SERVIZIO SANITARIO REGIONALE
EMILIA-ROMAGNA
Azienda Unità Sanitaria Locale di Modena

Valutazioni economiche e test diagnostici

Massimo Brunetti

Sviluppo Organizzativo
AUSL Modena

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Clinical Evidence, 2008

Efficacia degli interventi in sanità

Screening

- Ogni **2.000** persone invitate:

  - Ad **1** persona viene allungata la vita

  - **10** sono persone sane diagnosticate come malate e che quindi vengono trattate in modo inutile

  - **200** sono i falsi positivi che hanno un forte stress, oltre agli esami inutili a cui vengono sottoposti

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- Come cittadino, vi sottoporreste a questo screening?
- Come decisore, lo implementereste?

News & Events

Current news

Cochrane opportunities/jobs

Other opportunities/jobs

Cochrane Collaboration Calendar

Colloquia

Select evidence-based health care events

Workshops

Stay Connected

- Official Blog
- Discussion lists
- Cochrane in the News
- Newsletters

Mammography screening ten years on: reflections on a decade since the 2001 review

posted on: 2011-10-27 13:05

Tags: Cochrane Library, Cochrane Reviews, Evidence-based health care

Peter Gøtzsche, Director of the Nordic Cochrane Centre, is one of the authors of the landmark 2001 Cochrane systematic review 'Screening for breast cancer with mammography'. Ten years on from first publication, he reflects on the review's impact on healthcare policy and practice.

See also: Cochrane in the News report on planned review of UK breast cancer screening policy and the Cochrane Library *Special Collection on breast cancer detection.*

It created a lot of stir when we published our systematic review of mammography screening in *The Lancet* and in *The Cochrane Library* in October 2001. We showed that - because of substantial overdiagnosis – women who are screened have higher rates of aggressive treatment, including increased mastectomies. We also raised concerns

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Analysis 1.9. Comparison 1 Screening with mammography versus no screening, Outcome 9 Overall mortality, 13 years follow up.

Review: Screening for breast cancer with mammography

Comparison: 1 Screening with mammography versus no screening

Outcome: 9 Overall mortality 13 years follow up

Study or subgroup	Screening n/N	No screening n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 Adequately randomised trials					
Canada 1980a	413/25214	413/25216		8.2 %	1.00 [0.87, 1.14]
Canada 1980b	734/19711	690/19694		13.8 %	1.06 [0.96, 1.18]
Malm 1976	2537/21088	2593/21195		51.6 %	0.98 [0.93, 1.04]
UK age trial 1991	960/53884	1975/106956		26.4 %	0.96 [0.89, 1.04]
Subtotal (95% CI)	**119897**	**173061**		**100.0 %**	**0.99 [0.95, 1.03]**

Total events: 4644 (Screening), 5671 (No screening)

Heterogeneity: $Chi^2 = 2.38$, df = 3 (P = 0.50); $I^2 = 0.0\%$

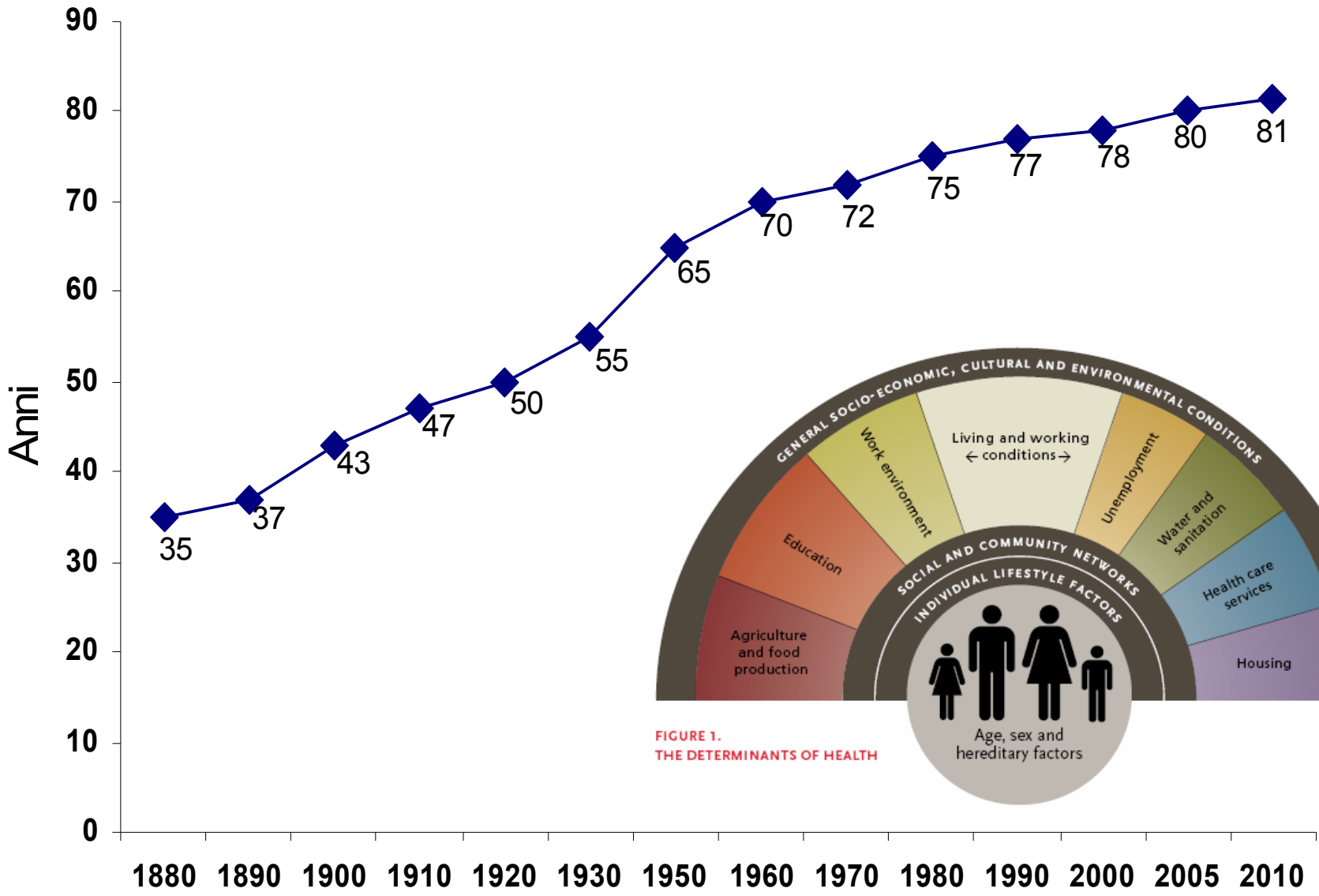
Test for overall effect: Z = 0.48 (P = 0.63)

Aumento dell’aspettativa di vita

Sviluppo tecnologico

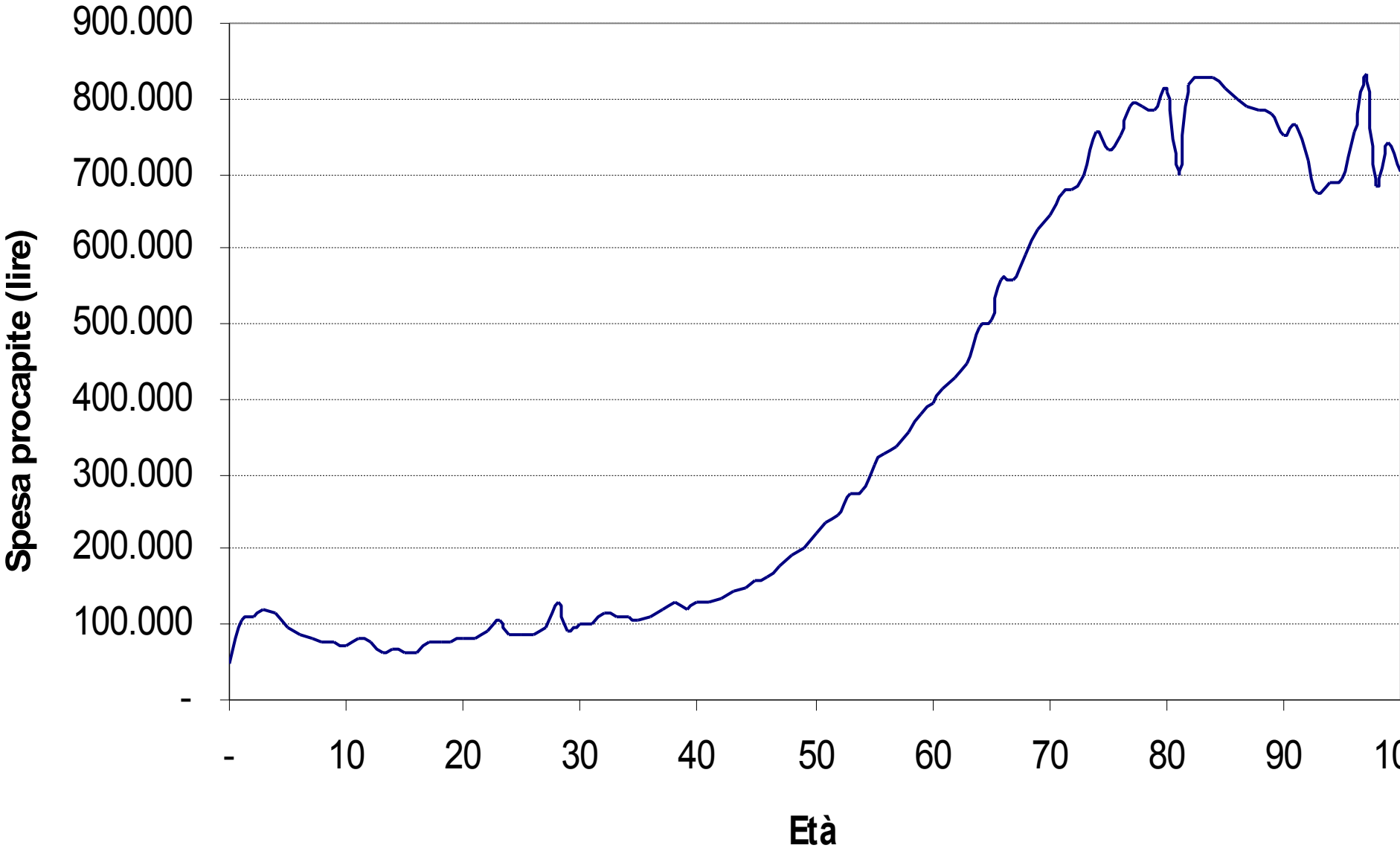
Il problema delle risorse

La nostra realtà



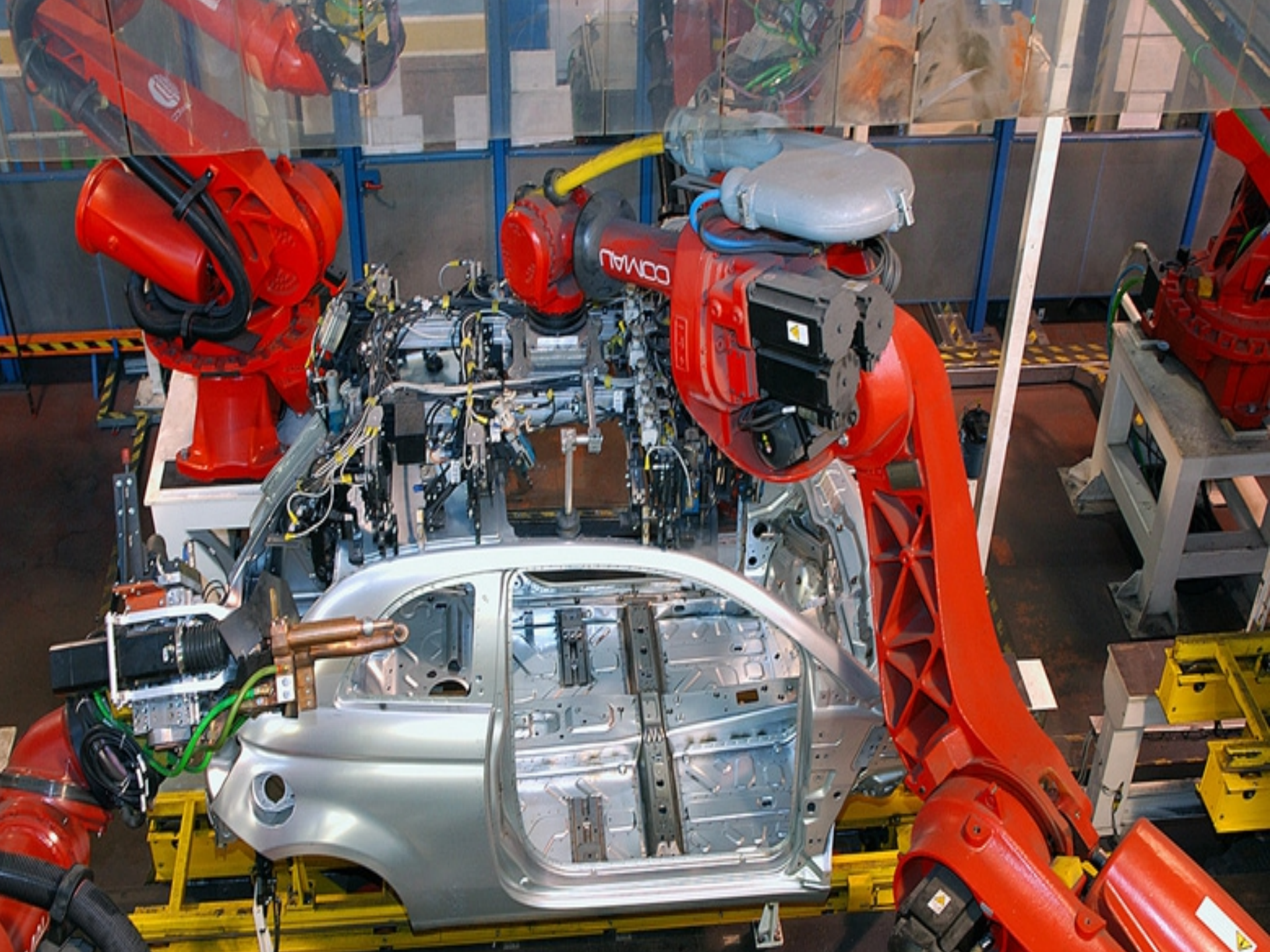
Fonte Istat

Aumento dell'aspettativa di vita

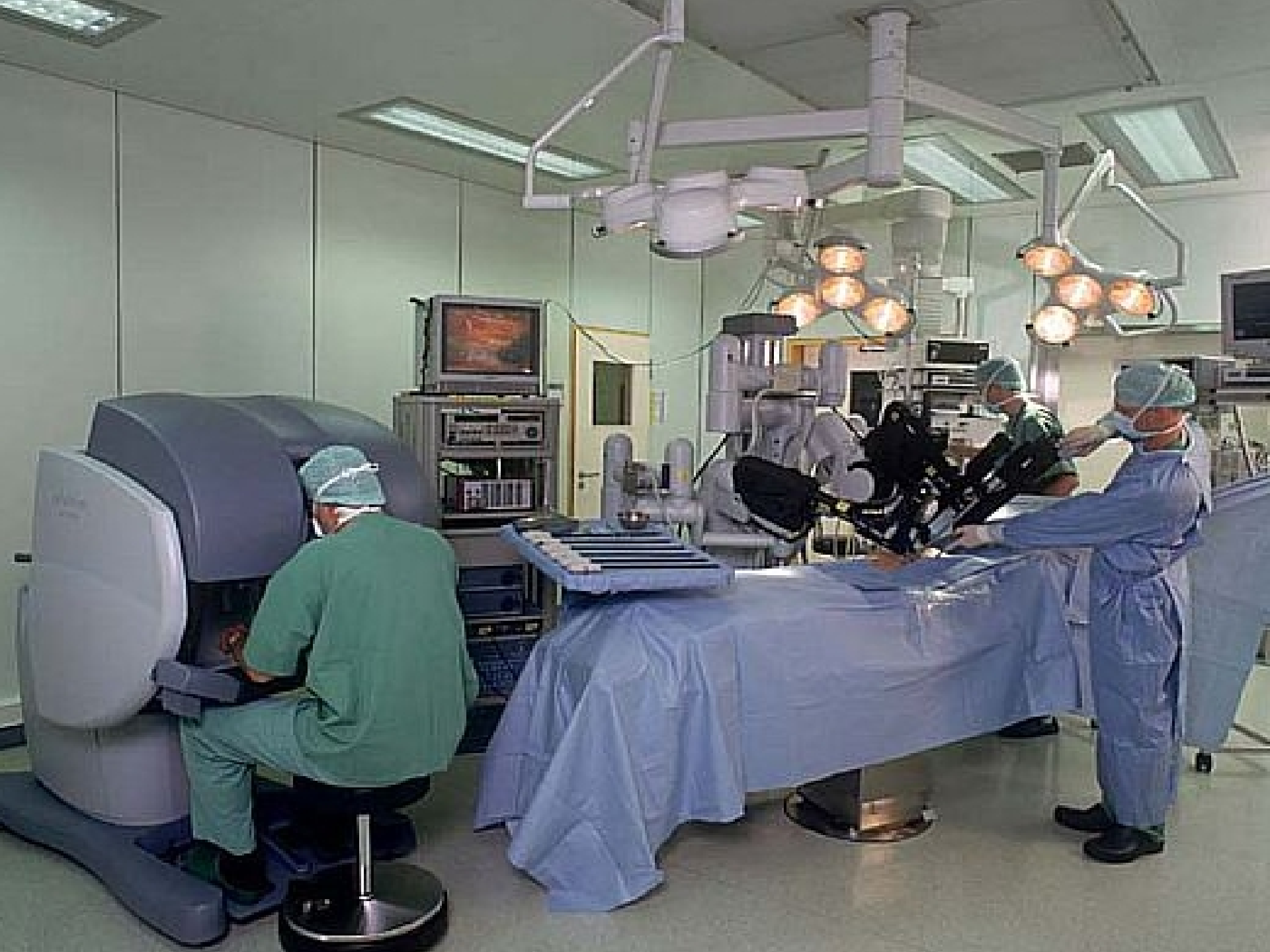


Maggiori costi sanitari concentrati oltre i 60 anni di età

Sviluppo tecnologico



anche in sanità



Photos

A pedestrian prepares to cross a main road in the central business district wearing a face mask in Kuala Lumpur, Malaysia, Thursday, Aug. 20, 2009. (AP Photo/Mark Baker)

WHO predicts swine flu case 'explosion'

WHO: No Tamiflu for healthy people with swine flu

Updated: Friday, 21 Aug 2009, 2:45 PM EDT
Published : Friday, 21 Aug 2009, 2:44 PM EDT

GILLIAN WONG and MARIA CHENG, Associated Press Writers

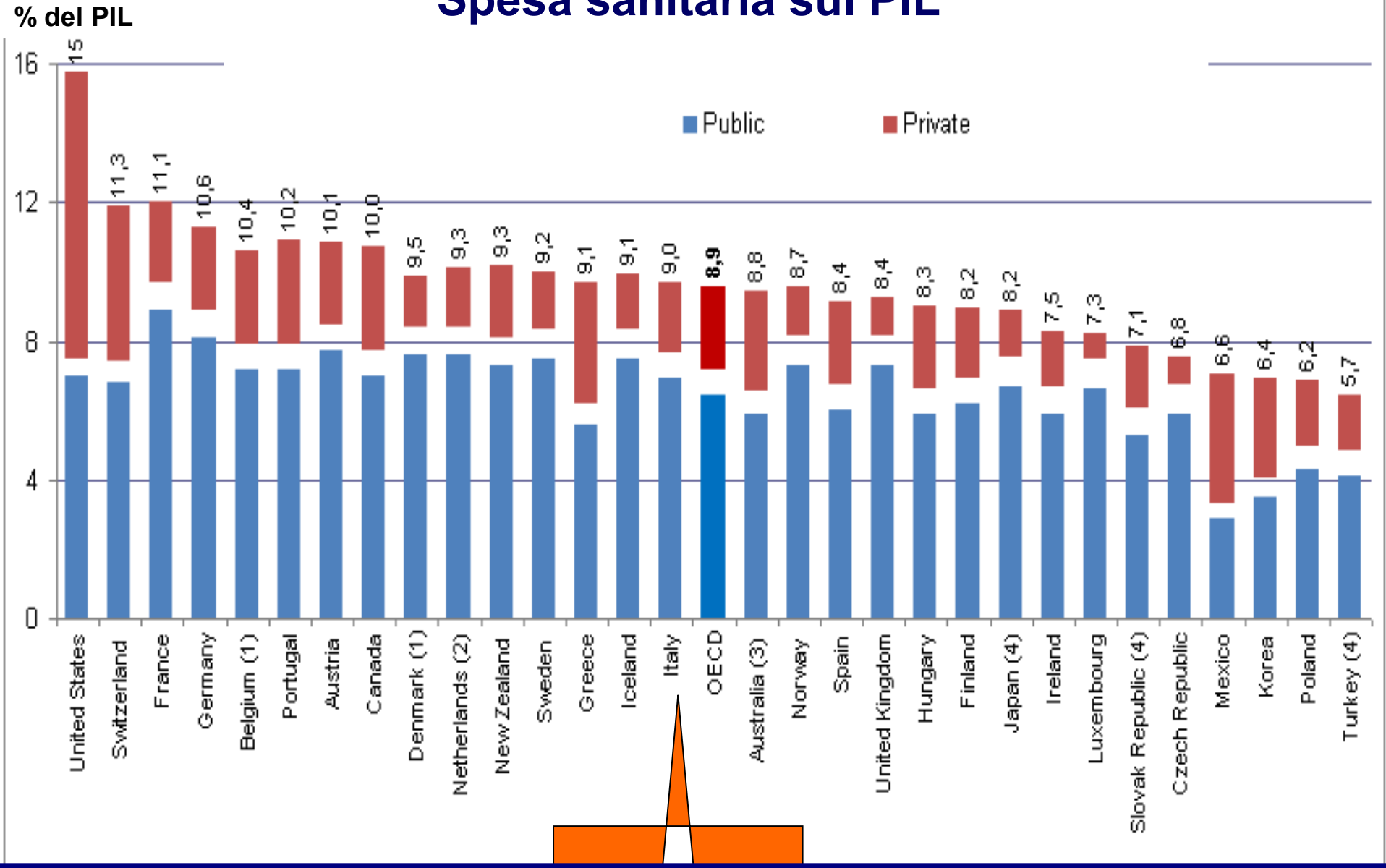
The global spread of swine flu will endanger more lives as it speeds up in coming months and governments must boost preparations for a swift response, the World Health Organization said Friday.

There will soon be a period of further global spread of the virus, and most countries may see swine flu cases double every three to four days for several months until peak transmission is reached, said WHO's Western Pacific director, Shin Young-soo.

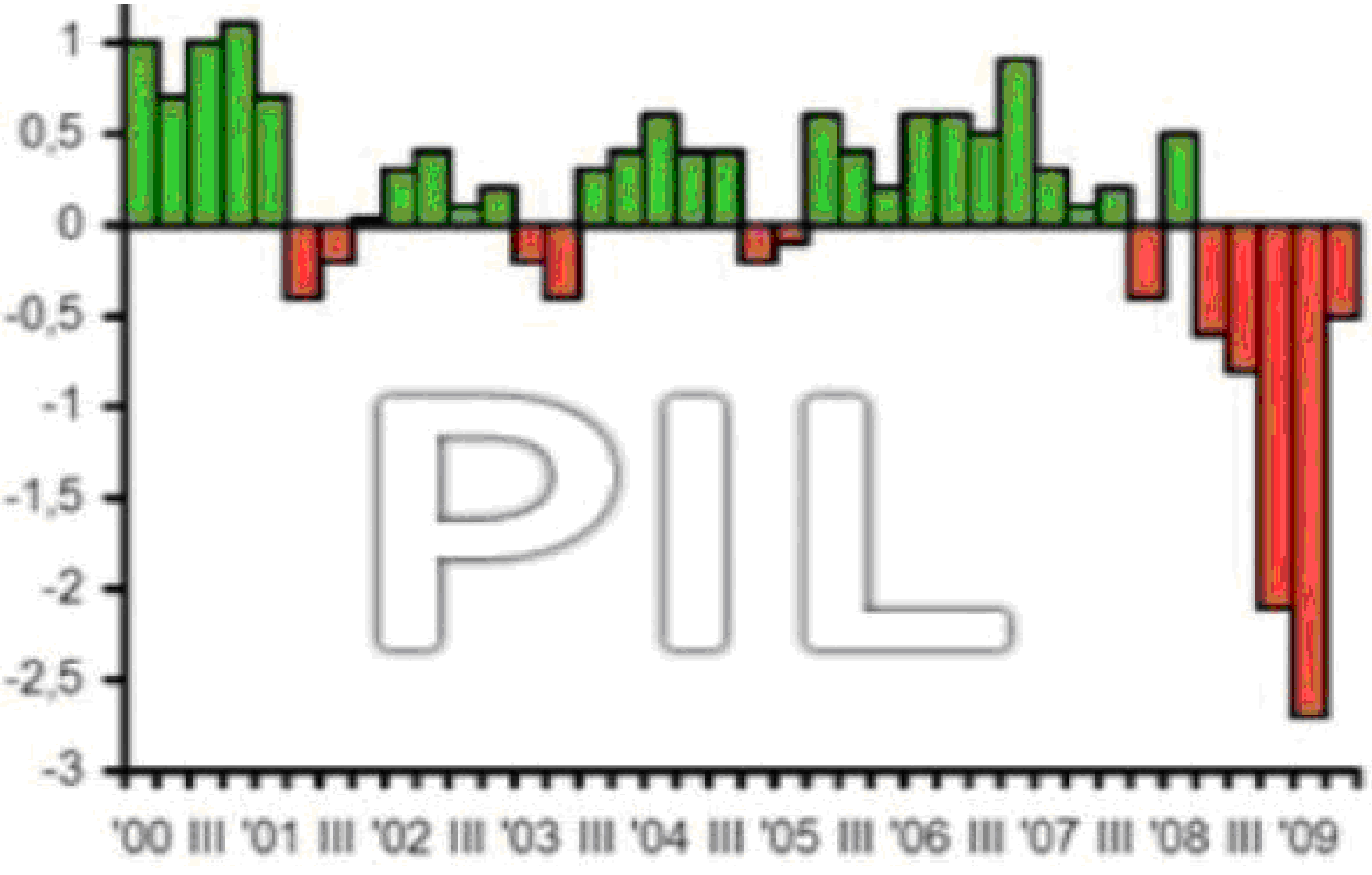
"At a certain point, there will seem to be an explosion in case numbers," Shin told a symposium of health officials and experts in Beijing. "It is certain there will be more cases and more deaths."

"le persone sane sono persone malate che non sanno di esserlo“

Spesa sanitaria sul PIL



Il problema delle risorse



Abbiamo rallentato la macchina…

L’economia studia come l’uomo effettua le scelte per l’impiego di risorse scarse, cercando di massimizzare i benefici

Ogni scelta ha un valore che è dato da quello che non abbiamo potuto ottenere da quelle stesse risorse

Il sistema economico non richiede interventi esterni per regolarsi e trovare un equilibrio

Adam Smith 1723-1790

L’acquisto in un mercato “normale”

Joseph Eugene Stiglitz

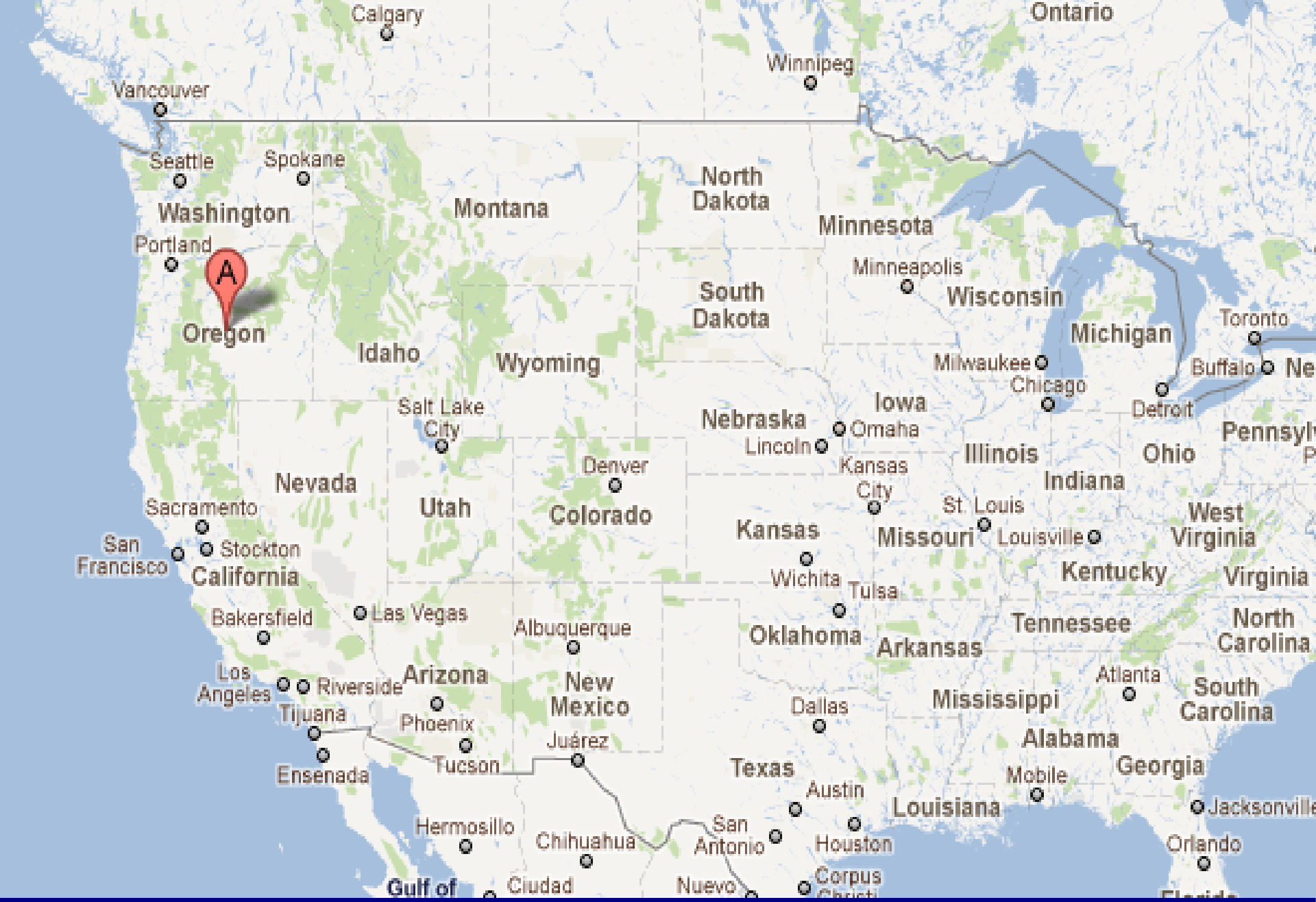
Nobel per l'economia 2001

Asimmetrie informative

- Selezione avversa
- Azzardo morale
- Informazione imperfetta
  - Appropriatezza
- Induzione della domanda

Tuttavia la sanità non è un mercato perfetto…

punti di vista



Le analisi costi-benefici, costi-efficacia, costi-utilità

	£/QALYs
Test colesterolo e dieta (adulti età 40-69)	220
Consiglio dei medici base per smettere fumare	270
Impianto pacemaker	1.100
Sostituzione anca	1.180
Trapianto renale	4.710
Emodialisi domiciliare	17.260
Dialisi peritoneale	19.870
EPO in pz dializzati	126.290

Il sogno delle league tables

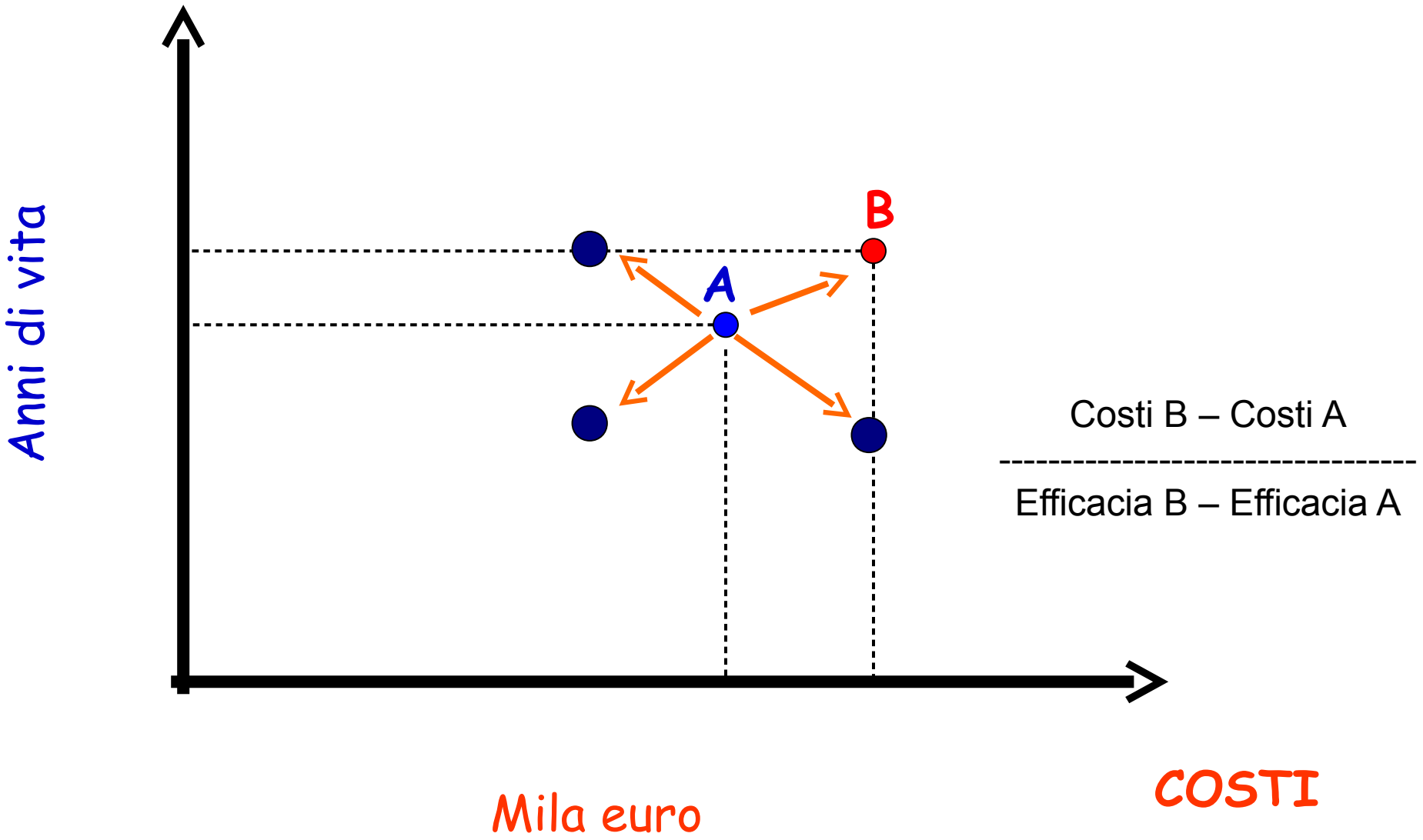
Archives of Disease in Childhood 1991; **66**: 990–993

The Oregon formula: health economists' dream or Stalinist nightmare?

Richard Stevenson

…alcuni dubbi iniziali

EFFICACIA



La valutazione economica in sintesi

ORIGINAL INVESTIGATION

Cost-effectiveness of B-Type Natriuretic Peptide Testing in Patients With Acute Dyspnea

Christian Mueller, MD; Kirsten Laule-Kilian, BSc; Christian Schindler, PhD; Theresia Klima, MD; Barbara Frana, MD; Daniel Rodriguez, MD; André Scholer, PhD; Michael Christ, MD; André P. Perruchoud, MD

Background: B-type natriuretic peptide (BNP) is a quantitative marker of heart failure that seems to be helpful in its diagnosis.

Methods: We performed a prospective randomized study (B-Type Natriuretic Peptide for Acute Shortness of Breath Evaluation) including 452 patients who presented to the emergency department with acute dyspnea to estimate the long-term cost-effectiveness of BNP guidance. Participants were randomly assigned to a diagnostic strategy involving the measurement of BNP levels (n=225) or assessment in a standard manner (n=227). Nonparametric bootstrapping was used to estimate the distribution of incremental costs and effects on the cost-effectiveness plane during 180 days of follow-up.

Results: Testing of BNP induced several important changes in management of dyspnea, including a reduction in the initial hospital admission rate, the use of intensive care, and total days in the hospital at 180 days (median, 10 days [interquartile range, 2-24 days] in the BNP group vs 14 days [interquartile range, 6-27 days] in the control group; $P=.005$). At 180 days, all-cause mortality was 20% in the BNP group and 23% in the control group ($P=.42$). Total treatment cost was significantly reduced in the BNP group ($7930 vs $10 503 in the control group; $P=.004$). Analysis of incremental 180-day cost-effectiveness showed that BNP guidance resulted in lower mortality and lower cost in 80.6%, in higher mortality and lower cost in 19.3%, and in higher or lower mortality and higher cost in less than 0.1% each. Results were robust to changes in most variables but sensitive to changes in rehospitalization with BNP guidance.

Conclusion: Testing of BNP is cost-effective in patients with acute dyspnea.

Arch Intern Med. 2006;166:1081-1087

Table 2. Outcomes in the BNP and Control Groups

Variable	BNP Group (n = 225)	Control Group (n = 227)	*P* Value
Initial hospital visit			
Total days in hospital, median (IQR)	8 (1-16)	10 (5-18)	.002
If admitted, median (IQR)	11 (6-19)	13 (8-21)	.06
Total treatment cost, mean (SD), $	5410 (6804)	7264 (7363)	.006
All-cause mortality, No. (%)	13 (6)	21 (9)	.21*
At 180 d			
Total days in hospital, median (IQR)	10 (2-24)	14 (6-27)	.005
Days in hospital for dyspnea	9 (1-20)	13 (6-24)	.003
Medication cost, mean (SD), $	328 (253)	326 (267)	.92
Total treatment cost, mean (SD), $	7930 (8805)	10 503 (10 176)	.004
All-cause mortality, No. (%)	44 (20)	52 (23)	.42*

Abbreviations: BNP, B-type natriuretic peptide; IQR, interquartile range.
*Fisher exact test.

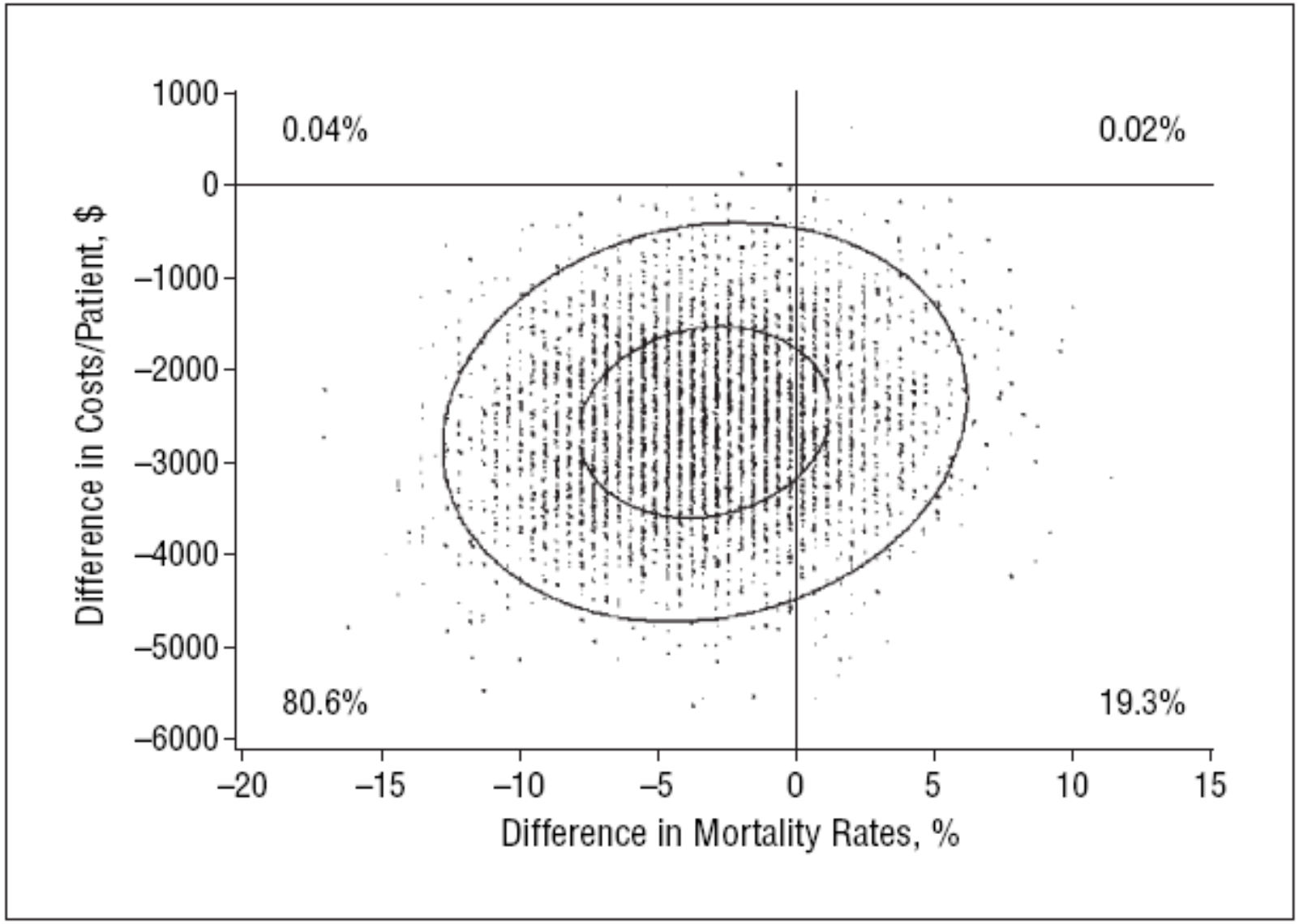
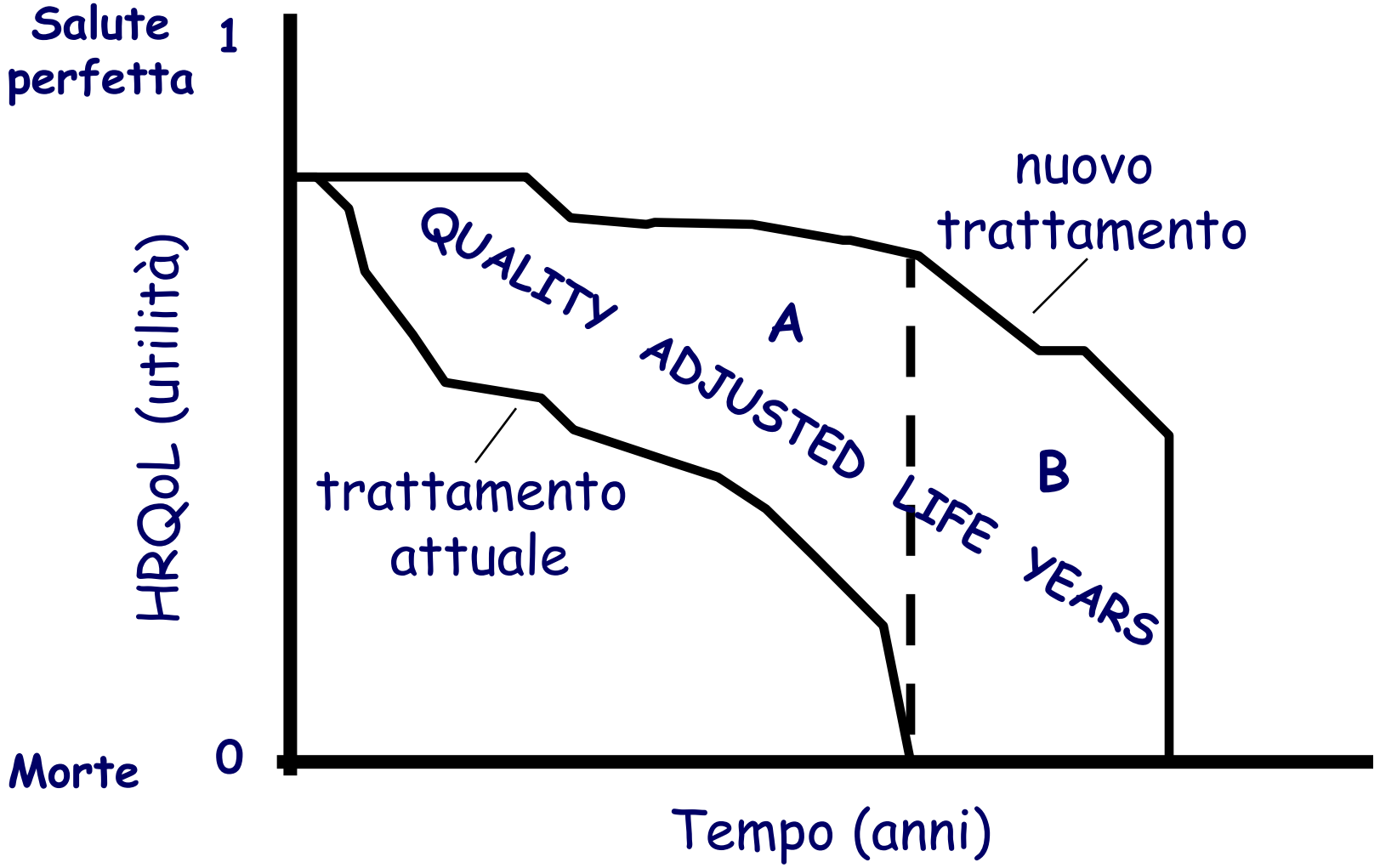
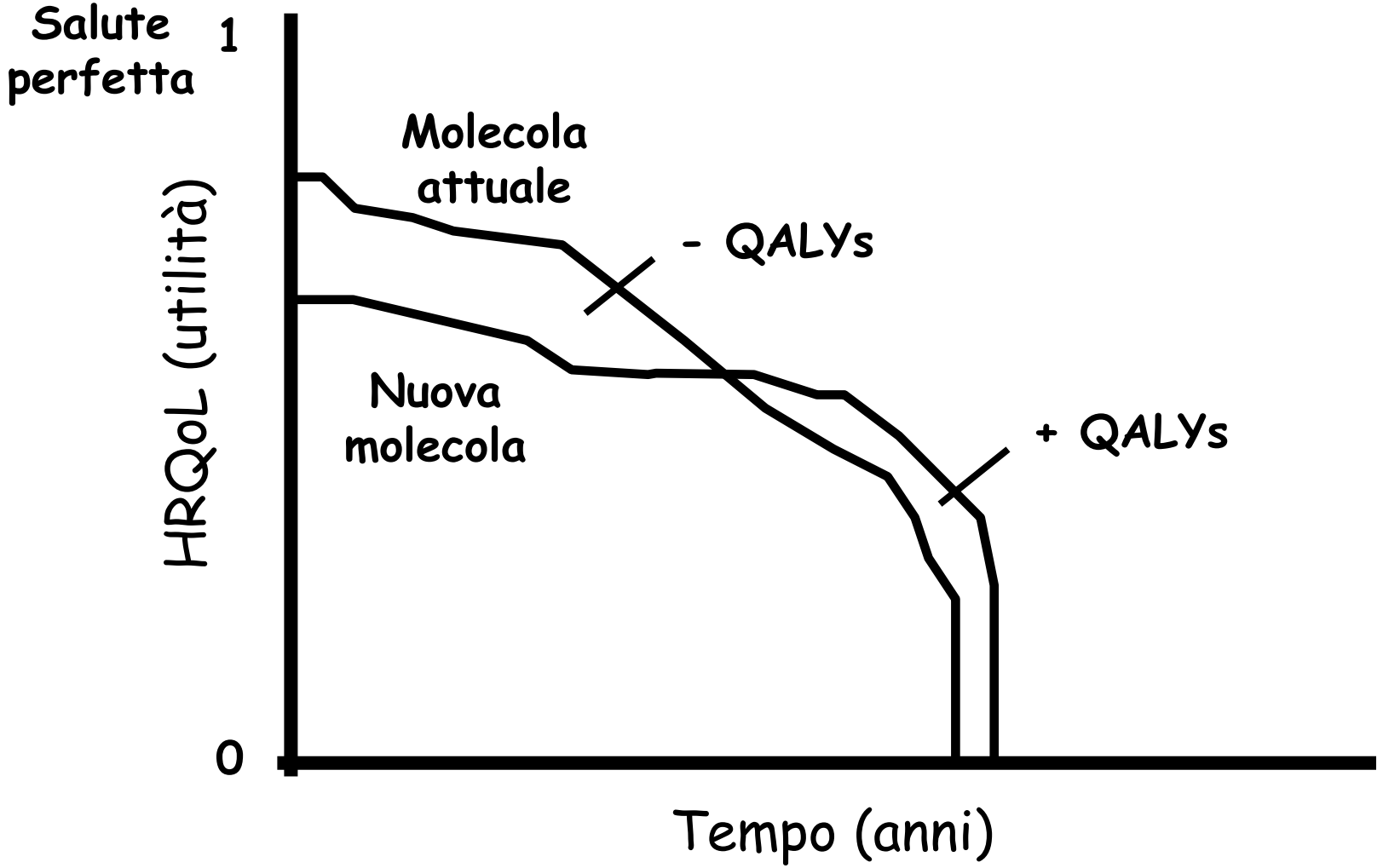


Figure 2. Results for incremental 180-day cost-effectiveness of B-type natriuretic peptide (BNP) guidance from 5000 bootstrap replications.

Ma come confrontare esiti clinici diversi?



Il QALY - Quality Adjusted Life Year



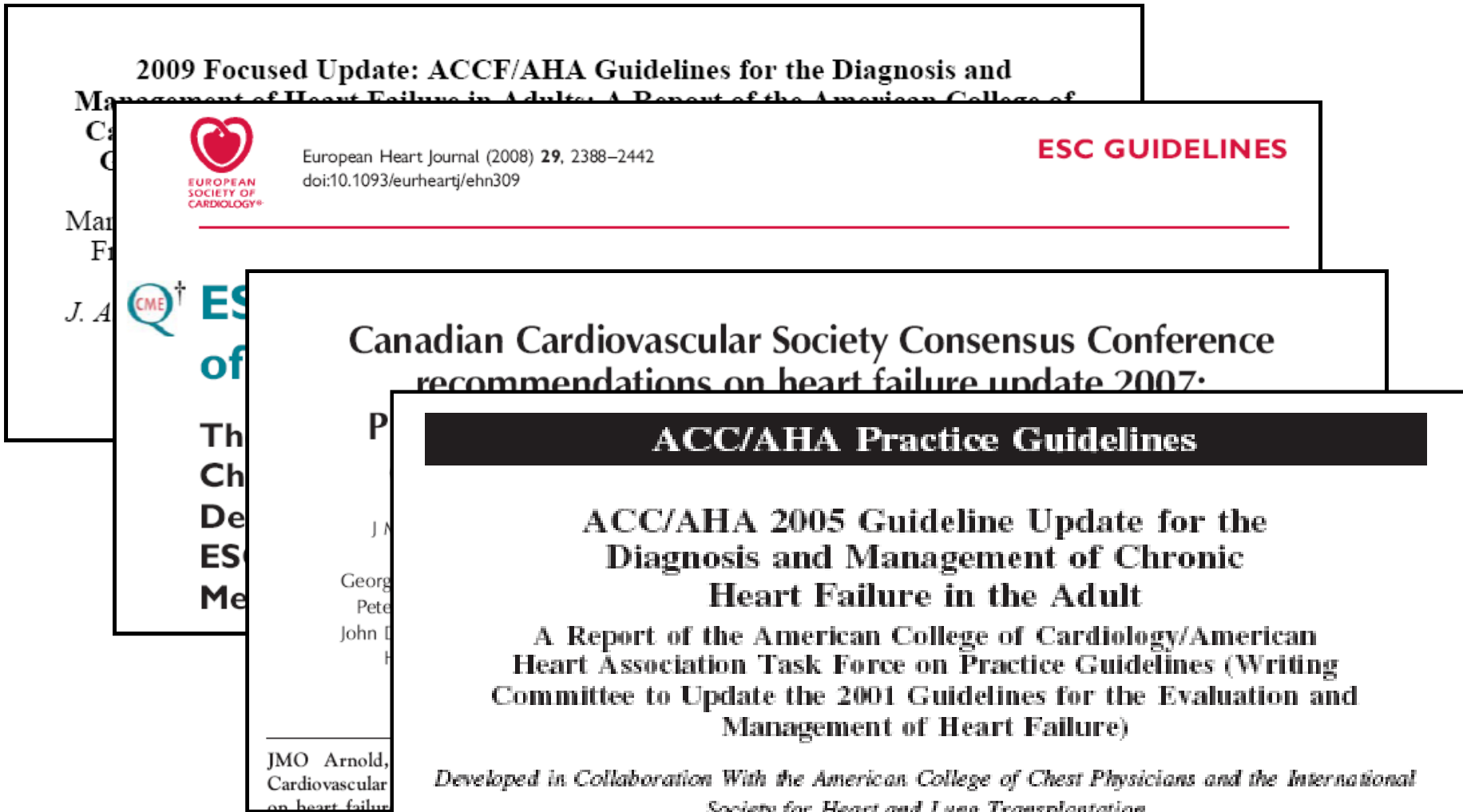
nei farmaci oncologici

In 1996, after 2 years of deliberation, the U.S. Panel on Cost-Effectiveness in Health and Medicine recommended that cost-effectiveness analyses should use QALYs as a standard metric for identifying and assigning value to health outcomes.

N ENGL J MED 363;16 1495
NEJM.ORG OCTOBER 14, 2010

negli anni '90 il QALY viene raccomandato

Tutto facile quindi…



The use of economic evaluations in NHS decision-making: a review and empirical investigation

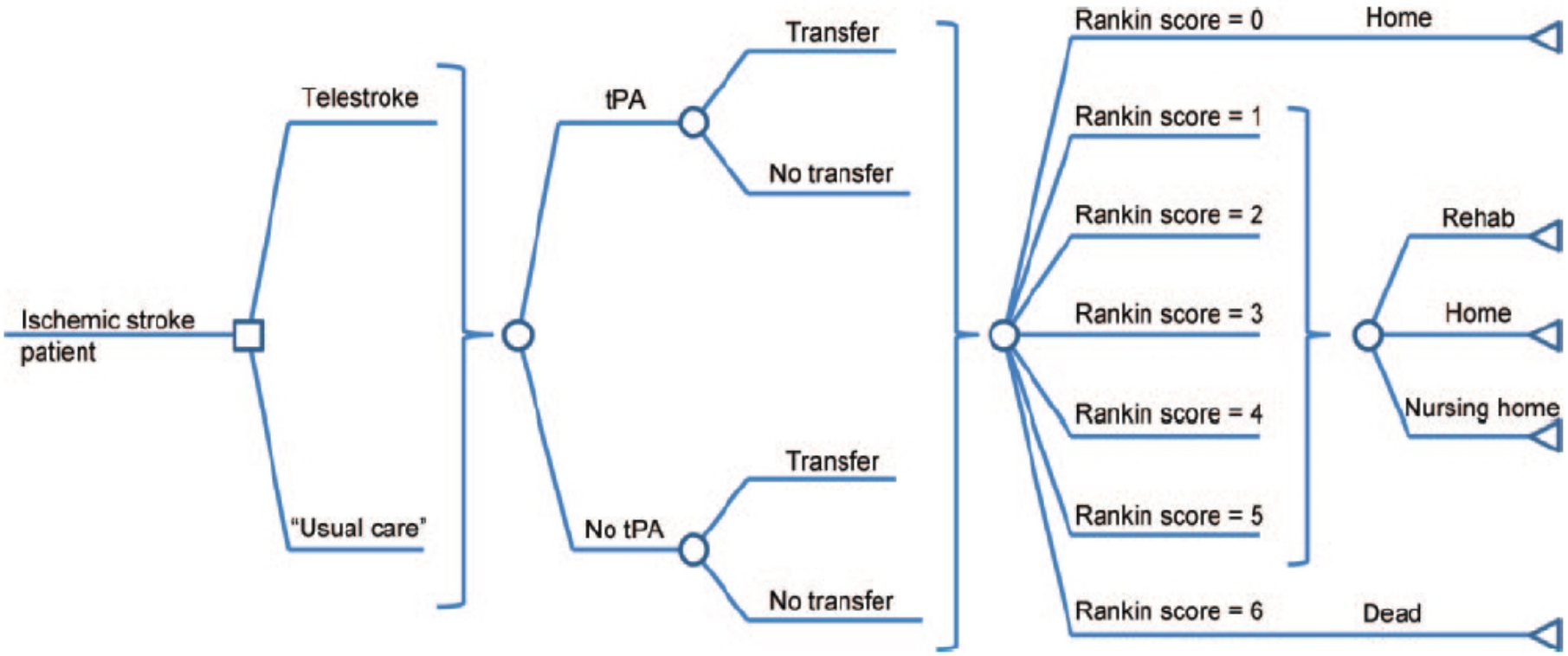
I Williams, S McIver, D Moore and S Bryan

April 2008

Health Technology Assessment
NHS R&D HTA Programme
www.hta.ac.uk

molti studi hanno evidenziato come la valutazione economica non sia usata

Figure 1 Cost-effectiveness model



spesso poco esplicita

Evaluation of conflict of interest in economic analyses of new drugs used in oncology Friedberg M, Saffran B, Stinson TJ et al JAMA 1999; 282: 1453-57

Le valutazioni economiche finanziate dall'industria farmaceutica hanno più probabilità di avere risultati positivi rispetto agli altri.

… con conflitti di interesse

Problems with the interpretation of pharmacoeconomic analyses: a review of submissions to the Australian Pharmaceutical Benefits Scheme

Hill SR et al JAMA 2000; 283: 2116-21

su 326 studi studi 218 (i 2/3) presentavano

"seri problemi metodologici"

…e poco affidabile

… e quindi non consideriamo l’aspetto economico?

Grading of Recommendations Assessment, Development, and Evaluation (GRADE) Working Group

www.gradeworkinggroup.org

metodo usato a livello mondiale

Summary Findings Table

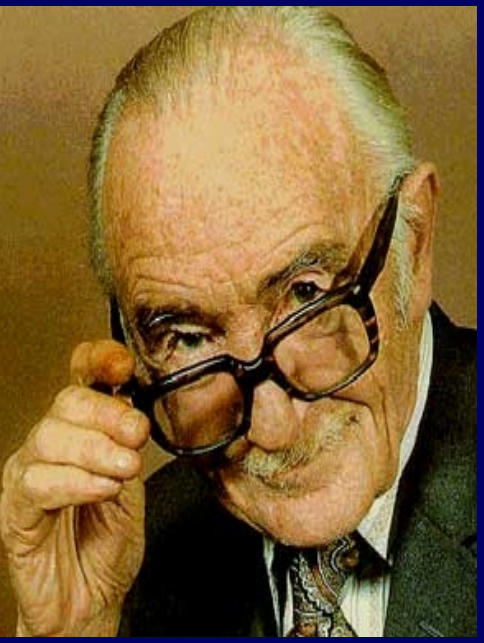
Question: Should Buprenorphine maintenance flexible doses vs Methadone maintenance flexib
for Opioid maintenance treatment?

Patient or population: Opiate dependants
Setting: Outpatients in USA, Australia, Austria, Switzerland, UK
Intervention : maintenance flexible doses Buprenorphine
Comparison: maintenance flexible doses Methadone
Summary of findings:

Outcomes	Illustrative comparative risks (95% CI)		Relative effect (95% CI)	Nr. of participants (studies)	Qual of th evide
	Assumed risk Methadone	Corresponding risk Buprenorphine			
Clinical Outcomes					
Retention in treatment	63 per 100[1]	52 per 100 (45 to 60)	RR 0.82 (0.72-0.94)	976 (7)	High
Use of opiate during the treatment [2]		The average difference in standard deviations for the mean number of morphine positive urinalysis in the intervention group was **0.12 lower** (-0.26 to + 0.02).		837 (6)	High
Use of cocaine during the treatment[2]		The average difference in standard deviations for the mean number of cocaine positive urinalysis in the intervention group was **0.11 lower** (-0.03 to + 0.25).	--	779 (5)	High
Resource use [4]					
Drugs[3]	57 mg daily 72 AU $	11 mg daily 846 AU $ more per patient		405 (1)	Moder
Other health care costs[3]	2,754 AU $	212 AU $ less per patient		405 (1)	Moder

- dobbiamo decidere quali sono gli esiti importanti per i pazienti

- ci impone la trasparenza, la riproducibilità e la chiarezza



“…è inutile preoccuparsi di essere efficienti, se non abbiamo la certezza di essere efficaci”

Archibald Cochrane, 1970

Quindi dobbiamo trovare le strade per evitare che il test diagnostico si trasformi in una valanga da un punto di vista clinico ed economico