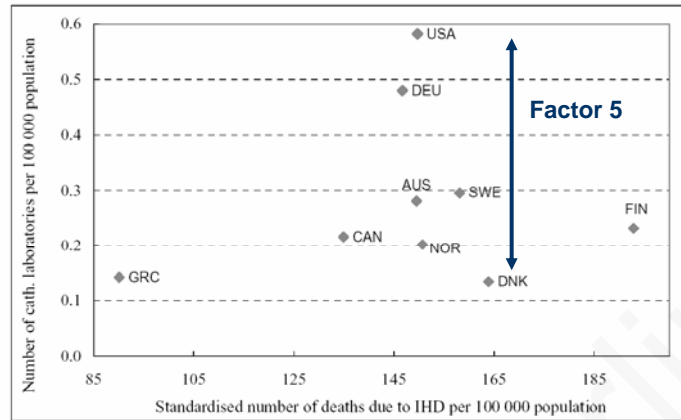
The scepticism of the 1970s

Thomas McKeown and the role of medicine



And there are still reasons to be sceptical ...

Chart 63c. Number of catheterisation laboratories and IHD mortality, per 100 000 inhabitants

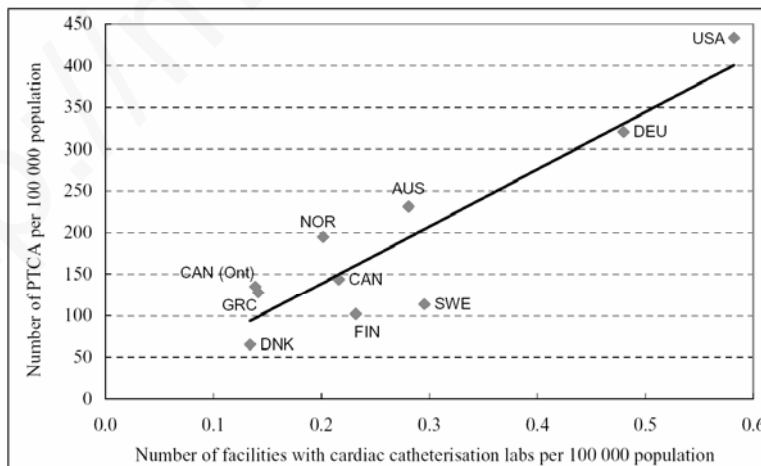


Note: Canada, Denmark, Sweden (1995); Germany, Japan, United States (1996); for the other countries: cath lab (2000); for Australia, Norway: mortality (1995); for Finland: mortality (1996); for Greece: mortality (1997); for Hungary: mortality (1998). Data standardised to the European population aged 40 and over.

Sources: For number of catheterisation laboratories see Chart 3. For IHD mortality - OECD Health Database (2000).

... the more structures, the more processes ...

Chart 62b. Utilisation rates for PTCA and no. of catheterisation facilities, per 100 000 inhabitants

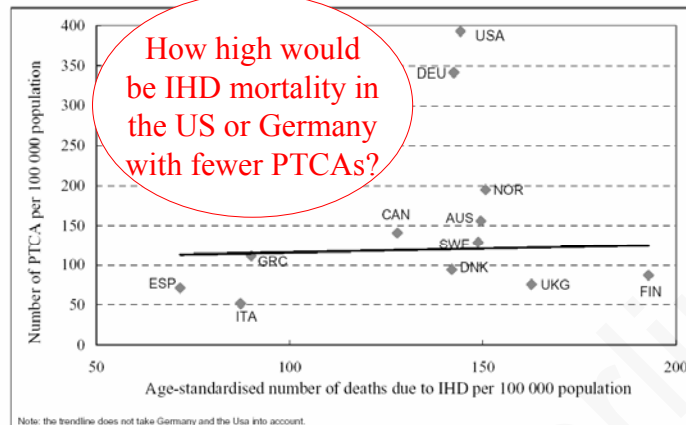


Note: Canada, Ontario, Denmark, Sweden (1995); Germany, United States (1996); Greece (1999). For Australia, Finland and Norway: PTCA (1998), catheterisation laboratories (2000). The figures for facilities includes all facilities able to do cardiac catheterisation due to the difficulty of separating these facilities from those additionally equipped to do PTCA. Refer to Chart 3 for additional notes.

Source: For number of PTCA per 100,000 population see Chart 35. For number of cardiac catheterisation laboratories per 100,000 population see Chart 3.

No correlation between IHD mortality and PTCA treatments? (*Is mortality need or outcome?*)

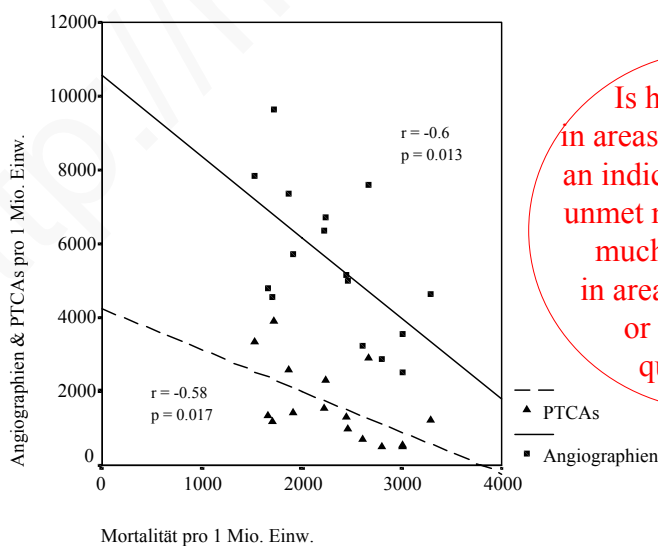
Chart 63b. Utilisation rates for PTCA and IHD mortality, per 100 000 inhabitants



Note: Belgium (1994); Australia, Spain (1995); Denmark, Finland, Sweden (1996); Canada, Germany, Greece, United Kingdom, United States (1997). For Italy: mortality (1995) and PTCA (1996); for Norway: mortality (1995) and PTCA (1998). Data standardised to the European population aged 40 and over.

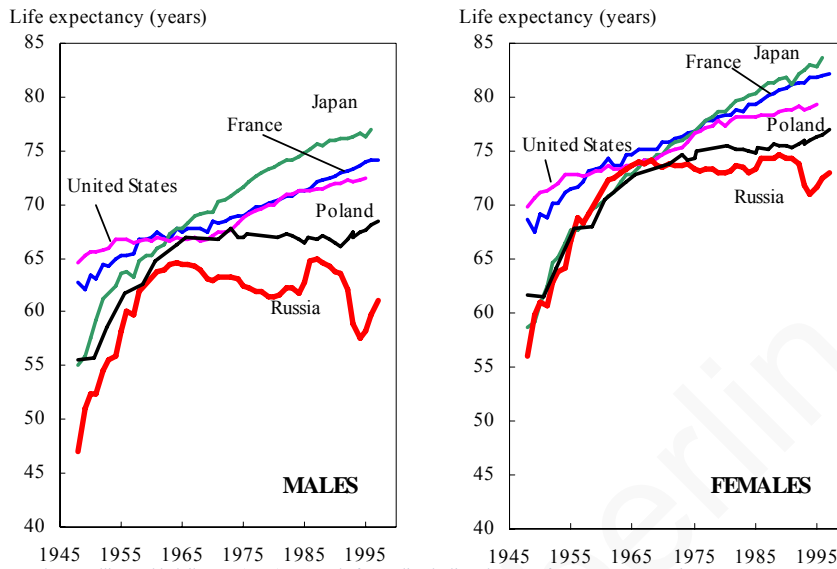
Sources: For number of PTCA per 100,000 population see Chart 35. For IHD mortality - OECD Health Database (2000).

... or is there a correlation between mortality and PTCA use? (here: German Länder or Regierungsbezirke)



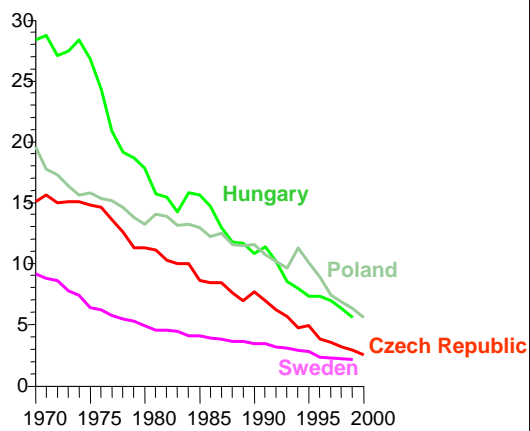
Quelle: Perleth et al. „Cardiac catheterization in Germany“, Int J Technol Assess Health Care 1999; 15: 764

Trends in life expectancy in selected countries since WW II



Source: Meslé F., Vallin J., Shkolnikov V. (2000) Reversal of mortality decline: the case of contemporary Russia, *World Health Statistics Quarterly*, 51, Geneva, WHO, pp. 191-206

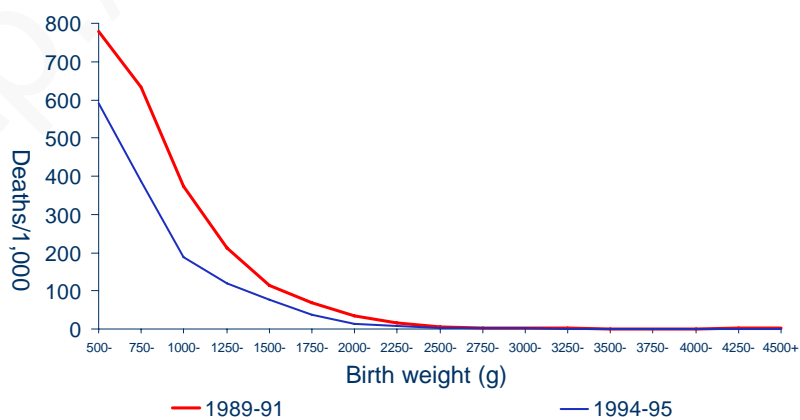
Neonatal deaths per 1000 live births: A success story



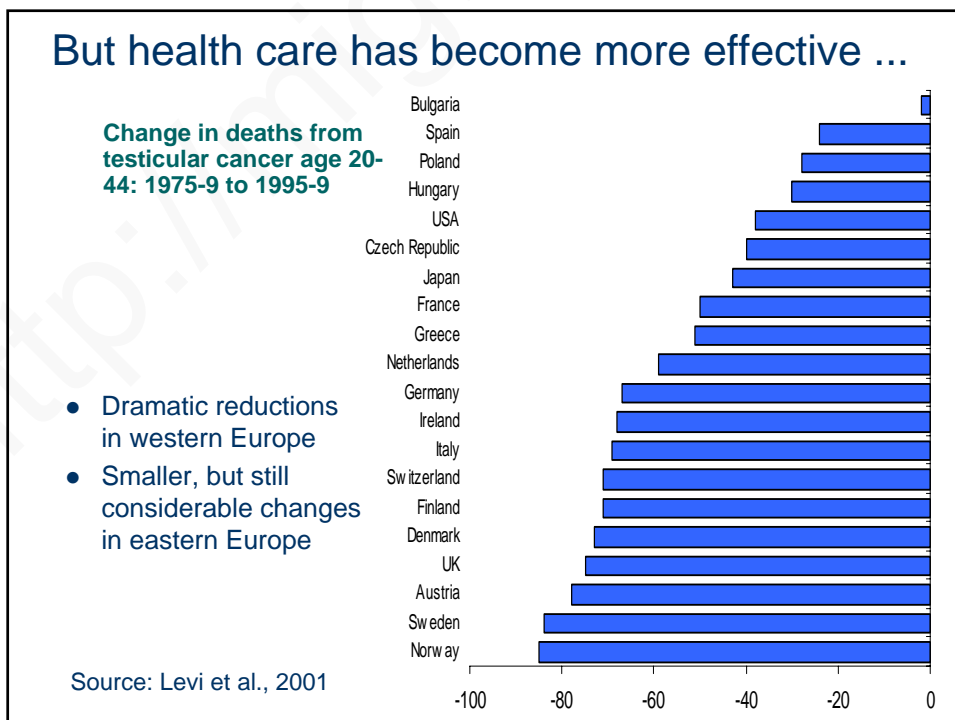
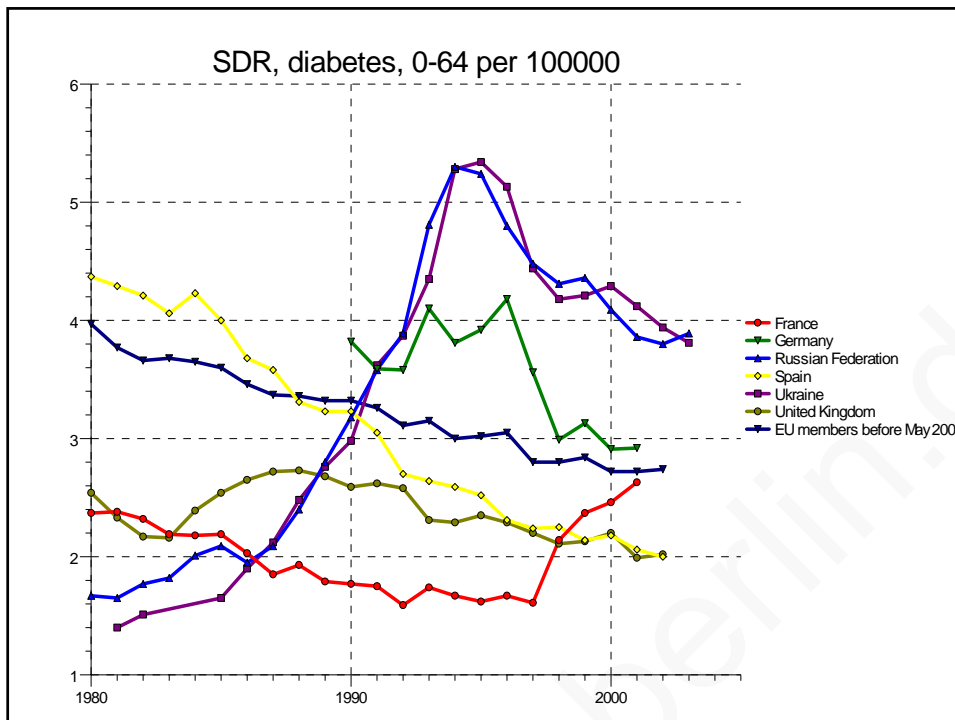
So what do mortality data tell us about the impact of health systems?

- On their own, almost nothing
- They do, however, raise some questions:
 - Can we identify particular groups of patients which die more or less often?
 - Can we identify causes of death that should not happen in the presence of timely and effective care?
 - Can we identify causes of death which, while not entirely avoidable, can at least be reduced by timely and effective care?

Birthweight specific infant mortality: Czech Republic

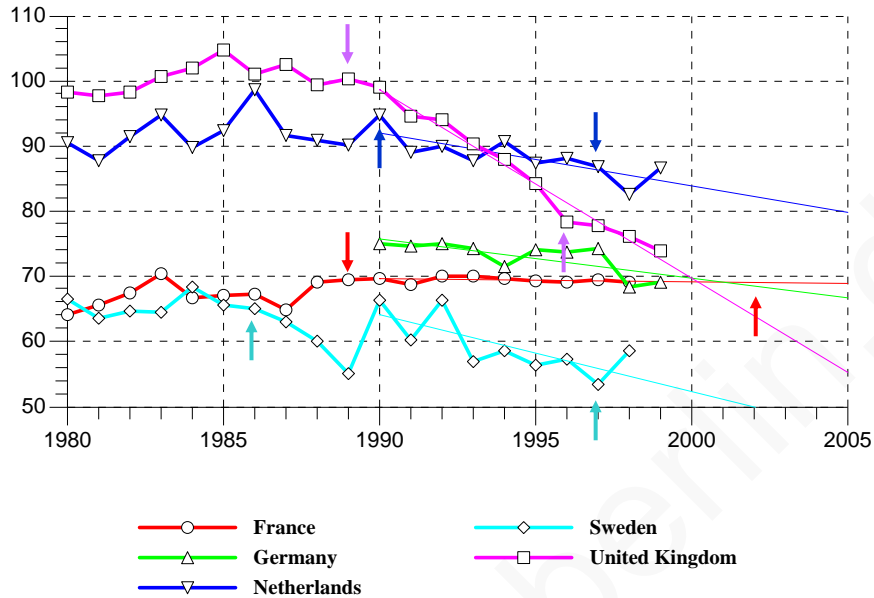


Koupilová, McKee & Holčík. Health Policy, 1998

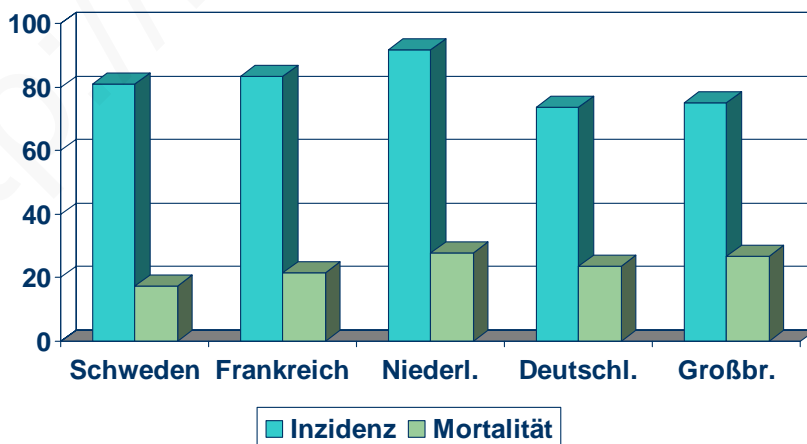


The case of mammography screening ...

10518 SDR, malig.neoplasm fem.breast,55-64/100000

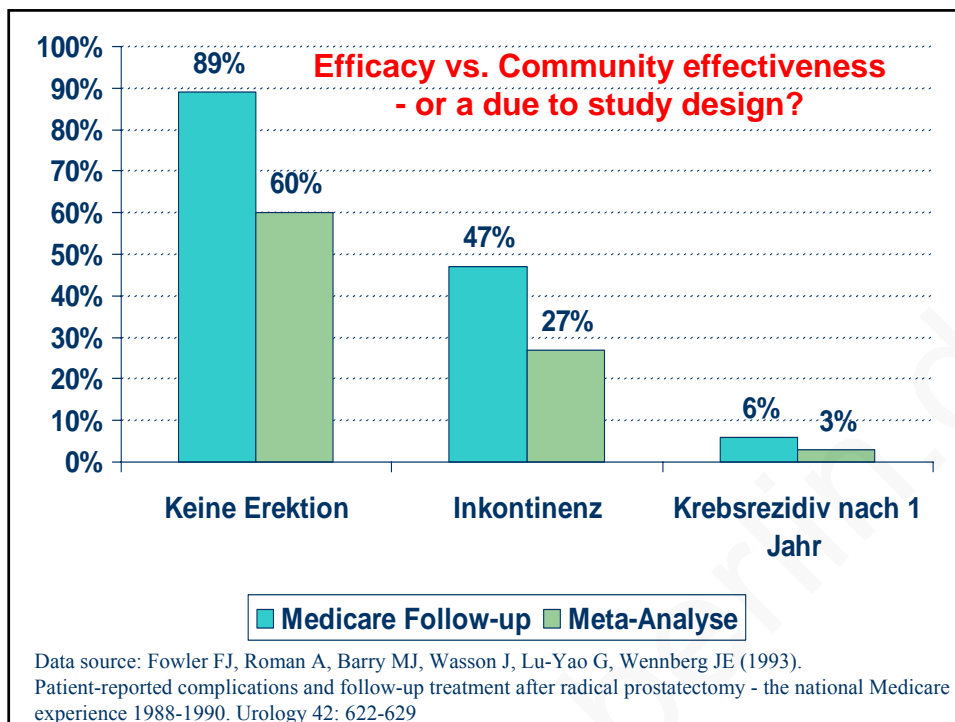


Do relatively few women die in Germany because they are treated effectively – or do simply fewer women get breast cancer?



Altersstandardisierte Daten von 1996/97: GLOBOCAN 2000

Health care less effective



Avoidable (or: amenable) mortality

- Idea goes back to Florence Nightingale
- Concept developed in 1970s by Rutstein (for quality assurance purposes)
- List of causes of death at particular ages where death should not occur
- Examples include
 - diabetes under age 49,
 - leukaemia under age 15,
 - Asthma under age 65
- Later separated into two groups
 - Amenable to medical care ("treatable")
 - e.g. appendicitis, asthma, diabetes
 - Preventable
 - e.g. cirrhosis, lung cancer

Name of group	Age	ICD9	ICD10	'Treatable/ 'Preventable'	
1	Intestinal infections	0-14	001-009	A00-A09	'Treatable'
2	Tuberculosis	0-74	010-018, 137	A15-A19, B90	'Treatable'
3	Other infectious (Diphtheria, Tetanus, Poliomyelitis)	0-74	032, 037, 045	A36, A35, A80	'Treatable'
4	Whooping cough	0-14	033	A37	'Treatable'
5	Septicaemia	0-74	038	A40-A41	'Treatable'
6	Measles	1-14	055	B05	'Treatable'
7	Malignant neoplasm of colon and rectum	0-74	153-154	C18-C21	'Treatable'
8	Malignant neoplasm of skin	0-74	173	C44	'Treatable'
9	Malignant neoplasm of breast	0-74	174	C50	'Treatable'
10	Malignant neoplasm of cervix uteri	0-74	180	C53	'Treatable'
11	Malignant neoplasm of cervix uteri and body of the uterus	0-44	179, 182	C54, C55	'Treatable'
12	Malignant neoplasm of testis	0-74	186	C62	'Treatable'
13	Hodgkin's disease	0-74	201	C81	'Treatable'
14	Leukaemia	0-44	204-208	C91-C95	'Treatable'
15	Diseases of the thyroid	0-74	240-246	E00-E07	'Treatable'
16	Diabetes mellitus	0-49	250	E10-E14	'Treatable'
17	Epilepsy	0-74	345	G40-G41	'Treatable'
18	Chronic rheumatic heart disease	0-74	393-398	I05-I09	'Treatable'
19	Hypertensive disease	0-74	401-405	I10-I13, I15	'Treatable'
20	Ischaemic heart disease	0-74	410-414	I20-I25	separate (see text)
21	Cerebrovascular disease	0-74	430-438	I60-I69	'Treatable'
22	All respiratory diseases (excl. pneumonia/influenza)	1-14	460-479, 488-519	J00-J09, J20-J99	'Treatable'
23	Influenza	0-74	487	J10-J11	'Treatable'
24	Pneumonia	0-74	480-486	J12-J18	'Treatable'
25	Peptic ulcer	0-74	531-533	K25-K27	'Treatable'
26	Appendicitis	0-74	540-543	K35-K38	'Treatable'
27	Abdominal hernia	0-74	550-553	K40-K46	'Treatable'
28	Cholelithiasis & cholecystitis	0-74	574-575.1	K80-K81	'Treatable'
29	Nephritis and nephrosis	0-74	580-589	N00-N07, N17-N19, N25-N27	'Treatable'
30	Benign prostatic hyperplasia	0-74	600	N40	'Treatable'
31	Maternal deaths	All	630-676	O00-O99	'Treatable'
32	Congenital cardiovascular anomalies	0-74	745-747	Q20-Q28	'Treatable'
33	Perinatal deaths, all causes excluding stillbirths	All	760-779	P00-P96 ?	'Treatable'
34	Misadventures to patients during surgical and medical care	All	E870-E876, E878-E879	Y60-Y69, Y83-Y84	'Treatable'
35	Malignant neoplasm of trachea, bronchus, and lung	0-74	162	C33-C34	'Preventable'
36	Cirrhosis of liver	0-74	571	K70, K73-K74	'Preventable'
37	Motor vehicle accidents	All	E810-825	V02-V04, V09, V12-V14, V20-V79, V82-V87, V89	'Preventable'

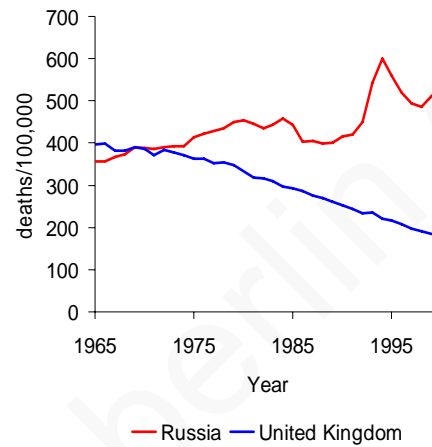
	England & Wales	USA	France	Japan	Italy	Sweden	Netherlands	Spain
Time analysed	1956-1978						1969-84	1975-90
Age groups included	5-64 y.						0-74 y.	5-64 y.
Share "medically amenable/ avoidable" mortality of total mortality (cross-sectional analysis)								
1956	17.3%	15.8%	15.3%	33.3%	19.7%	15.8%		
1969							18.4%	
1975/ 78	9.6%	6.3%	7.4%	19.6%	11.3%	7.1%		15.5%
1984							11.7%	
1990								7.5%
Change in mortality per year (longitudinal analysis)								
„Medically amenable“ mortality	-3.2%	-3.6%	-4.5%	-5.6%	-3.8%	-4.2%	-4.5%	-6.5%
Other mortality	-0.2%	-0.4%	-1.0%	-2.5%	-0.8%	-0.1%	-1.1%	-1.2%
Total mortality	-0.6%	-0.9%	-1.4%	-3.4%	-1.3%	-0.6%	-1.6%	-1.8%
Share of "medically amenable" mortality of change in total mortality								
	71%	59%	38%	46%	45%	78%	43%	41%

Busse 1998

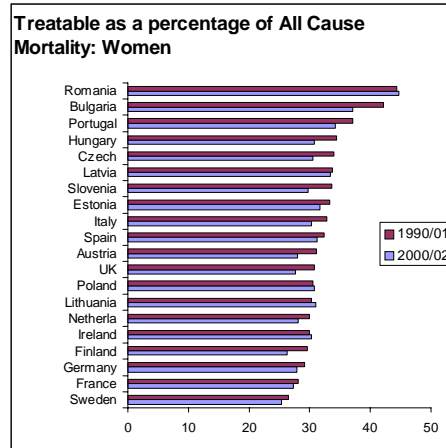
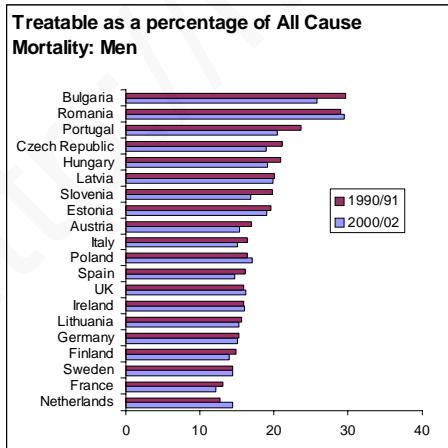
Avoidable mortality

What happened where medical care failed to modernise?

- Death rate from avoidable mortality in UK and Russia similar in 1965, when little could be done
- Gap began to widen in 1970s, and has continued to do so since

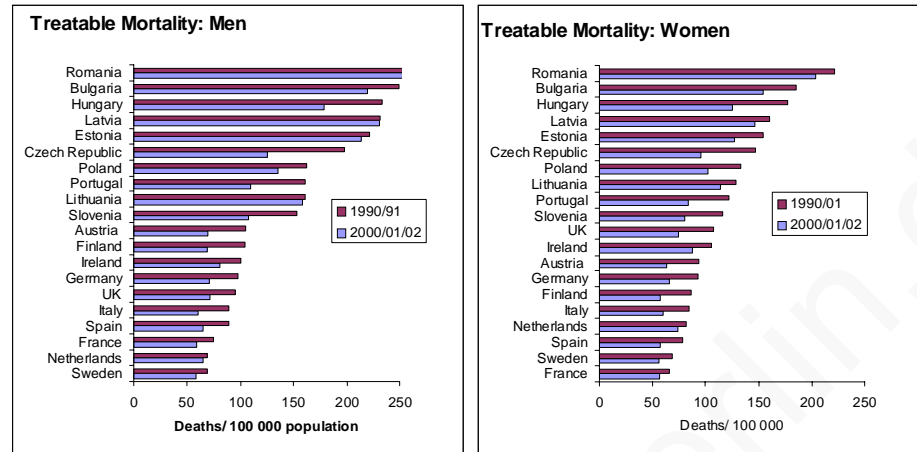


Treatable mortality as a proportion of all cause mortality in 18 EU member states and the candidate countries Bulgaria and Romania, 1990/91 and 2000/02



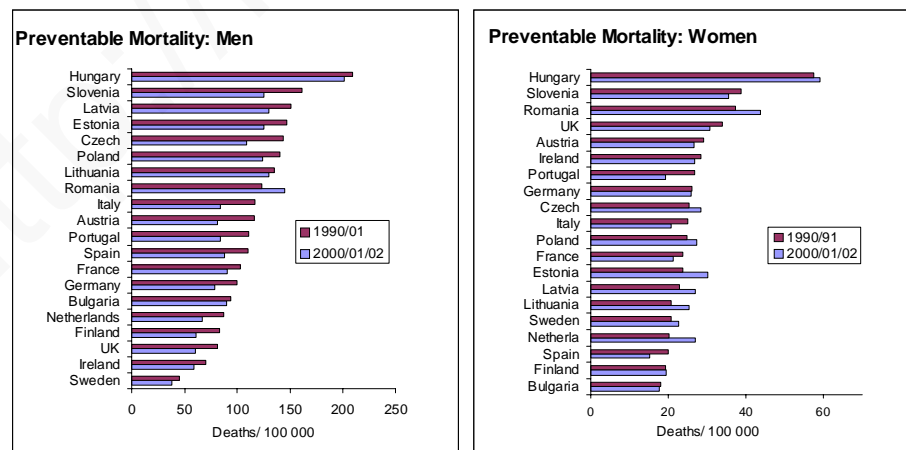
Newey, Nolte, McKee & Mossialos 2004

Age-standardised death rates of treatable mortality in 18 EU member states and the candidate countries Bulgaria and Romania, 1990/91 and 2000/02



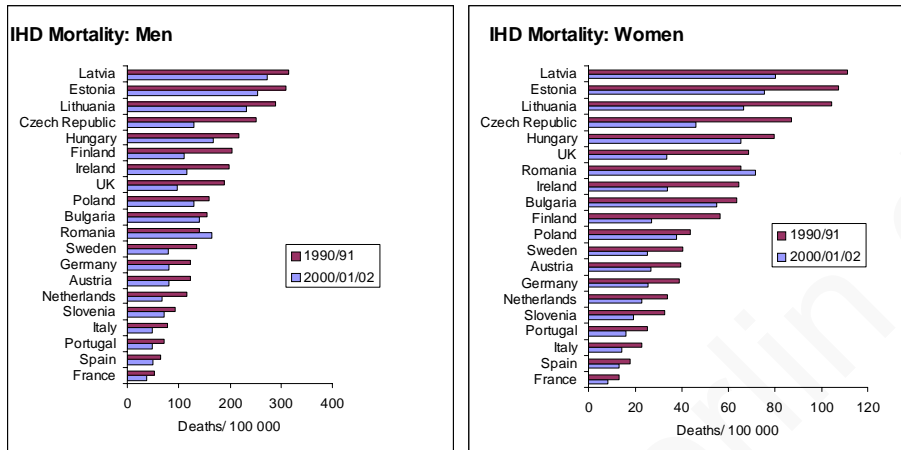
Newey, Nolte, McKee & Mossialos 2004

Age-standardised death rates of preventable mortality in 18 EU member states and the candidate countries Bulgaria and Romania, 1990/91 and 2000/02

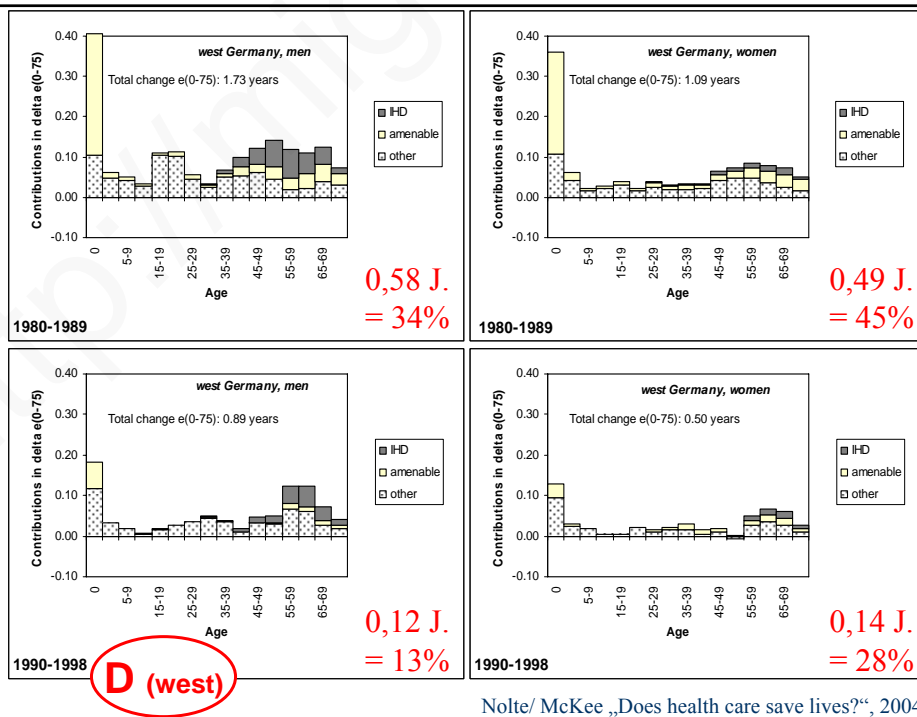


Newey, Nolte, McKee & Mossialos 2004

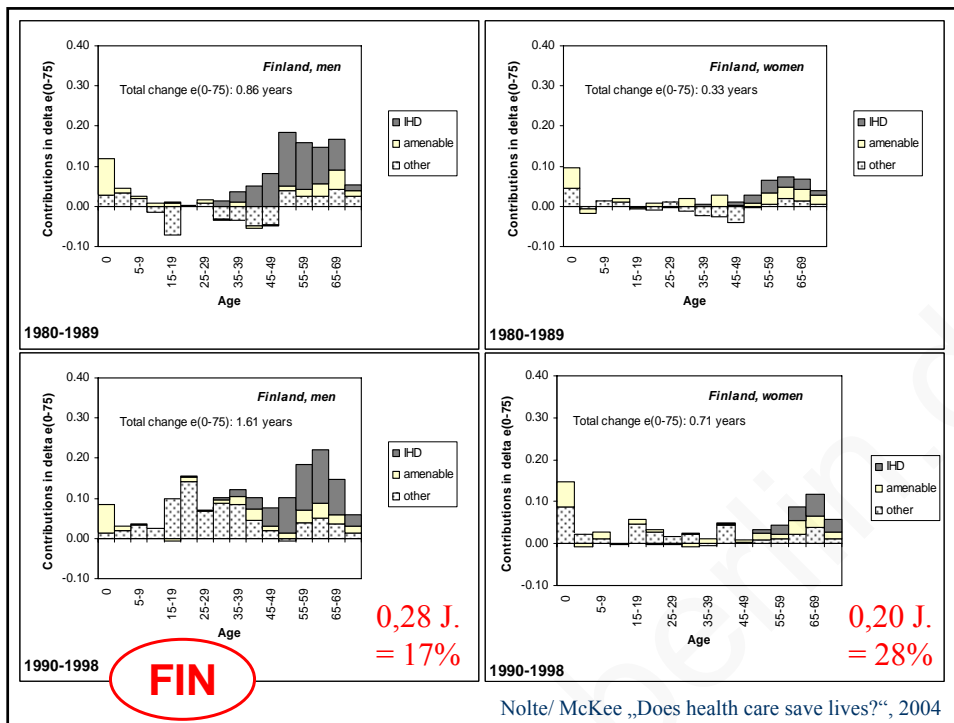
Age-standardised death rates of IHD mortality in 18 EU member states and the candidate countries Bulgaria and Romania, 1990/91 and 2000/02



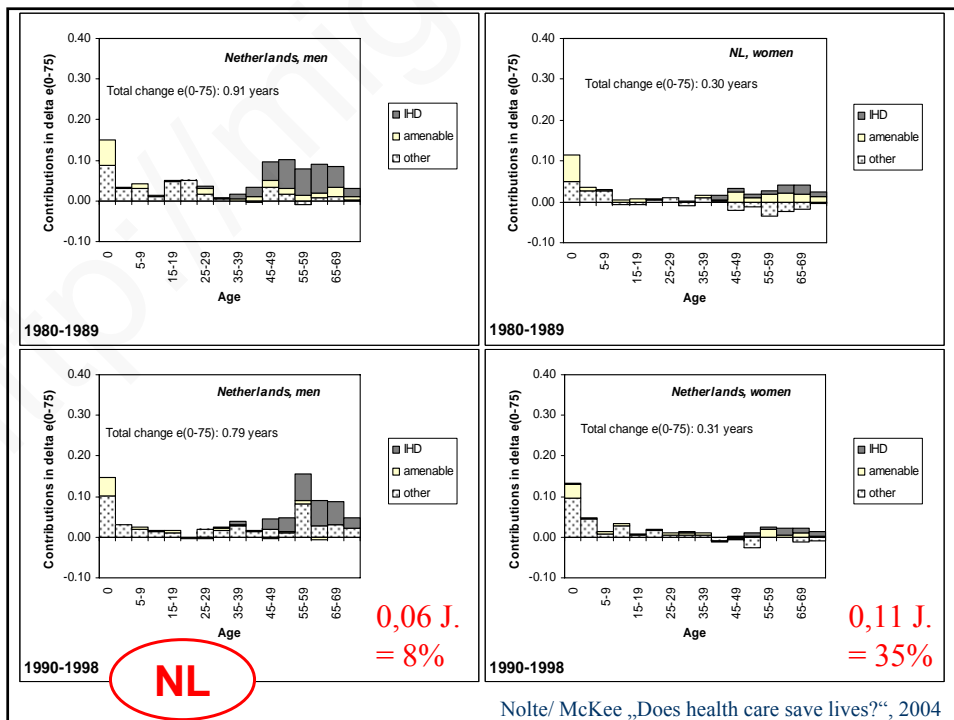
Newey, Nolte, McKee & Mossialos 2004



Nolte/ McKee „Does health care save lives?“, 2004



Nolte/ McKee „Does health care save lives?“, 2004



Nolte/ McKee „Does health care save lives?“, 2004

Epidemiology and health care research

- One half of health care research is epidemiology-dependent
- Researching the effectiveness and quality of health care (*let alone a ranking of health systems*) needs epidemiological methods
- The other side of the coin: epidemiology itself needs to take the variable „health care“ more seriously

Technische Universität Berlin



Präsentation und weiteres
Material ist verfügbar auf:

<http://mig.tu-berlin.de>

www.observatory.dk



Deutschsprachige Artikel
zu Gesundheitssystemen
international:

www.healthcaresystems.de