

**Health
Economics
and
Public Health**

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“The health and soundness of the Turkish citizen to whom, our Revolution gave various and vital duties is our *national problem* which we always attentively care on it.”

Ghazi Mustafa Kemal ATATURK

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What is Economics ??

□ Economics

- Theories to study behavior in allocating scarce resources.

□ Health Economics

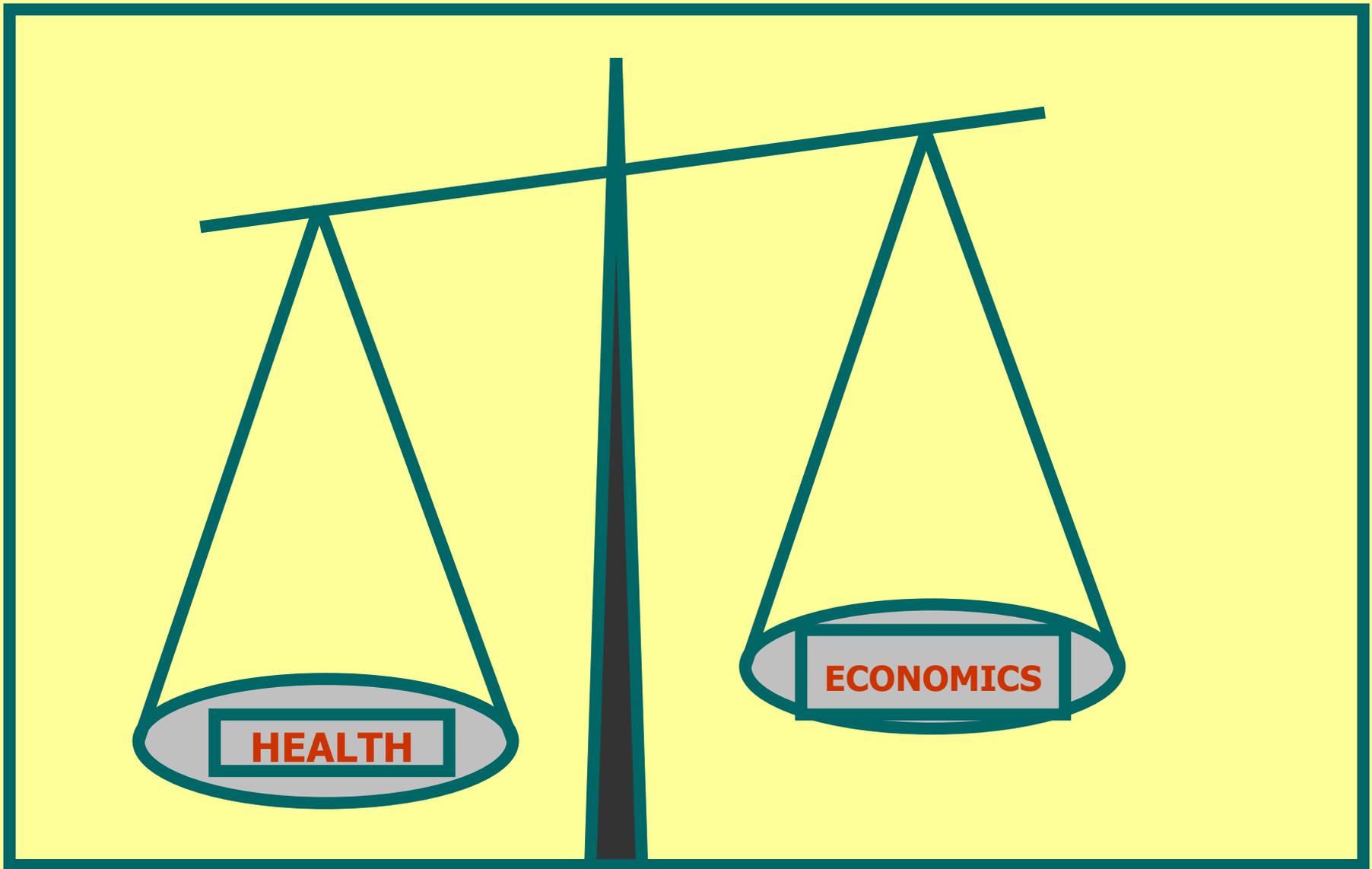
- Application of same theories to health and healthcare issues

□ Pharmacoeconomics

- Determination of efficiency in therapeutic purchase and utilization.

What is Economics ? (*Cont'd*)

- **Economics**- allocation of scarce resources
“**guns or butter?**”
- **Health economics**
 - Techniques same
 - Focus on health care delivery systems
- **Pharmacoeconomics**
 - Focus drug therapy [management]



A reasonable balance is a must between the 2 issues..

QUALITY

RESOURCES

MANAGEMENT

TIME

COST

We also need a balance among these 5 issues..

Mission :

- **Promote and develop global health**
- **Seek equity in health**
 - **Between countries**
 - **Within country**

Economic Thinking

- Rooted in 3 fundamental observations :
- 1. Resources are scarce in connection with human wants
- 2. Resources have alternative uses
- 3. People have different wishes and variation in importance they reach to each
- When you make one choice, other opportunities are foregone & that is the cost of your choice (*opportunity cost*)
- Basic Economic Problem: How to allocate scarce resources to best satisfy human needs

5 Principles to Guide Debates

- **1.** Financial resources available to provide care to a population are limited so must consider cost and **set priorities**, covering some and not others
- **2.** The objective of health care is to maximize the health of population served subject to available resources
 - at the heart of *individual vs society debate.*
 - Distribution of scarce resources is in conflict to maximize care provided to each individual

5 Principles to Guide Debates

- **3.** Prioritizing treatments will require estimating the magnitudes of its benefits, harms, & costs
 - primarily with empirical estimates.
- **4.** A treatment or health care practice should satisfy 2 criteria before being promoted (*covered, put into guidelines, recommended*).

5 Principles to Guide Debates

- **Efficacy** – compared to no treatment, its beneficial effects outweigh its harms
Compared to the next ***best alternative*** treatment, the treatment is a good use of resources (maximizes health of population).
- **5.** When judging benefits, harms and costs judgments should reflect preferences of individuals who actually receive the treatments (i.e. involve those affected).

Inputs of the health system..

Are summarized by the 5 M rule :

- **M**oney (*Capital*)
 - **M**anpower (*Health personnel*)
 - **M**achines
 - **M**aterial
 - **M**anagement (*of the 4 previous M's*)
- + T i m e ..**

Cost vs. Outcome

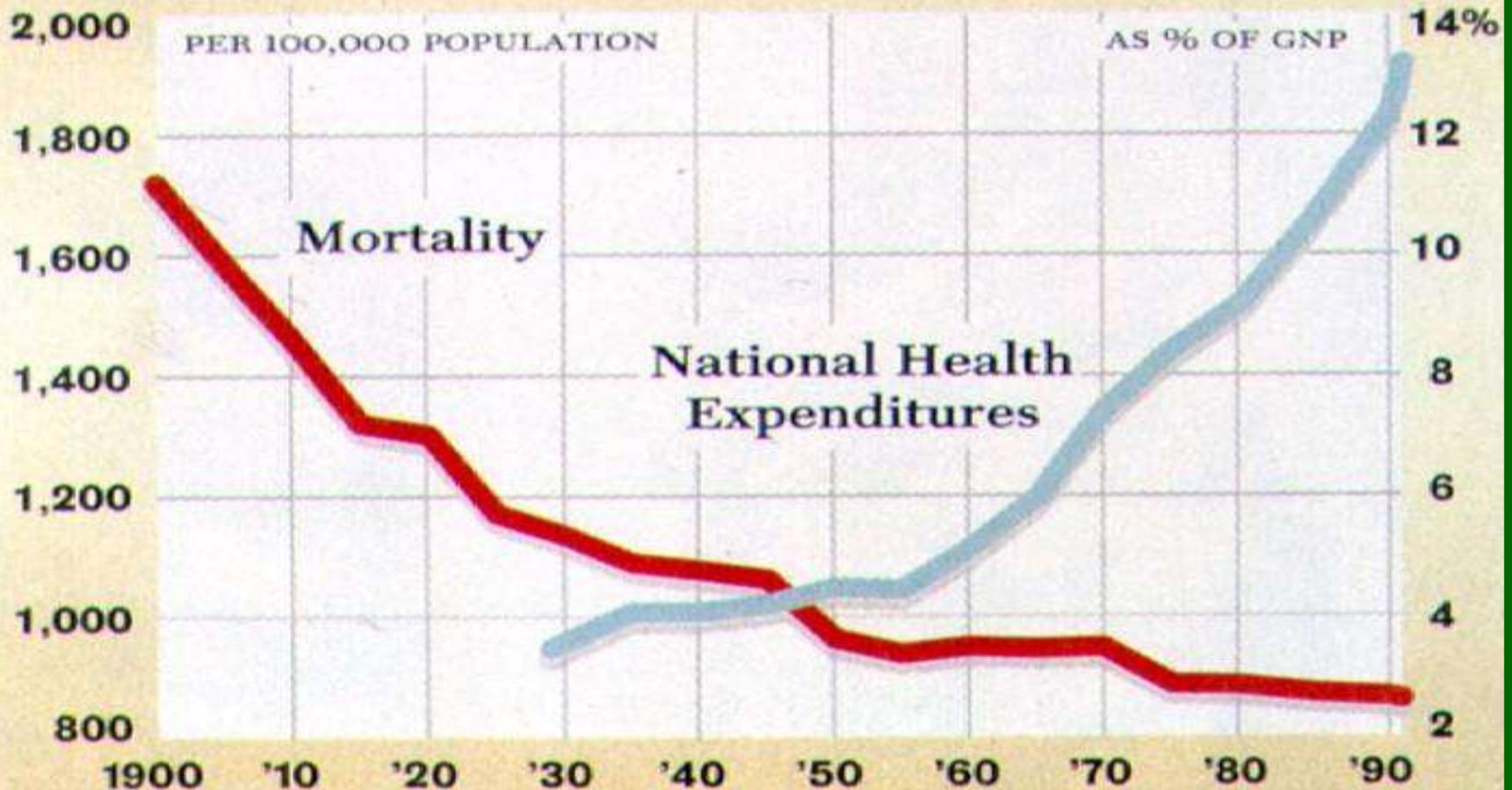
Categories	Worse	Same	Better
Costlier	No	No	<u>May be</u>
Same cost	No	No	<u>Yes</u>
Cheaper	<u>May be</u>	<u>Yes</u>	<u>Yes</u>

Cost

Outcome

BIG INVESTMENT, SMALL RETURN

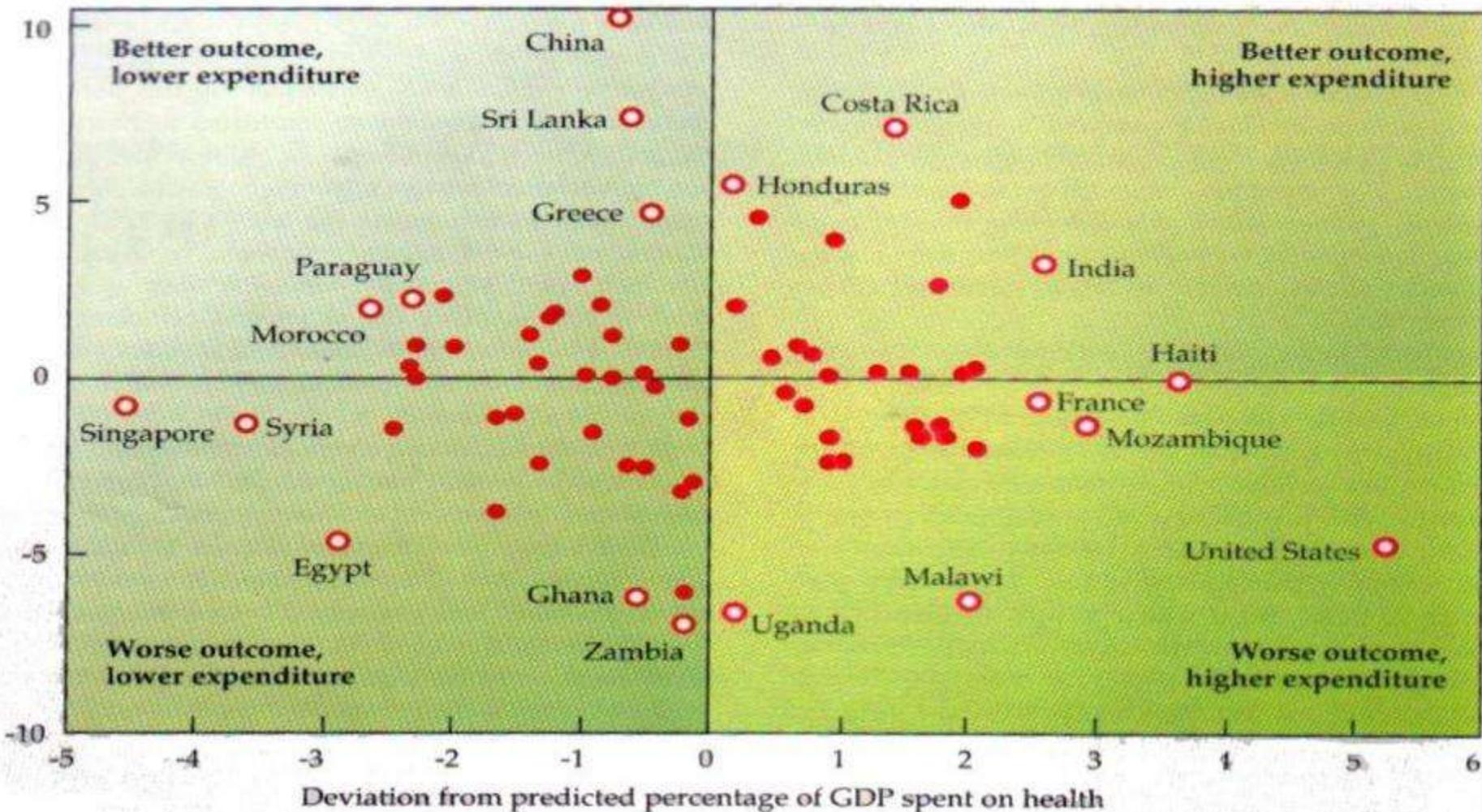
America's health has improved dramatically since 1900, but recent massive spending has had a modest impact.



SOURCE: NATIONAL CENTER FOR HEALTH STATISTICS

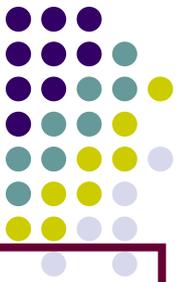
Figure 3.1 Life expectancies and health expenditures in selected countries: deviations from estimates based on GDP and schooling

Deviation from predicted life expectancy (years)



World Bank Data

U.S. Economic Burden of Childhood Illness is Substantial



- **HIV+ Children**

- 9,300 Children <14 yrs live with HIV or AIDS
- Estimated Home Care Costs = \$ 86.5 Million / yr

- **Chronically ill children**

- 6 to 10 million children are chronically ill
- Estimated Home Care Costs + \$155 to 279 Bn / yr.

- Compared with \$196 Bn / yr for Adults, this cost is substantial but much lower than **hospital care..**

(Dr.Leslie Wilson, Health Administ. Cong., 28-30 Sept. 2005 / Ankara)



Paradigm of Cost-Quality

Cost difference / Quality difference = Cost-efficiency rate

High cost

Low cost

High
quality

????

APPROVAL

Low
quality

OBJECTION

????

Prevailing paradigms in medical practice

Past

- Disease centered
- Supply induced
- Paternalistic
- Biomedical
- Doctor centered

Present

- Patient centered
- Demand induced
- Shared-decision making
- Bio psychosocial
- Patient empowerment

Major Paradigm Shifts in Health Care

Characteristics	Traditional Health Care	Today's Health Care
Price Elasticity	Inelastic	Elastic
Decision Maker	MD	Managed Care
Patient Care Philosophy	Tailored Treatment	Standardized Treatment
Quality Focus	Structure, Processes	Outcomes
Risk Taker	Insurance Company	Provider
Pharmacy	Distribution System	Information System
Pharmaceutical Company	Drug Manufacturer	Treatment Plans / Outcomes
Provider Reimbursement	Fee For Service (FFS)	Capitation (<i>per capita</i>)
Cost Focus	Cost Containment	Cost Effectiveness

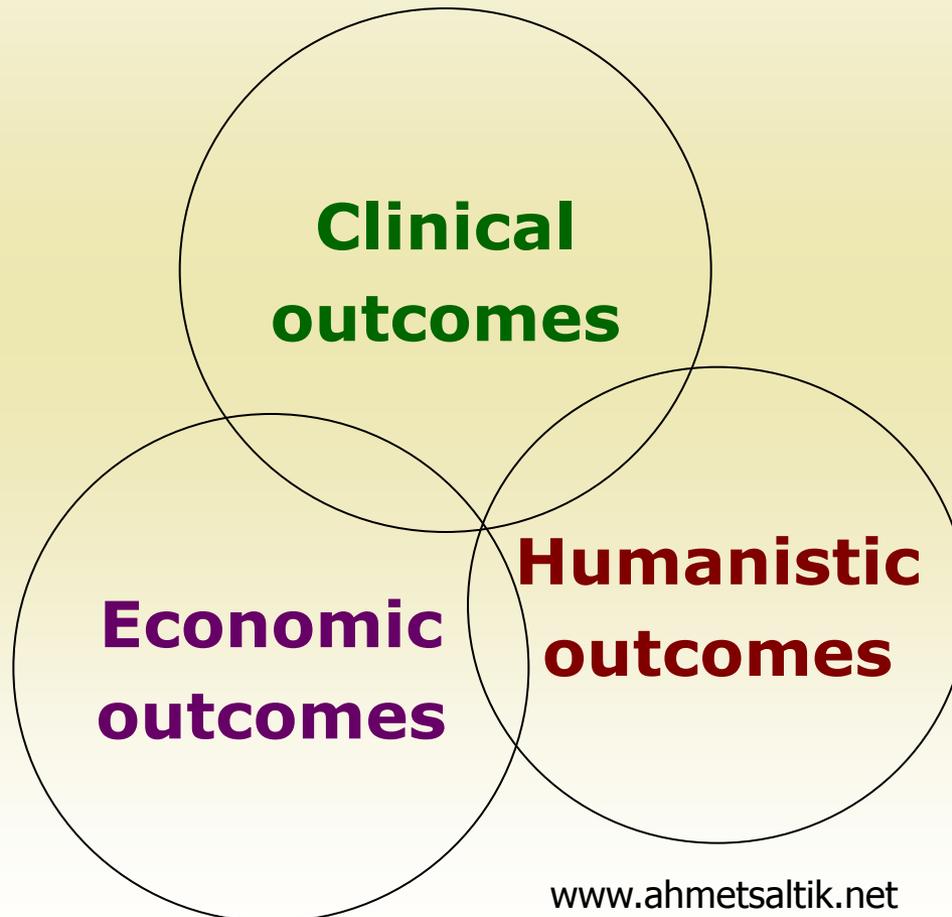
The three 'Es'

Evidence —> **Evaluation** —> **Effectiveness**

Not opinion but evidence...

Evidence based medicine is essential..

Components of contemporary clinical decision making



Clinical Decision Guidelines

- Institutions who lay norms, regulations etc.
 - WHO, ILO and others..
 - JNC, TMA, TSI, APHA, FDA, CDC
 - Government regulations
 - Social Security Institutions
 - Pharmaceutical companies
 - Private Insurance Companies..

Advantages of Evidence-based Disease Management

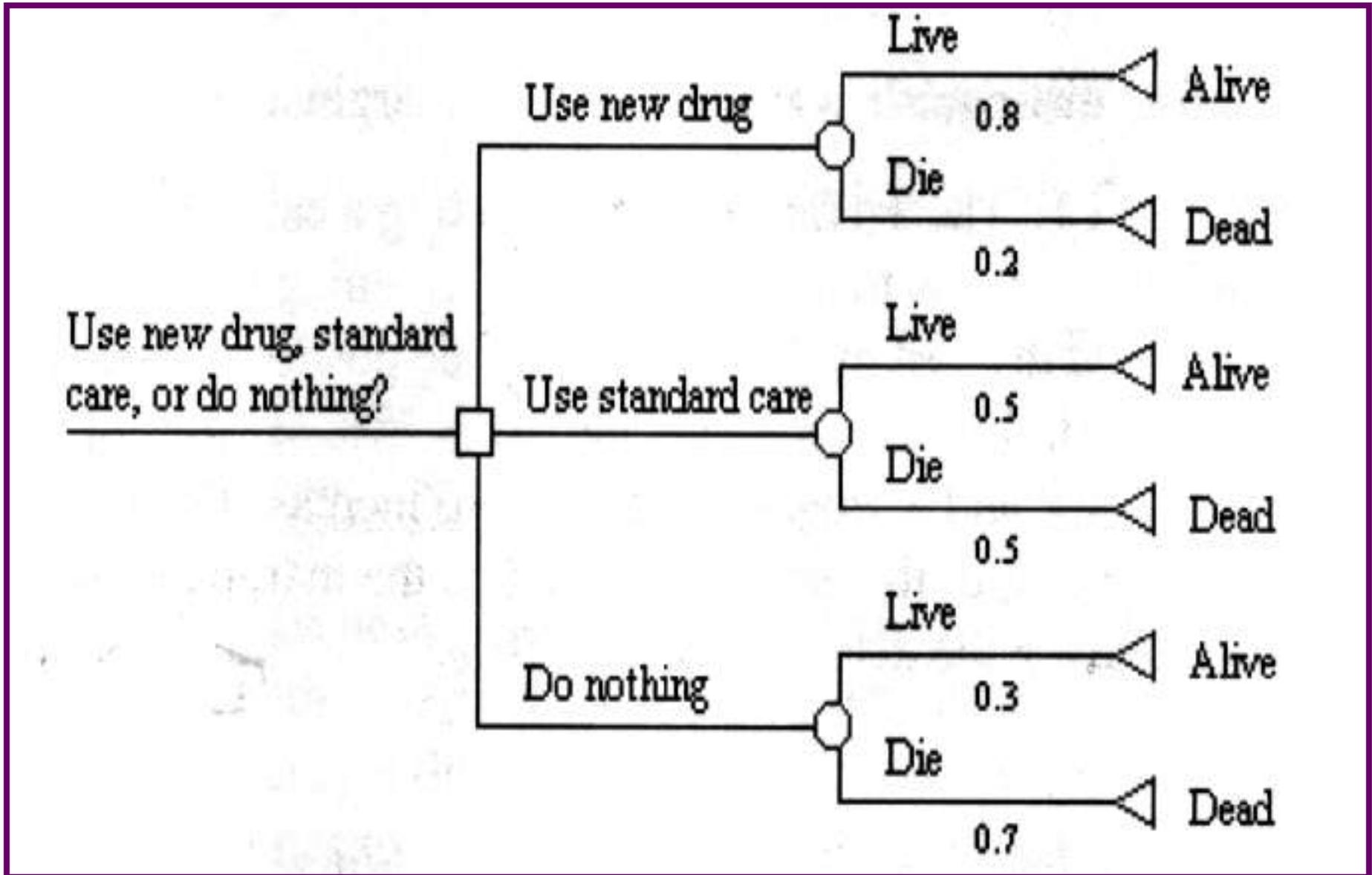
- **Optimal care for all**
- **Cost-beneficial care**
- **Litigation defense (*Malpractice!*)**
- **Premium benefit**
- **Promotional opportunity**
- **Yields higher quality of life, patient satisfaction**



10 General Principles of Analysis

- 1. Define problem**
- 2. State objectives**
- 3. Identify alternatives**
- 4. Analyze benefits/effectiveness**
- 5. Analyze costs**
- 6. Differentiate perspective of analysis**
- 7. Perform discounting**
- 8. Analyze uncertainties**
- 9. Address ethical issues**
- 10. Interpret results**

Hypothetical Decision Tree



Types of encounters
by
level of control

Doctor

Negotiation

Paternalism

Patient

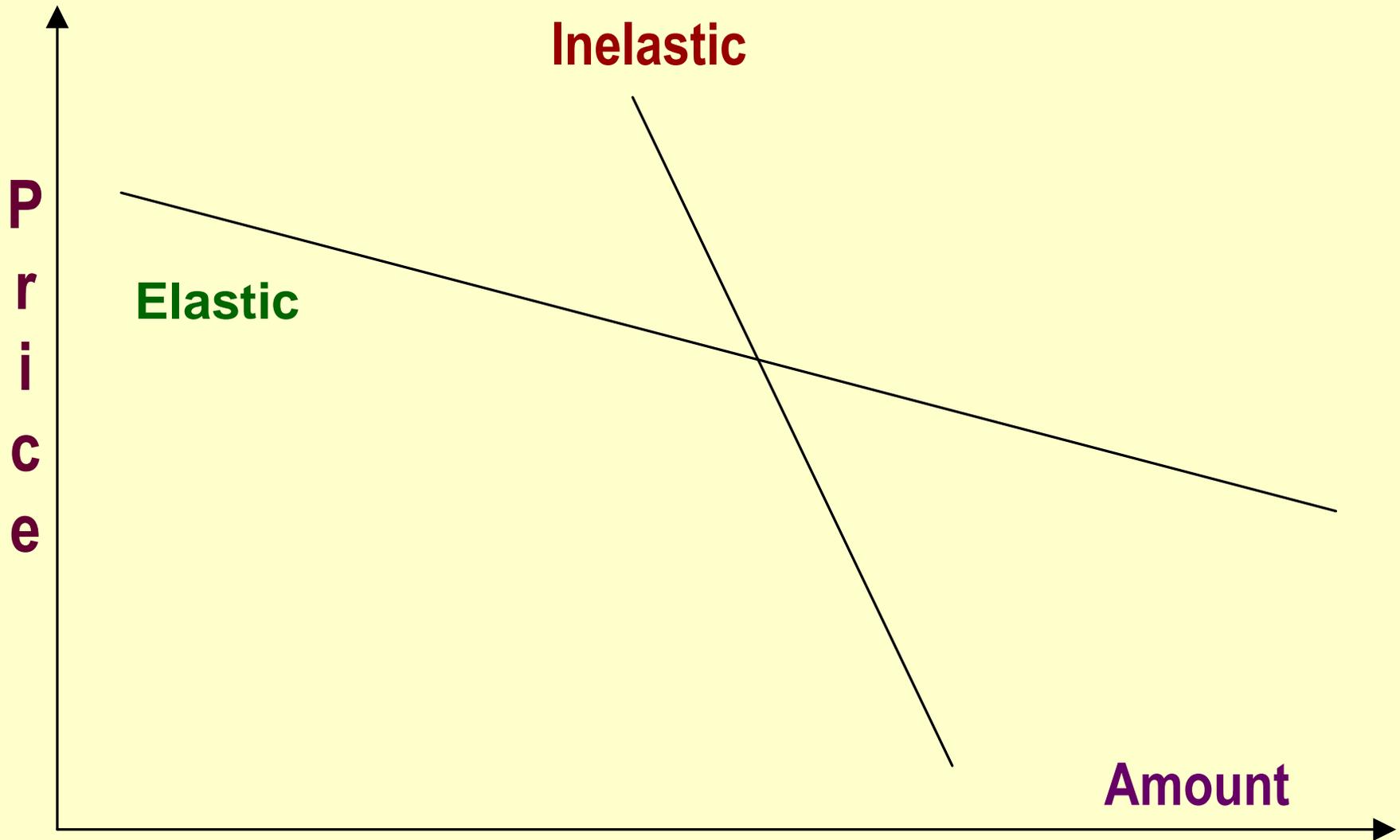
Consumerism

Minimalism

Elasticity of Demand

- Price elasticity of demand is the ratio of the percent change in quantity demanded to the percent change in prices.
- Highly elastic products have large changes in quantities demanded for a relatively small price change.
- Highly inelastic products have small changes in quantities demanded for a relatively large price change.

Elasticity of Demand in health services



Equilibrium Point

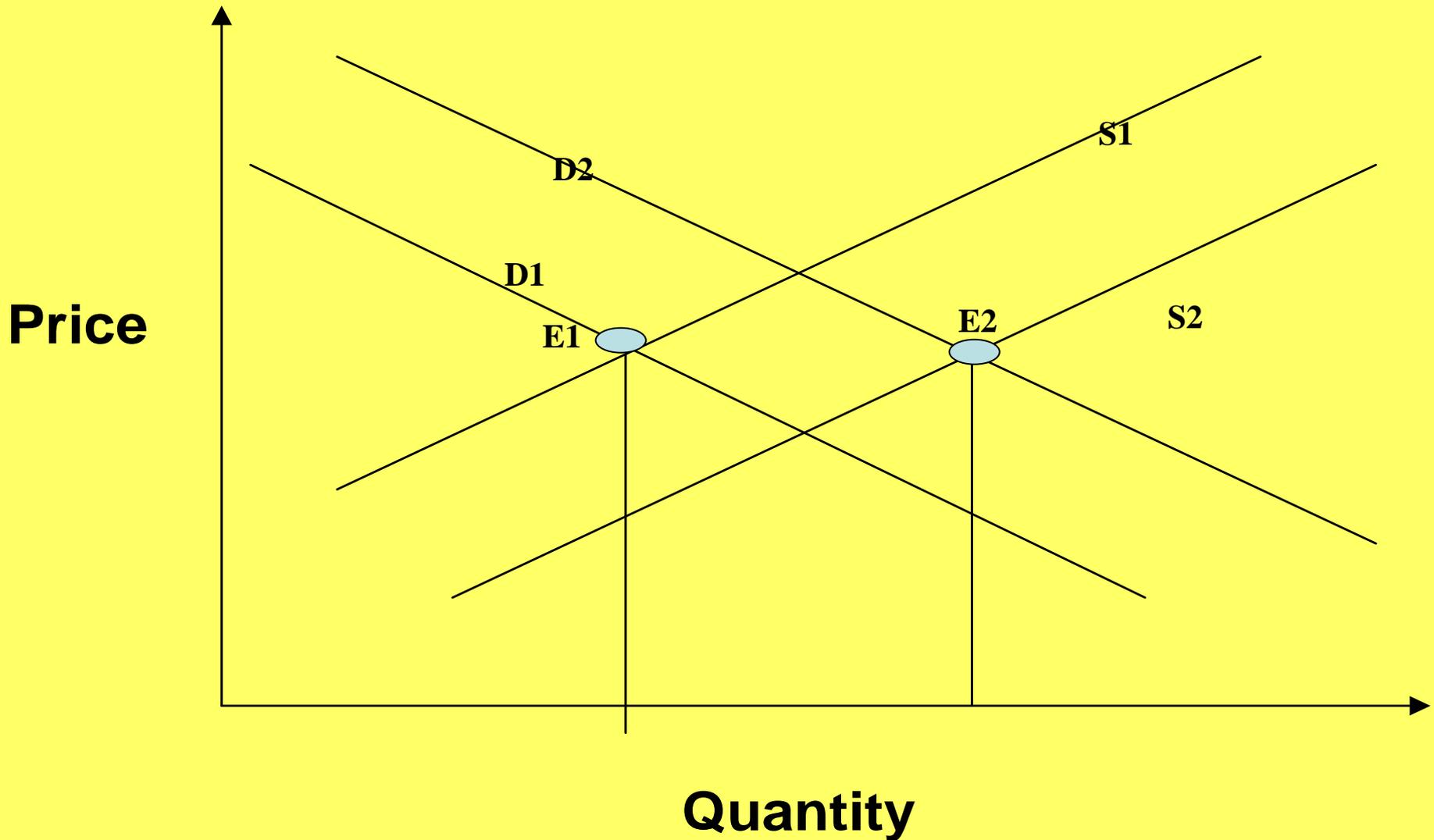
- The balance-point between quantity demanded and supplied at a certain point.
- Where demand and supply lines cross, the point where there are no inherent forces to change production or consumption.
- Increases in demand will shift the demand curve outward...supply will respond by moving outward.

Supply and Demand Curves

- **Demand Curve**

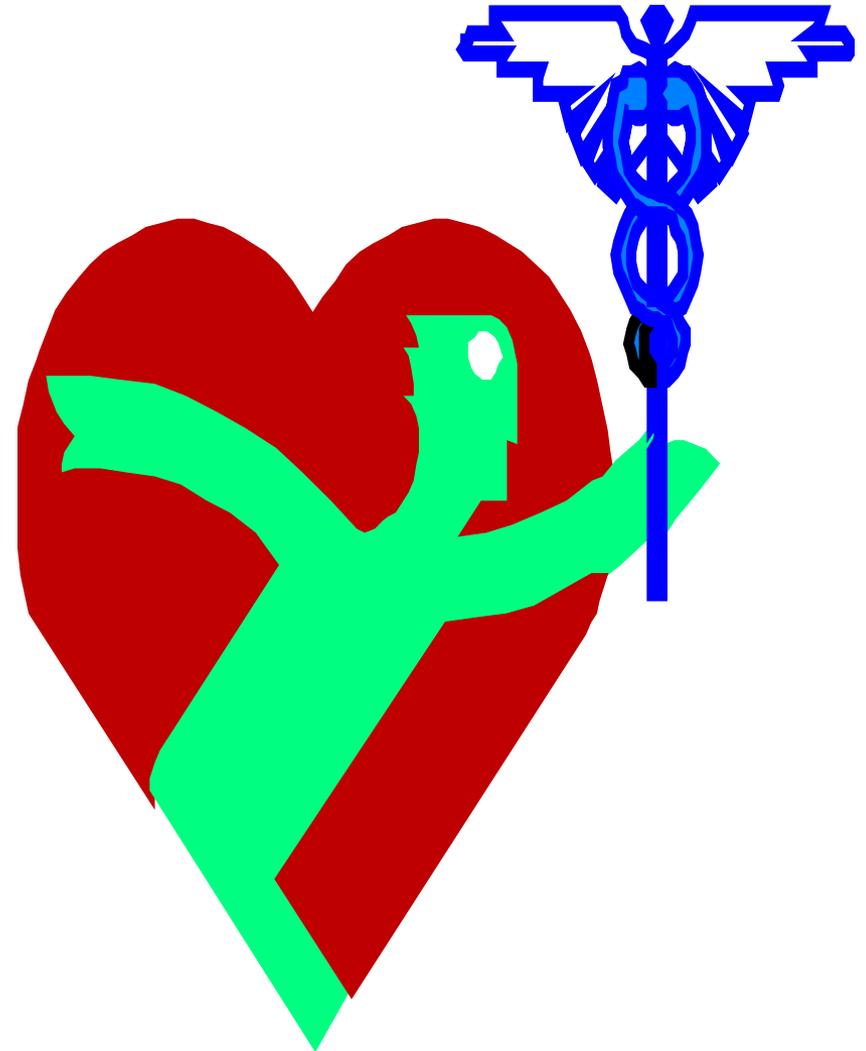
- A graph showing how the quantity demanded for some product during a specific time changes as the price of that product changes, holding all other things constant.
- A change in quantity demanded solely due to a change in price is reflected in movement along the curve.
- Factors that shift the demand curve: consumer income, preferences, prices of similar products.

Equilibrium Re-defined



Major Concepts in Economics

- Opportunity Costs
- Supply and Demand (S&D)
- Price Elasticity



Disability-Adjusted Life Year (DALY)

- **Quantifying the Burden of Disease from mortality and morbidity**
- **Definition**
- *One **DALY** can be thought of as one lost year of "healthy" life. The sum of these **DALYs** across the population, or the burden of disease, can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability.*

www.who.int/healthinfo/global_burden_disease/metrics_daly/en/index.html, 2.6.12)

Disability-Adjusted Life Year (DALY)

- **DALYs** for a disease or health condition are calculated as the sum of the Years of Life Lost (YLL) due to premature mortality in the population and the Years Lost due to Disability (YLD) for incident cases of the health condition:
- **Calculation**
- The YLL basically correspond to the number of deaths multiplied by the standard life expectancy at the age at which death occurs. The basic formula for YLL (without yet including other social preferences discussed below), is the following for a given cause, age and sex:
www.who.int/healthinfo/global_burden_disease/metrics_daly/en/index.html, 2.6.12)

Disability-Adjusted Life Year (DALY)

- **YLL = N x L** where: N = number of deaths
- L = standard life expectancy at age of death in years
- Because YLL measure the incident stream of lost years of life due to deaths, an incidence perspective is also taken for the calculation of YLD. To estimate YLD for a particular cause in a particular time period, the number of incident cases in that period is multiplied by the average duration of the disease and a **YLL = N x L** weight factor that reflects the severity of the disease on a scale from 0 (perfect health) to 1 (dead).

The basic formula for YLD is the following (again, without applying social preferences). where:

- I = number of incident cases DW = disability weight
- L = average duration of the case until remission or death (years)

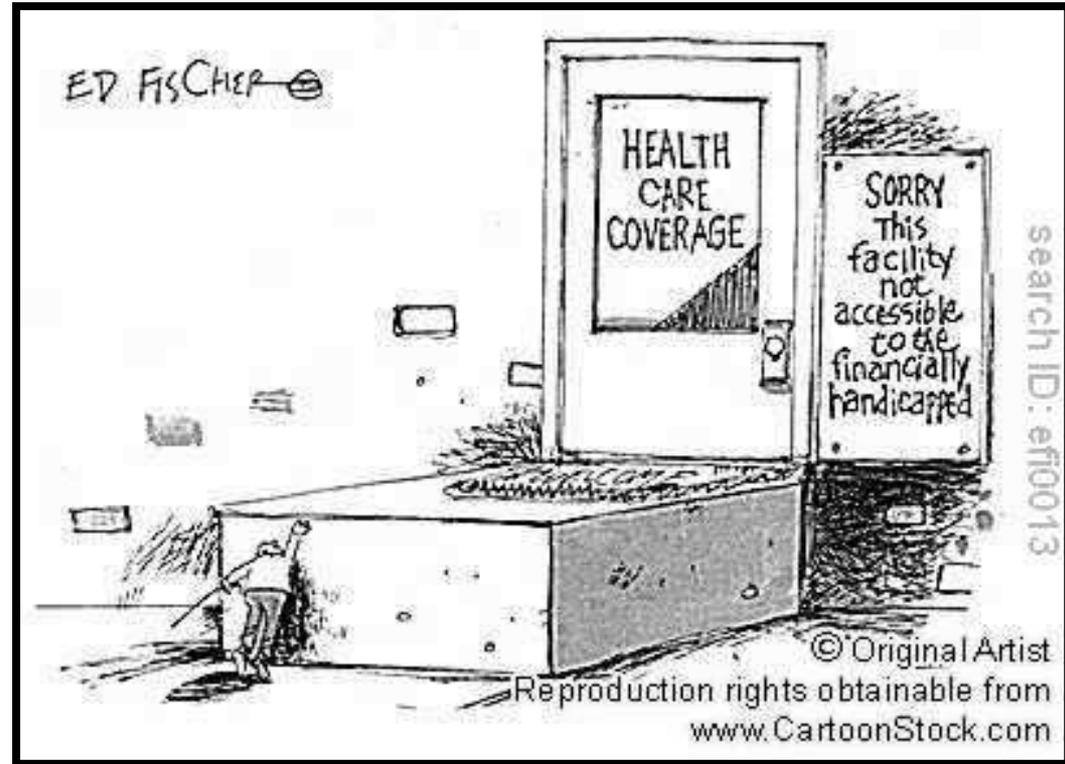
www.who.int/healthinfo/global_burden_disease/metrics_daly/en/index.html, 2.6.12)

Opportunity Costs

- Economics studies the trade offs (*opportunity costs*) of selecting among alternative products & services (*goods*).
- An opportunity cost is what we give up in order to access a product or service.
- **Opportunity costs** increase as more of a specific product / service is demanded.
- **Economics can't place humanistic values** on product / service. It just defines options.

Types of Costs

- **Direct**
- **Indirect**
 - Food, lodging, transport, loss of family wages etc.
- **Intangible**
 - Pain and suffering



Cost of health care must be financed by a fair taxation system..

Crucial question :

Who pays the health care bill?

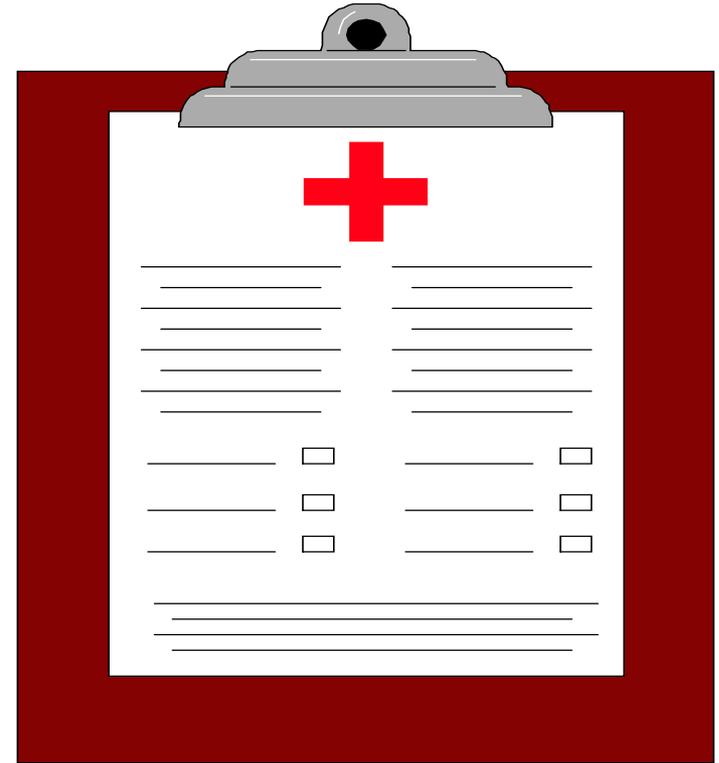
- **Payer**

(SSK + Bağ-Kur + Emekli Sandığı = Ulusal Sosyal Güvenlik Kurumu-**SGK** (*Social Security Institution*) started at 01.01.2012)

- **Patient**

- **Provider (?)**

- **Society**



Let's seriously think on
**HEALTH
COOPERATIVES**

4 Types of Cost-product analysis

1. Cost-minimization Analysis

- Same results, similar products
- \$ 10 / per tablet vs. \$ 20 / per tablet

2. Cost- effectiveness Analysis

- Cost : per mm Hg drop in BP

3. Cost-benefit Analysis

- \$: \$ comparing

4. Cost-utility Analysis

- \$ / **QALY-DALY**
- Compare dissimilar inputs

Strategies to Manage Costs

- **Restricting Access** :
Limiting the use of expensive services.
- **Cost Shifting** :
From insurer to insured or provider.
- **Cost Containment** :
Negotiating down the price of health care services.
- **Pharmacoeconomics** :
Maximizing Return on Investment (ROI)

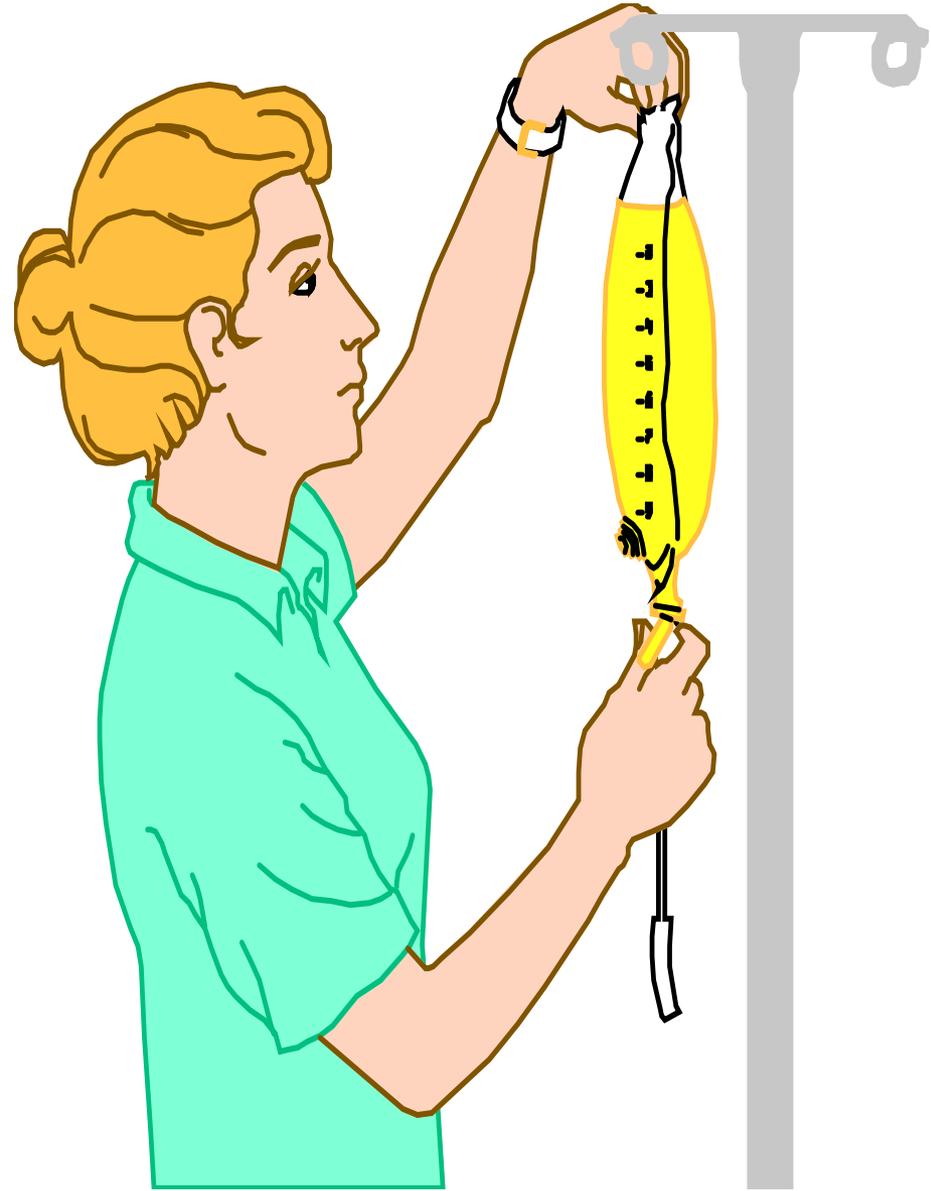
Health Economics

Rational prescribing..



Restricting Access

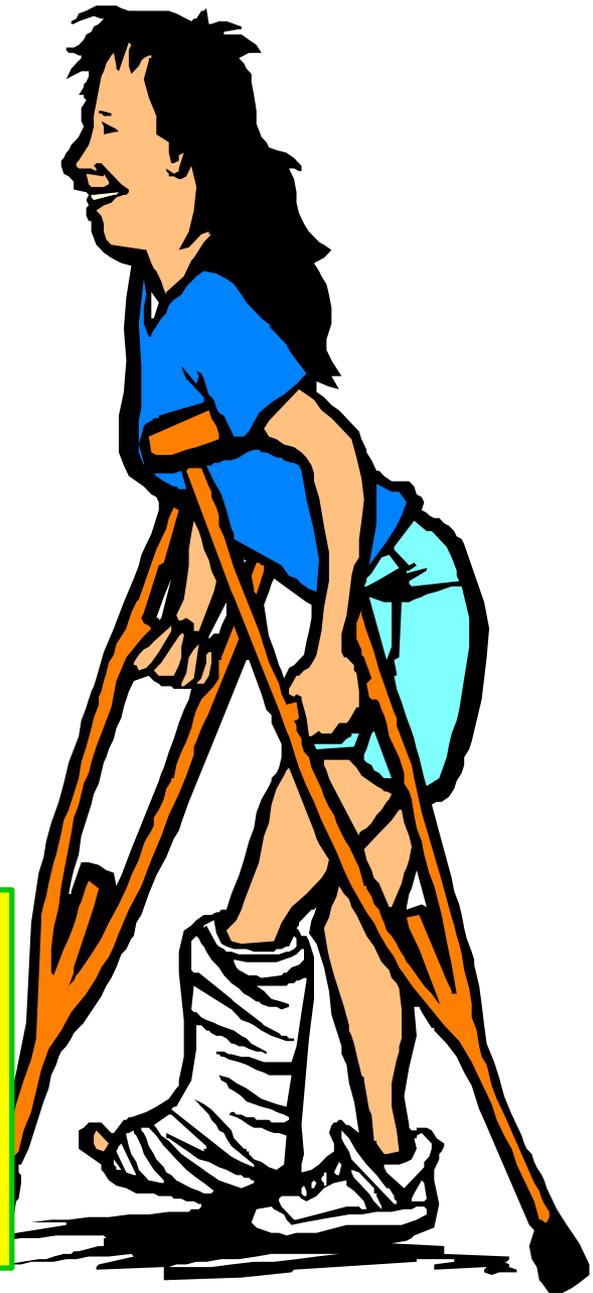
- **Pre-existing conditions**
- **Prior approval**
- **Limits on health care products**



Cost Shifting

- **Early discharge from hospitals**
- **Co-pays**
- **OTC drugs (out of prescription)**

A brutal pro-capitalist way :
Limiting «core security coverage»
and forcing the customer for
complementary insurance packages..



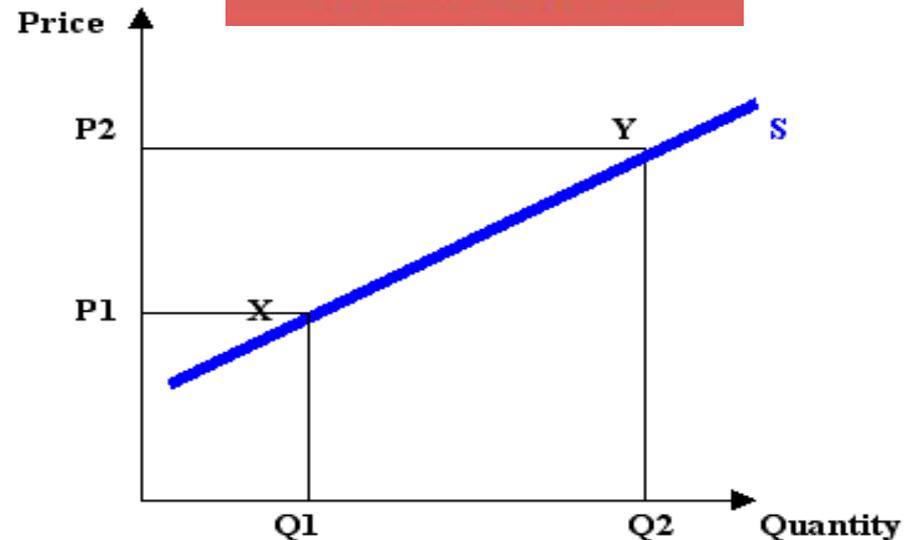
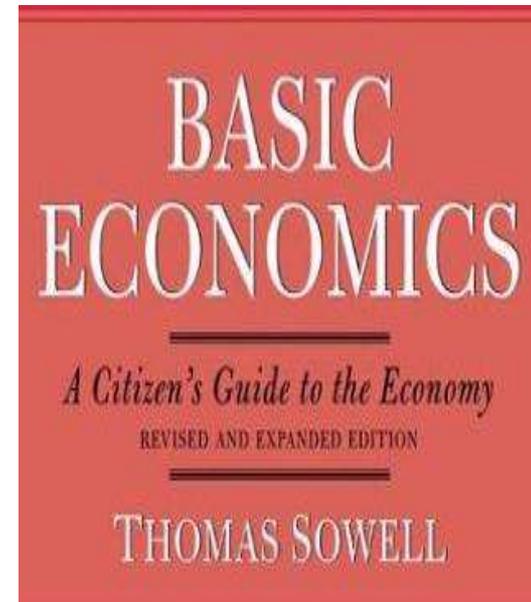
Cost Containment

(keeping the cost under control)

- Encourage generic prescription drugs
- Extract discounts from providers
- Set limits on health care services
- Purchase on “deals”- a pharmaceutical sale
- Minimize inventory
- Pay professionals *per diem* (daily payment)
- Hold staff to “**skeleton crew**” (*keep only enough workers or services for the job*)

Definition of basic terms

- **Value** = utility / cost
- **Utility** = clinical
+ satisfaction
+ HQL
(high quality of life)
- **HCV** = clinical outcome
+ satisfaction
+ HQL Cost

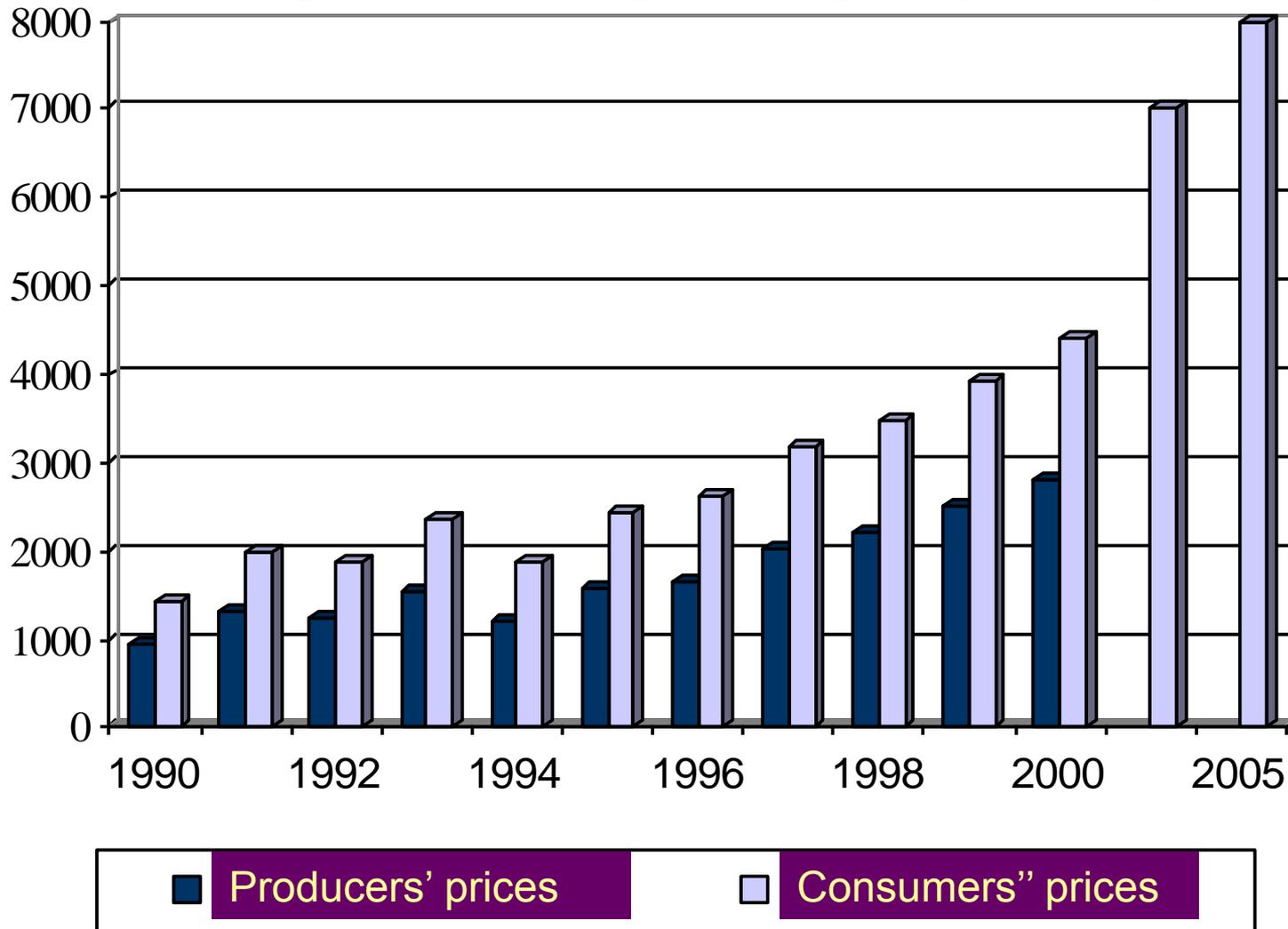


Contribution of Diagnostic tools

- Physical examination 9 %
- Internal diagnostics 9 %
- External diagnostics <1%
- **Talk** 82%

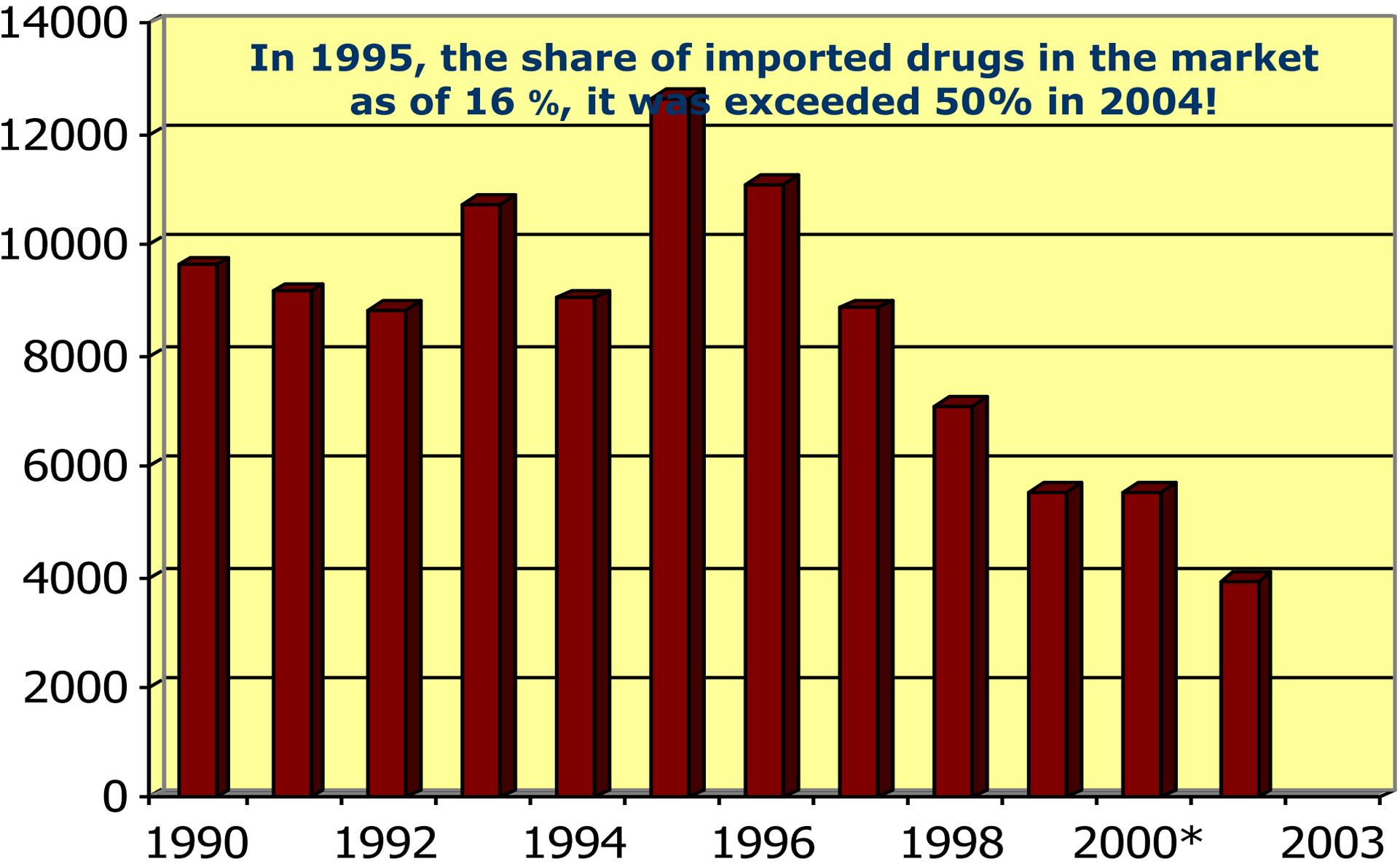
Taking a thorough patient story is still supplying the vital contribution for a rapid, accurate and economic medical diagnosis despite abnormally high-tech dependent medical industry..

Pharmaceuticals expenditures in Turkey through last 15 years (milyon, \$)

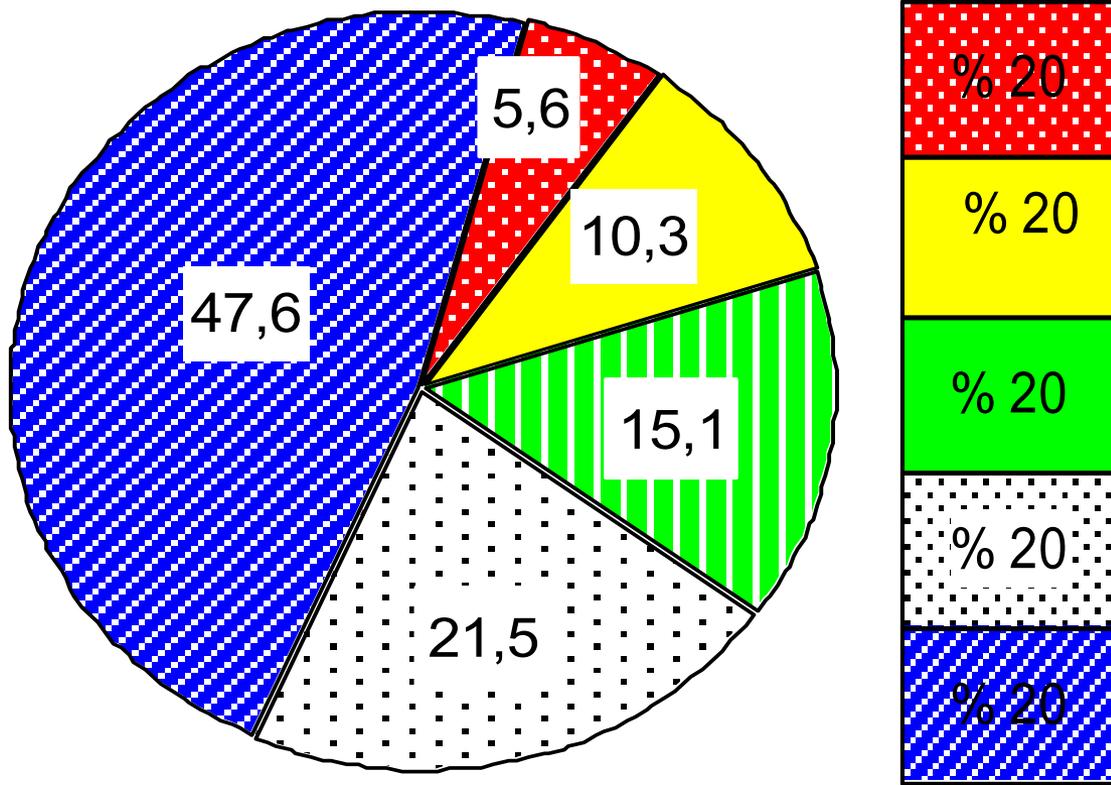


Pharmaceuticals raw material production in Turkiye (ton /yr.)

www.hazine.gov.tr/yayin/hazineistatistikleri, access: 15.12.2003



Income distribution of Turkiye, 2010, TUIK-SSD)

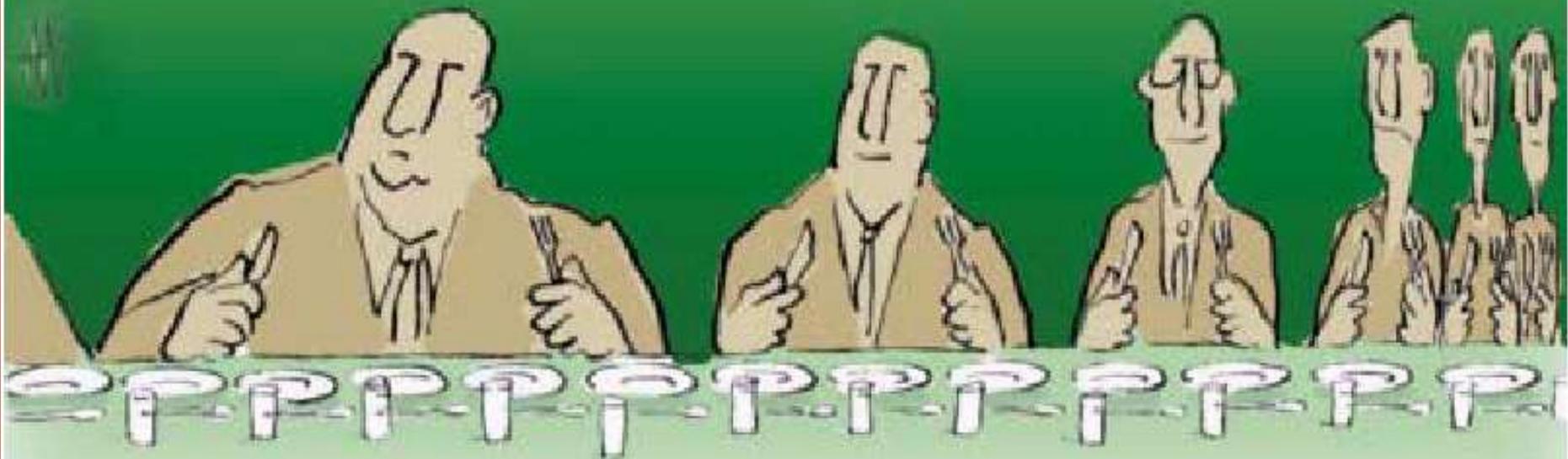


20 % slices of population (each slice ~ 15 mil. person)

Turkey, has to consider the pre-condition of improving income distribution which is extraordinarily disturbed so called “**damned circuit**” at every step. GHI (General Health Insurance) is harmful by making income distribution more unfair. Solely due to this, beside other structural obstacles, it cannot be survived.

Undistributed National income..

Gini coefficient is getting worse and worse.



Problems : Turkey HC* System

- WHO 2002 report -

- Poor health status in relative to the country's income
- Inequitable access to health care
- Insufficient preventive measures
- Inefficient use of actual resources in health care
- Ineffective public governance on health related issues
- Economic studies can address these issues

(* Health care..)

Economic Studies in Turkey: Cost-effectiveness Analysis

- Public Health Strategies for achieving polio eradication
- **Mass immunization** campaign approaches combining both fixed site immunization + targeted house-to-house immunization with non-targeted & no surveillance.
- **Outcome** : Well managed house-to-house immunization activities, while costlier, are more CE than those with limited management support.
- **Targeting hard-to-reach populations** often increases marginal costs, but
- These are offset by savings of effective surveillance & combined activities of two approaches

Cost-Effectiveness : Comparing Alternative Technologies

- Implantable devices vs Tunnelled **Catheters**: Erdine S, 1998 Current P & Headache Rept.
- **Outcome**: within 3-7 months the implantable systems became cost-effective.
- CE of 2nd line chemotherapy in Non Small Cell Lung Cancer: Saglam S. J Clin Onc 2002.
- Generally chemo paid by state insurance org. Lung cancer largest % of cancer cases
- **Outcome** : Incremental survival of docetaxel vs supportive care = 2 months. US\$ 57,749 / life year gained.
- Annual per capita income is US\$2,160
- **Discussion** :
- 2nd line therapies vs preventive (anti-smoking) measures
- **Funding**, patient & community perspective, competing programs

Conclusion ...

- Economic studies in all arenas of health care should continue as they provide both support for the initiation of new treatments, and information to help in the selection of one treatment or practice over another.
- It will be important to have data on costs and outcomes to assist in these analyses.
- These studies can assist in health care planning and resource allocation.

Poverty, globalization and growth :

Perspectives on some of the statistical links

Prof. Dr. Joseph E. Stiglitz, *Nobel Laureate in Economics*, 2002

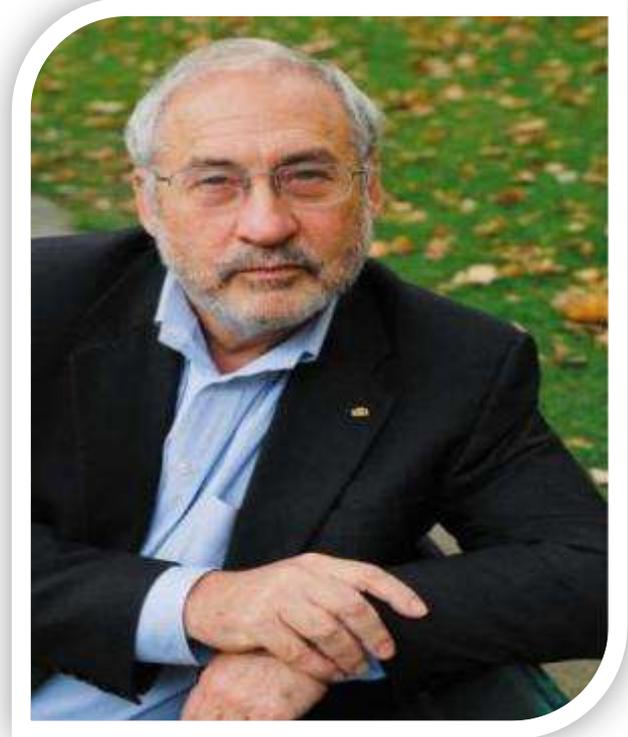
“.. Hidden beneath the surface in these econometric studies of globalization is another subtext : Because **Globalization** has proven so good for growth and poverty reduction, critics of globalization must be wrong. But these cross-sectional studies cannot address the most fundamental criticisms of globalization as it has been practiced : That it **is unfair and that its benefits have disproportionately gone to rich people**..”

Poverty, globalization and growth :

Perspectives on some of the statistical links

Prof. Dr. Joseph E. Stiglitz, *Nobel Laureate in Economics, 2002*

“.. Are there **pro-poor growth strategies** that do more to reduce poverty as they promote growth? And are there growth strategies that increase poverty as they promote growth strategies that should be shunned?.”



Poverty, globalization and growth :

Perspectives on some of the statistical links

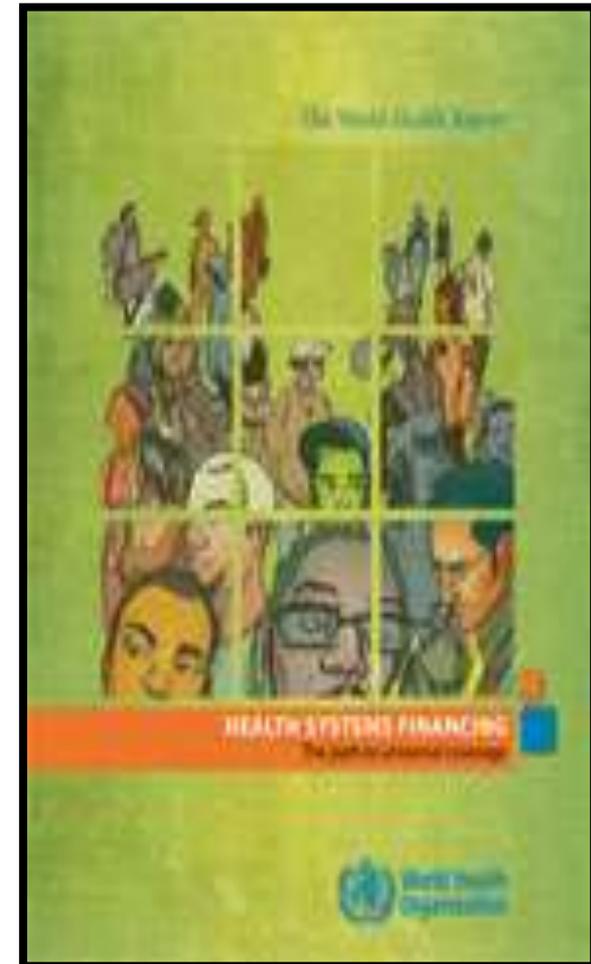
Prof. Dr. Joseph E. Stiglitz, *Nobel Laureate in Economics*, 2002

“.. For instance, neither theory nor evidence supports the view that opening markets to short term, speculative capital flows increases economic growth. But there is considerable evidence and theory that **Globalization** increases economic instability, and that economic instability contributes to insecurity and poverty..”

The World Health Report 2010

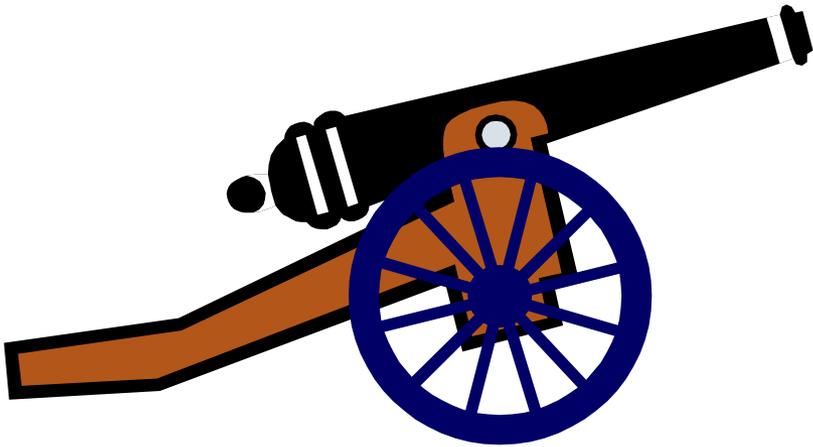
Health systems financing : the path to universal coverage

Good health is essential to human welfare and to sustained economic and social development. WHO's Member States have set themselves the target of developing their *health financing systems to ensure that all people can use health services*, while being protected against financial hardship associated with paying for them.



Lifestyle Factors

*“Genes load the gun.
Lifestyle pulls the trigger”*



Dr. Elliot Joslin

If we wish to keep alive and sublimating our Turkish Republic until the eternity, we should not only follow such policies which will make someone richer but must put into action some peculiar

social policies

that would realize the right of equal access to quality and continuous public health services for all citizens considering equity without any discrimination.

Let's not forget : **Turkiye is a social state!**

Thank you for your attention and also for your potential / expected efforts in the near future for the sake of equal and quality public health services for all of our valuable people.

I've no doubt that you will act in a very sensitive way towards this target.

Ahmet SALTİK, MD, Professor of Public Health
Univ. of Ankara School of Medicine

www.ahmetsaltik.net

Health Economics and Public Health, Ahmet SALTİK, www.ahmetsaltik.net, University of Ankara School of Medicine, Turkish Revolution, Ataturk, What is Economics, Pharmacoeconomics, How to allocate scarce resources, Determination of efficiency, guns or butter, Focus drug therapy, health care delivery systems, reasonable balance, Promote and develop global health, Economic Thinking, Basic Economic Problem, Resources are scarce, Resources have alternative uses, opportunity cost, best satisfy human needs, Financial resources, providing health care, set priorities, individual vs society debate, maximize care, Efficacy, best alternative, judging benefits, harms and costs, Inputs of the health system, outputs of the health system, Health personnel, Health manpower, Cost vs. Outcome, big investment small return, health expenditures, Economic Burden of diseases, hospital and home care, Paradigm of Cost-Quality, Patient centered, Demand induced, Shared-decision making, Bio psychosocial, Patient empowerment, Disease centered, Supply induced, Paternalistic, Biomedical, Doctor centered, Prevailing paradigms in medical practice, Major Paradigm Shifts in Health Care, Evidence based medicine is essential, Not opinion but evidence, clinical decision making, Humanistic outcomes, Clinical Decision Guidelines, Institutions who lay norms, WHO, ILO, JNC, TMA, TSI, APHA, FDA, CDC, Government regulations, Social Security Institutions, Pharmaceutical companies, Private Insurance Companies, Optimal care for all, Cost-beneficial care, Litigation defense against Malpractice,

Premium benefit, Promotional opportunity, higher quality of life, patient satisfaction, Decision Tree, Consumerism, Minimalism, Elasticity of Demand, Equilibrium Point, Supply and Demand Curves, Disability Adjusted Life Year DALY, Years of Life Lost, Years Lost due to Disability, Economics can't place humanistic values, Types of Costs, direct cost, indirect cost, intangible cost, fair taxation system, publicly financing health care, Who pays the health care bill, HEALTH COOPERATIVES, Turkish Social Security Institution SKG, Sosyal Güvenlik Kurumu, Cost-product analysis, Cost-minimization Analysis, Cost-effectiveness Analysis, Cost-benefit Analysis, Cost-utility Analysis DALY, Strategies to Manage Costs, Restricting Access, Cost Shifting, Cost Containment, Rational prescribing, Pre-existing conditions, Prior approval, Limits on health care products, Early discharge from hospital, Co-pays, OTC drugs, core security coverage, additional insurance packages, complementary insurance packages, skeleton crew, Pharmaceuticals expenditures in Turkey, Pharmaceuticals raw material production in Turkiye, Income distribution of Turkiye-2010, damned circuit, General Health Insurance, Undistributed National income, Gini coefficient is getting worse, Economic Studies in Turkey, Comparing Alternative Technologies, Poverty, globalization and growth, Globalization is unfair, pro-poor growth strategies, pro-rich growth strategies, Prof. Joseph Stiglitz, Nobel prize, Nobel Laureate in Economics-2002, Globalization increases economic instability, economic instability contributes to insecurity and poverty, World Health Report 2010, Health systems financing, universal coverage, all people can use health services, Lifestyle Factors, Genes load the gun, lifestyle pulls the trigger, social policies, social state, equal and quality public health services for all, Ahmet SALTİK, www.ahmetsaltik.net, Univ. of Ankara School of Medicine, ahmet saltık, ahmet saltik