Pharmacoeconomics

Practice and implementation

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Basic Rules

Ask whenever you feel….

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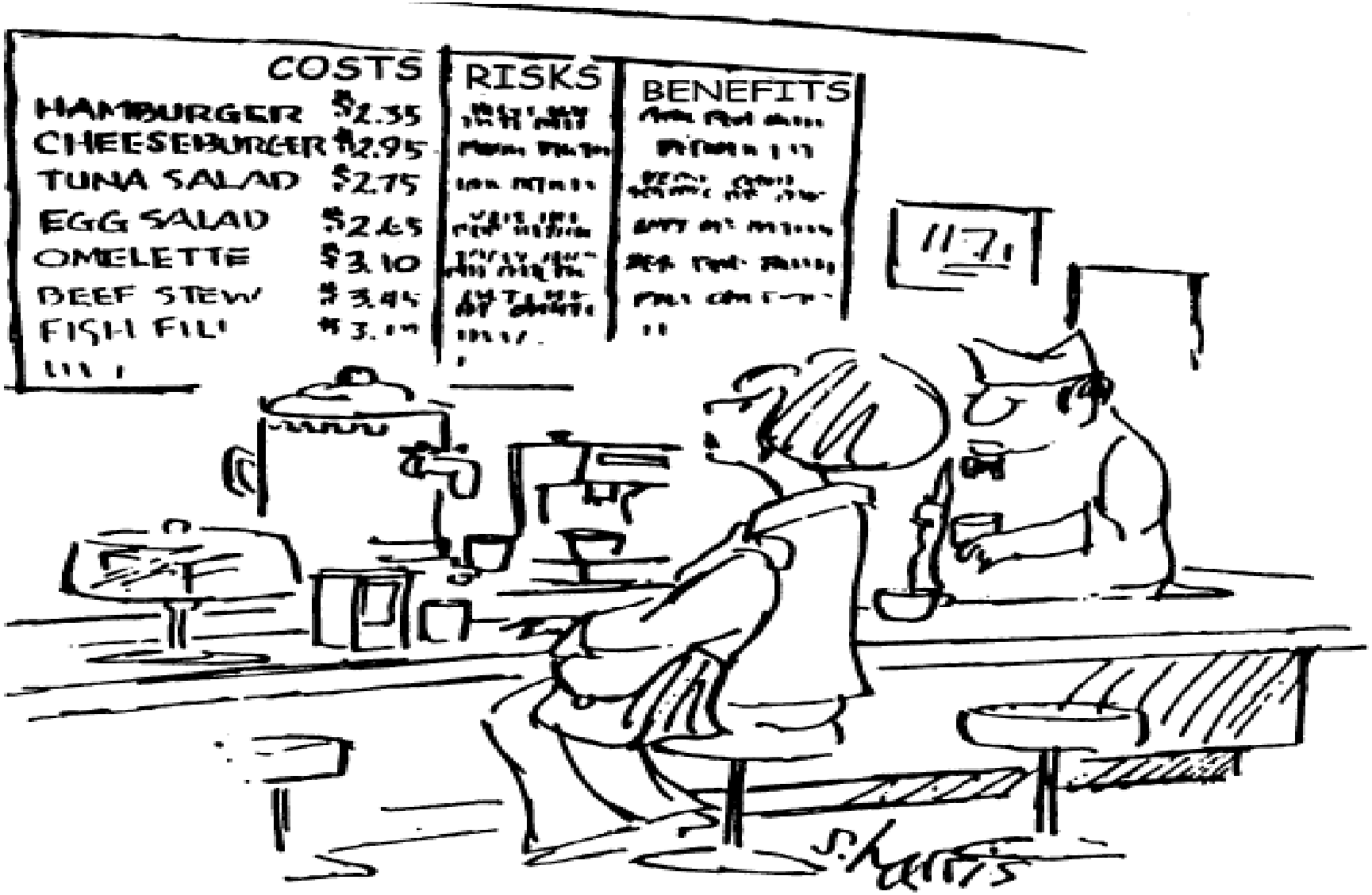
Recommended textbooks

1. Essentials of Pharmacoeconomics, Karen Rascati

Introduction to PE

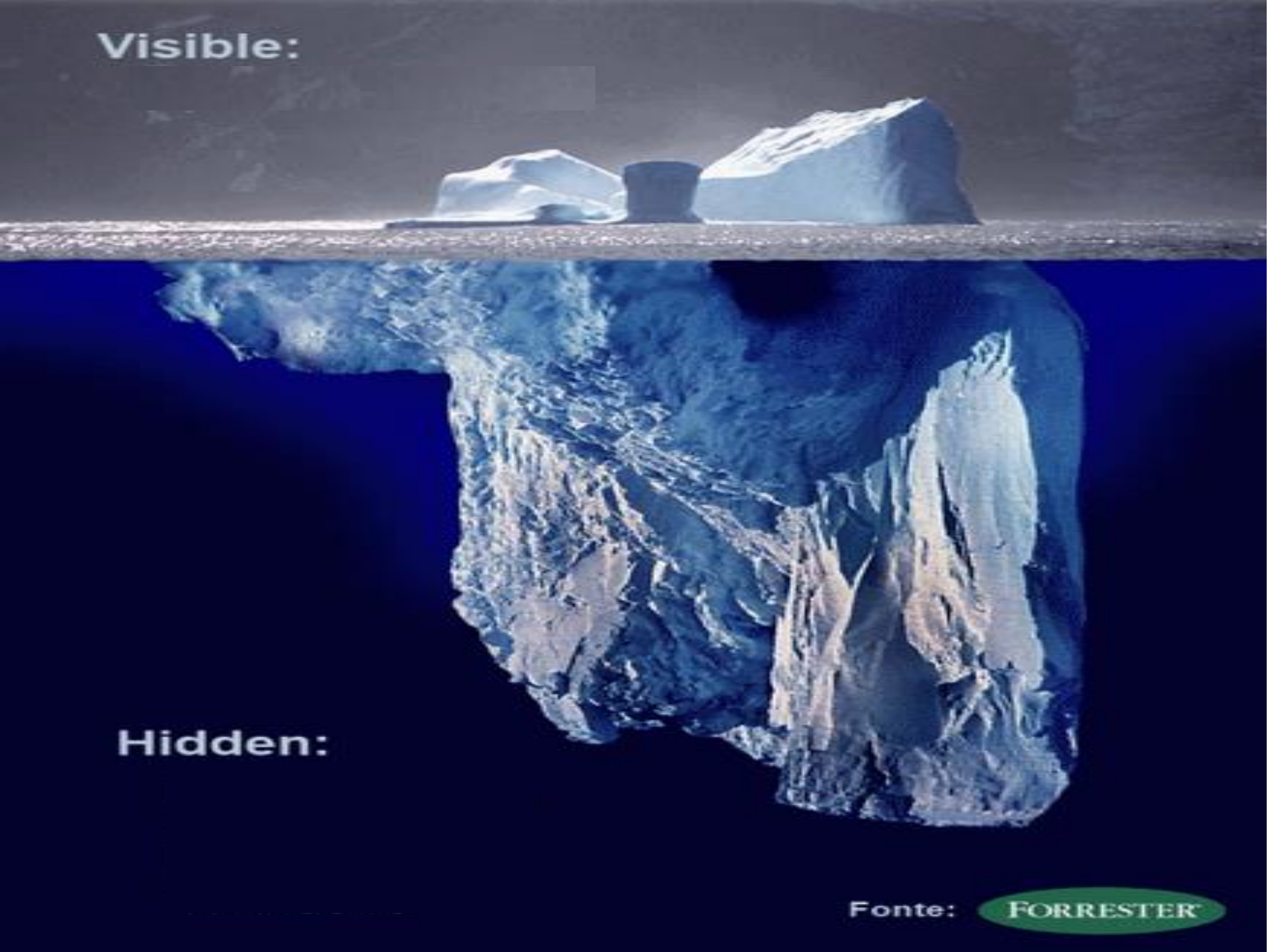
OUTLINE

- -What is it? Its Importance?
- -Elements of Pharmacoeconomics studies
- -Practical session


COSTS
HAMBURGER $2.35
CHEESEBURGER $2.95
TUNA SALAD $2.75
EGG SALAD $2.65
OMELETTE $3.10
BEEF STEW $3.45
RISKS
BENEFITS
1171

Pharmacoeconomics

- Pharmacoeconomics has been defined as the description and analysis of the cost of drug therapy to health care systems and society.
- used by health authorities to organize pharmaceutical care in an efficient and resource minimizing way.
- This information can assist clinical decision makers in choosing the most cost-effective treatment options.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- **PE attempts to measure if the added benefit of one intervention is worth the added cost of that intervention.**

- Objectives must originate within three dimensions when considering results and value of healthcare:
  - Acceptable clinical outcomes
  - Acceptable humanistic outcomes
  - Acceptable economic outcomes

Pharmacoeconomics

Rationale for the cost effectiveness

- To **combine all health benefits**, including those associated with reduced morbidity and disability while including in the **costs** only the components that add to or subtract from the resources available for health care.

Why PE?

- Should this new medication be added to the formulary

or not??

- Should a new pharmacy service be implemented?

- How do the different medications impact a patient's health related quality of life?

Cost-Effective!!

- Cost-Effective is **NOT the least expensive**.
- Less expensive and at least as effective.
- More expensive with an additional benefit worth the additional cost.

Efficacy

Can it work?

Effectiveness

Will it work?

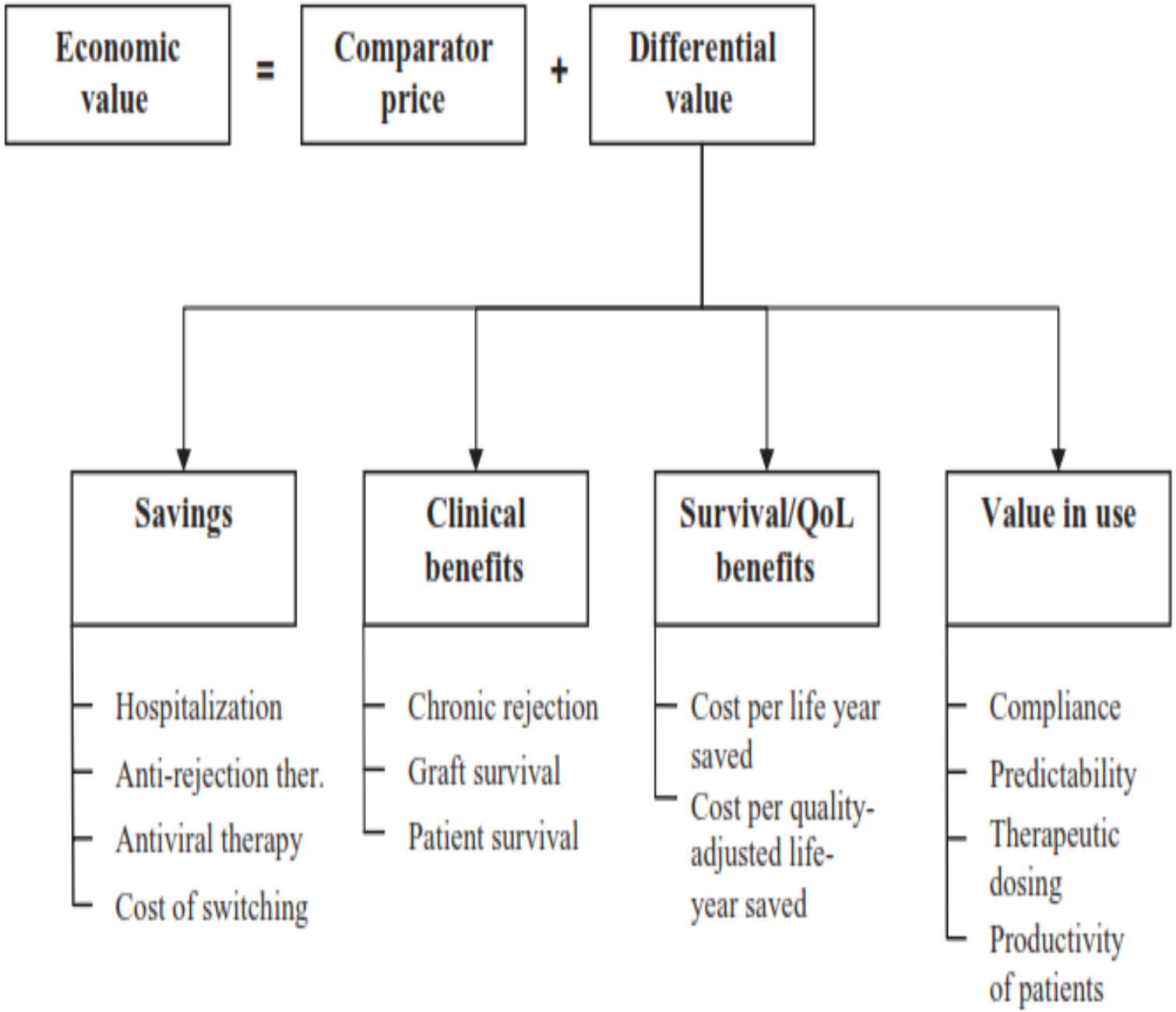
Better medications or better use of medications??

Important concepts

Strategic pricing includes strong health economic elements:

- The **economic value** of new medications can be calculated based upon the comparator price and the differential value.

- **The comparator** is usually the most likely gold standard therapy at the time of the expected launch of the product.


Economic value
=
Comparator price
+
Differential value
Savings
Hospitalization
Anti-rejection ther.
Antiviral therapy
Cost of switching
Clinical benefits
Chronic rejection
Graft survival
Patient survival
Survival/QoL benefits
Cost per life year saved
Cost per quality-adjusted life-year saved
Value in use
Compliance
Predictability
Therapeutic dosing
Productivity of patients

Important concepts

- In spite of evidence from RCTs, we are aware of several cases, when the **real-world health benefit** of drugs which otherwise met the strict requirements of the registration procedure **is still doubtful.**

- In the case of some pharmaceuticals, the intermediate or surrogate health benefit observed in pivotal clinical trials eventually **does not result in survival** and/or clinically meaningful quality-of-life (QoL) benefit in real-world situations.

For which drugs??

- It would be complicated and time consuming to rank all available health care technologies according to their cost-effectiveness; therefore, the cost-effectiveness criteria are assessed mainly for the **new and expensive therapies** in the majority of countries.

Types of PE studies

Methodology	Cost Measurement Unit	Outcome Unit
Cost–benefit	dollars	dollars
Cost-effectiveness	dollars	natural units (life-years gained, mg/dL blood glucose, mm Hg blood pressure)
Cost-minimization	dollars	assume to be equivalent in comparative groups
Cost-utility	dollars	quality-adjusted life-year or other utilities

Different perspectives of health economic evaluation

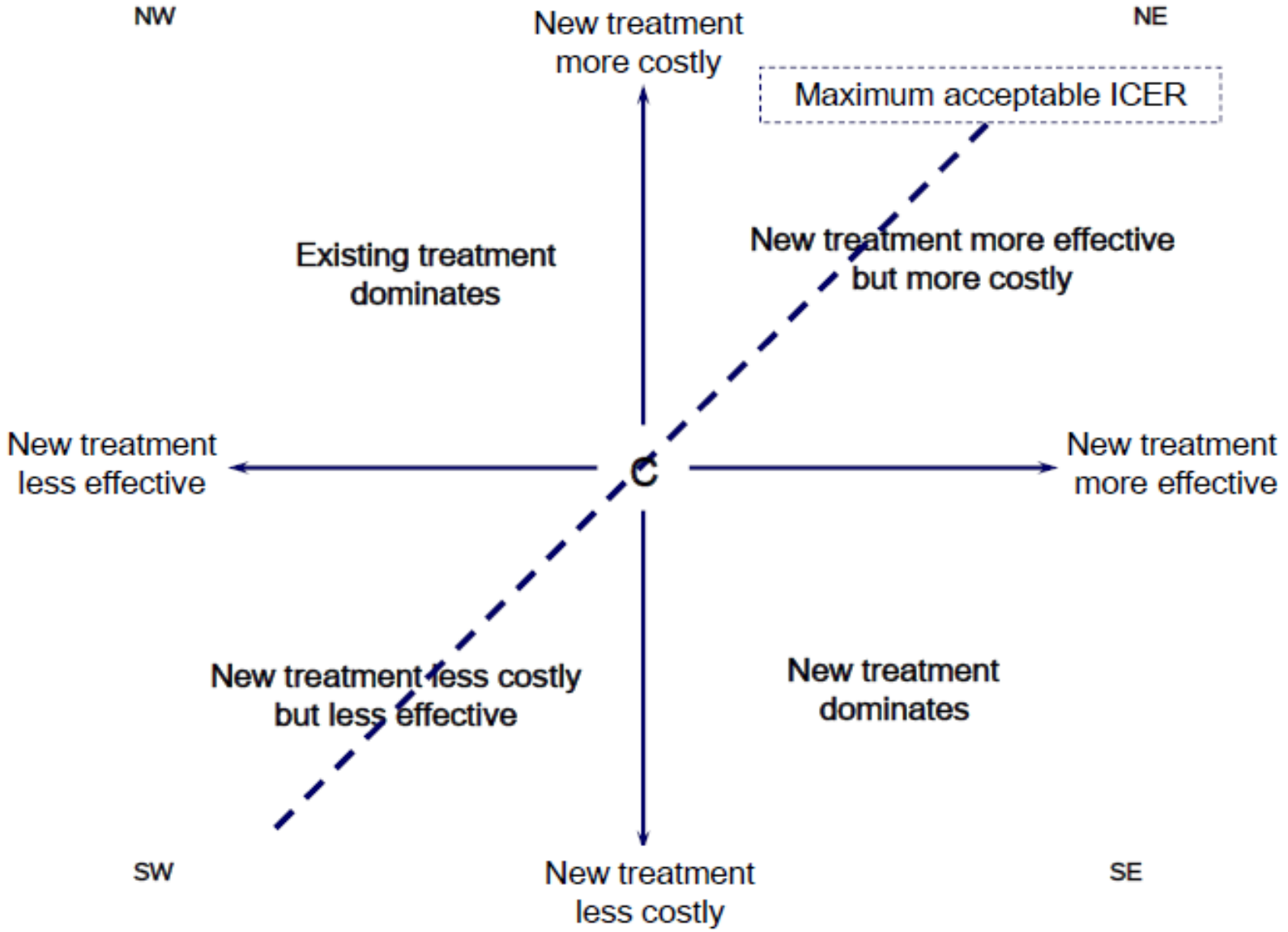
Societal	• all medical and non medical costs • productivity loss
Third party payer / health insurance	• total health care costs • charges linked with reimbursement of providers
Health care provider	• variable costs that influence the expenses of provider
Patient	• out of pocket expenses • lost wages • family cost of caring
Employer	• productivity loss • replacement costs • risks on routine operation and business objectives

	Drug A	Drug B	Drug C
Cost	600 $ per year	210 $ per year	530 $ per year
GI SFDs /year	130 days	200 days	250 days
% ulcer Healed	50 %	70 %	80 %

$$\frac{\text{Cost drug}^B - \text{Cost drug}^A}{\text{outcome drug}^B - \text{outcome drug}^A}$$

ICER= Cost for each unit in health improvement (per extra SFD)

THE COST-EFFECTIVENESS PLANE



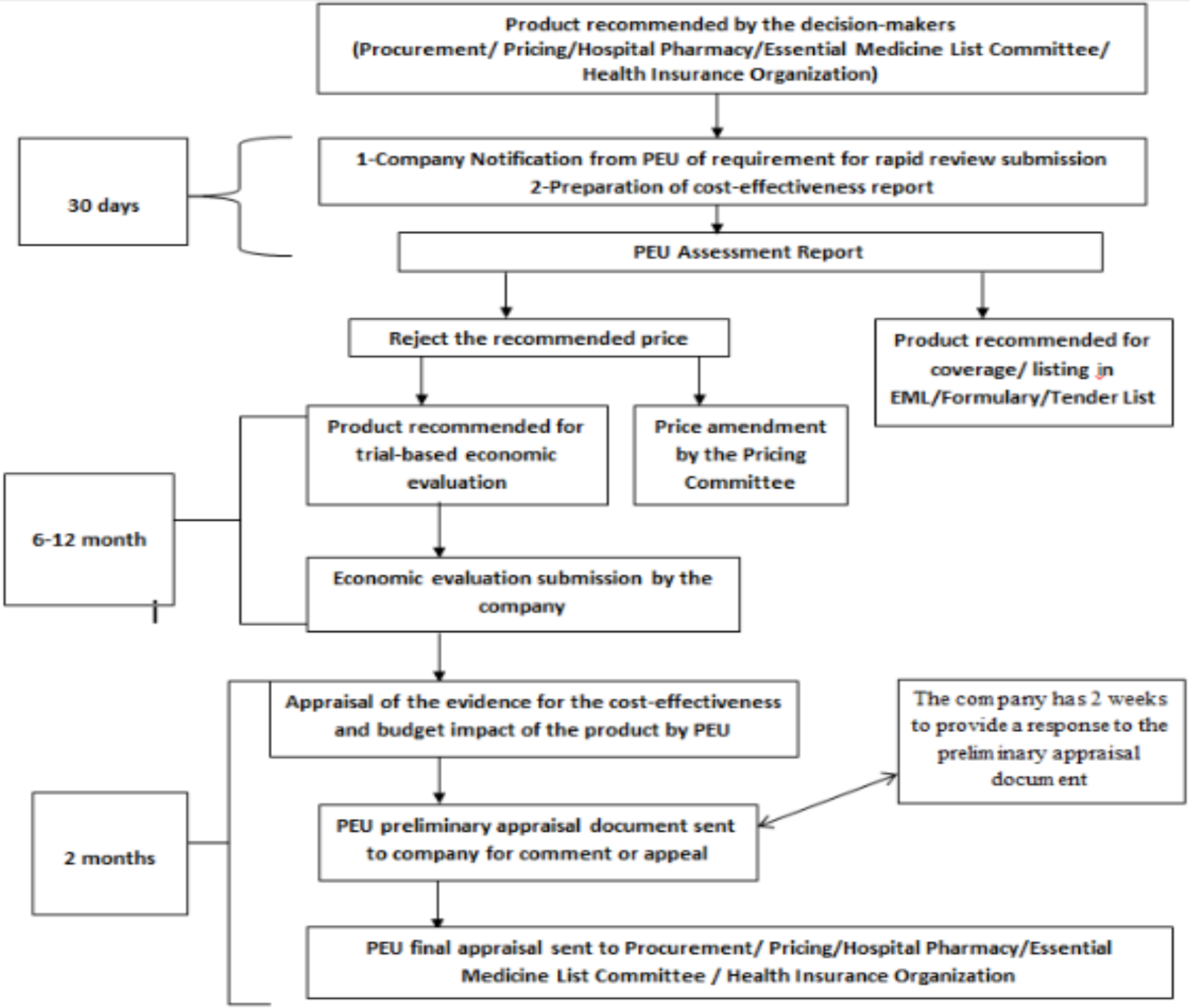
Intervention	$ / QALY
GM-CSF in elderly with leukemia	235,958
EPO in dialysis patients	139,623
Lung transplantation	100,957
End stage renal disease management	53,513
Heart transplantation	46,775
Didronel in osteoporosis	32,047
PTA with Stent	17,889
Breast cancer screening	5,147
Viagra	5,097
Treatment of congenital anorectal malformations	2,778

Health Technology Assessment (HTA)

Health Technology Assessment (HTA):

Assessment of properties, effects, and/or impacts of health care technology from various perspectives (clinical, economic, organizational, ethical) to inform health policy.

Applications in Egypt


Product recommended by the decision-makers
(Procurement/ Pricing/Hospital Pharmacy/Essential Medicine List Committee/
Health Insurance Organization)
30 days
1-Company Notification from PEU of requirement for rapid review submission
2-Preparation of cost-effectiveness report
PEU Assessment Report
Reject the recommended price
Product recommended for coverage/ listing in EML/Formulary/Tender List
Product recommended for trial-based economic evaluation
Price amendment by the Pricing Committee
6-12 month
Economic evaluation submission by the company
Appraisal of the evidence for the cost-effectiveness and budget impact of the product by PEU
The company has 2 weeks to provide a response to the preliminary appraisal document
2 months
PEU preliminary appraisal document sent to company for comment or appeal
PEU final appraisal sent to Procurement/ Pricing/Hospital Pharmacy/Essential Medicine List Committee / Health Insurance Organization

Summary

- **No health system can fund all interventions, we should prioritize and choose the cost effective options**
- **Lower the pharmaceutical expenditure with growth in more health care services.**
- Provide patients with access to **new and potentially beneficial healthcare technologies** under conditions of significant uncertainty and cost pressures.

Thanks for Paying Attention