

6th Club



Medical Affairs Club

**Decoding Uncertainty: Leverage
HEOR for Sustainable Healthcare**

Online zoom

7 pm Egy . 8 pm KSA . 8 pm UAE



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Wednesday 24th September 2025



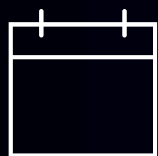
Decoding Uncertainty

Leverage HEOR for Sustainable Healthcare

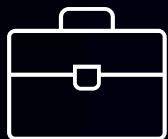
Sept 2025

Mohamed Seddik

Disclaimer : Currently I am a Full-time employee of AbbVie Inc. Views mentioned are mine, and not of my employer. No other conflicts to declare."



1990



+12 Yrs



Riyadh, Saudi Arabia



abbvie



Mohamed Ibrahim Seddik ✓

Drive Patient Access, Shape Policy, & Create Impact | Medical Affairs | Market Access | HEOR | Commercial | Cardiology | Immunology | Eye-care | Women Healthcare | Gastroenterology

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 Abbvie

 The London School of Economics and Political..



NYU





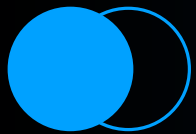
Patients are not statistics; they are lives behind the data



Uncertainty exists: Which treatment is most effective? Affordable? Sustainable?



HEOR helps reduce uncertainty and make **value-based** choices



Better outcomes for patients and **sustainable** healthcare systems



Pics are AI-generated & it's not representing a real patients

Learning Outcomes:-

- I. Identify the key healthcare **challenges** and anticipate **future** trends.
- II. Differentiate between **HE, HEOR, and HTA**.
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- IV. Understand HEOR **fundamentals**.
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- VIII. Examine how HTA can be leveraged within the **pharmaceutical industry**.

**Healthcare accounts for
approximately of
global resources**

a.3%

b.5%

c.10%

d.20%



slido



**Healthcare accounts for
approximately of global resources**

① Start presenting to display the poll results on this slide.

Pharmaceutical spending represented of total health expenditure in Saudi Arabia

- a. 10%*
- b. 15%*
- c. 20%*
- d. Up to 30%*



slido



Pharmaceutical spending represented of total health expenditure in Saudi Arabia

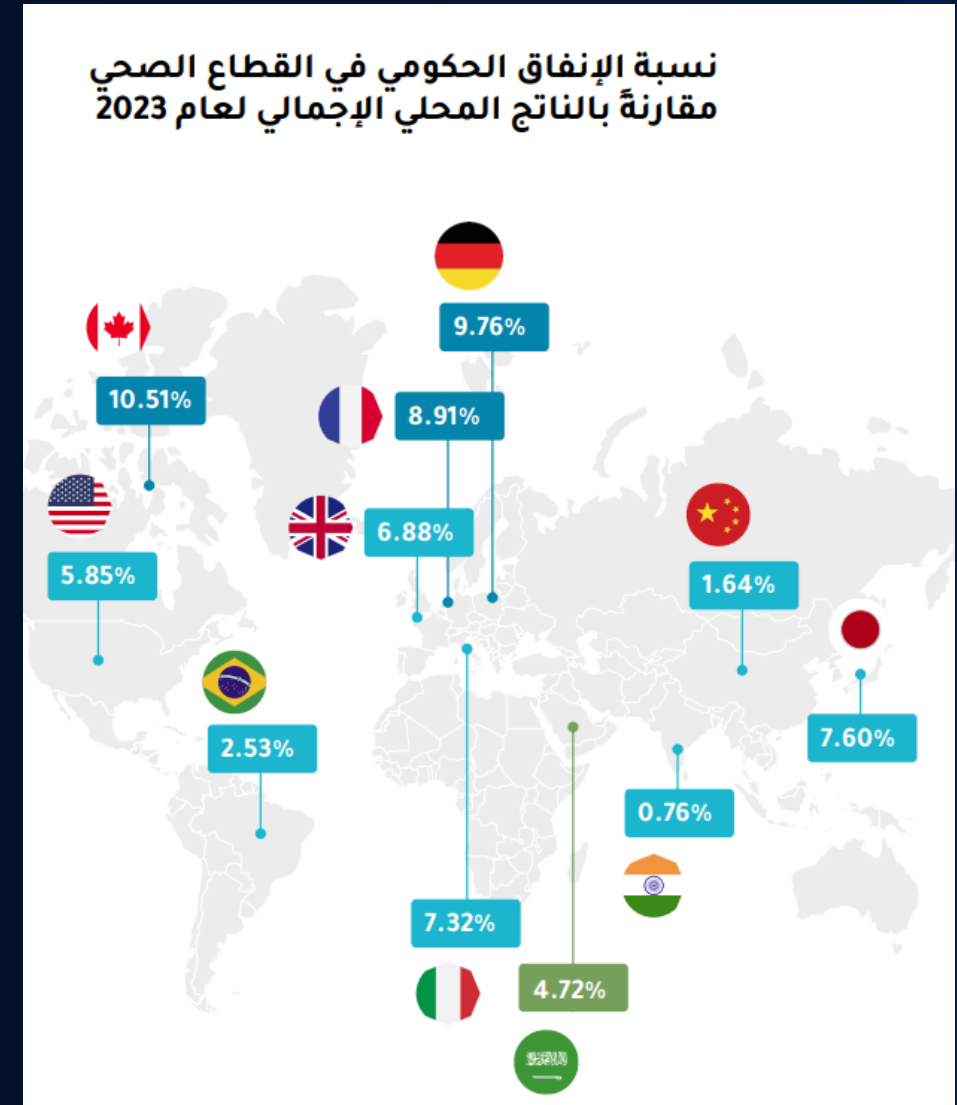
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Healthcare Landscape;

Rising costs, shift toward VBA, growing disease burden, and HTA emerging

- **Rising healthcare costs:** Healthcare accounts for approximately **10%** of global resources. With expectation to grow faster than the economy projected to reach **20.3%** of GDP by 2033.
- **Shift toward value-based care:** World Trade Organization's (WTO) reports highlight several dimensions of health system economics, policy, and sustainability relevant to HEOR.
- **Growing chronic disease burden**



Health Technology Assessment, value-based care

تقرير دراية المالية نظرة عن قطاع بيع التجزئة للصيديات في المملكة العربية السعودية بوليفو

(World Health Organization [WHO], 2019:5).



What to Expect in Upcoming Decade ?!

Rapid increasing demand for healthcare services in the MENA region

WHY ?!

A. Steady **population** boom;

- Africa's population to double by 2050³.
- Elder people aged 50+ is expected to increase by 6.9%, **outpacing** the population growth of 2.3% ².

B. High prevalence of chronic and non-communicable **diseases**;

- **25% reduction by 2025**; UN Target to reduce premature mortality from NCDs.

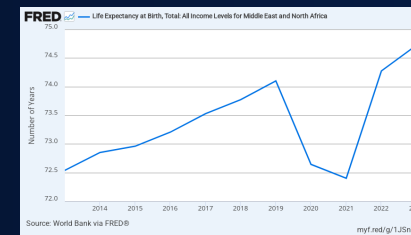
C. Introduction of mandatory healthcare **coverage** and health insurance schemes.

D. Launching **costly innovative** medications.

- Lenmeldy, Gene Therapy for MLD, Cost up to \$Millions !!

E. Life expectancy has improved;

+ 2.2 years reaching 74.7 in a decade.



As a result, the MENA healthcare market is projected to grow at CAGR of 11.7% to almost \$250 Bn in 2023 a report by Fitch Solutions forecast¹.

Premature death: deaths before the age of 70, Non-communicable diseases (NCDs): These are chronic diseases like cardiovascular disease, cancer, chronic respiratory diseases, and diabetes, which are not spread through infectious agents ¹ <https://www.zawya.com/en/press-release/companies-news/mena-hospital-projects-forum-2022-takes-off-focusing-on-the-us243bln-mena-healthcare-market-opportunities-s2uso9s0>

² <https://alpen-capital.com/research/2020/GCC-Healthcare-Report-November-2020.pdf>

³ <https://www.ft.com/content/1d454bb8-435a-11e6-9b66-0712b3873ae1>

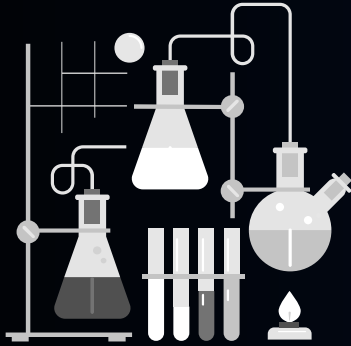


Dr. Habibzadeh The Lancet Middle East Edition, NIOC Medical Education and Research Center, Shiraz, Iran, www.thelancet.com Vol 381 March 2013

Let's turn to the basics:-



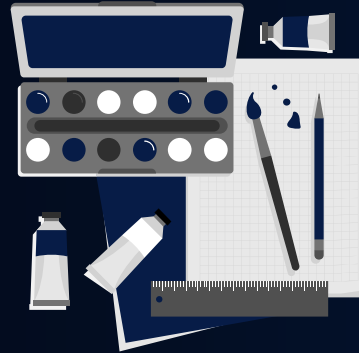
HE



Science

- What it is: The science of how healthcare resources (money, time, medicines) are used and allocated.
- Focus: **Cost vs. Benefit** - Are we getting good value for money?
- Example: If a new cancer drug costs \$10,000 and adds 1 extra year of life, is it worth it?

HEOR



Tool

- What it is: A broader **toolbox** that includes health economics + other outcomes (clinical, patient-reported, quality of life).
- Focus: Not just cost, but **overall value** of a treatment in real life.
- Example: The same cancer drug - besides cost, does it improve **quality of life**, reduce hospital stays, make patients happier?

HTA



Process

- What it is: A **decision-making process** used by governments/insurers to decide if they should pay for a treatment.
- Focus: Uses HE + HEOR + clinical evidence + ethics + social impact to make a reimbursement decision.
- Example: Should the government include the cancer drug in the **national formulary**? Yes or No?

Think of it like this:

Health Economics = Math of costs and benefits.

HEOR = Full picture of value (cost + patient outcomes + quality of life).

HTA = The **judge** that uses HEOR evidence to make coverage decisions.

HEOR= Health Economics and Outcomes Research, HTA; Health Technology Assessment, HE; Health Economics.

To Inform/Guide Not To Mandate



HEOR

Health Economics + Outcome Research

Cost of interventions + Real-world pt. outcomes

Evidence for value-based decisions
Guide healthcare **decision-making** under **uncertainty** by
generating **data** on the *economic, clinical, and humanistic*
outcomes of interventions.



What are the key differences
between Clinical trials & HEOR ?!

*Short-term, Controlled
environment, Measures
efficacy*

**Clinical
Trials**

HEOR

*Long-term ,Real-world
setting ,Measures **value***

Clinical trials tell us if a drug works. HEOR tells
us if it's worth the money in the real world



If Implementing HEOR ...

Allocate budgets wisely, enhance equitable access to innovation



For Governments



- Better resource allocation
 - Value-based pricing
- Cost-containment strategies

For HCPs & Payers

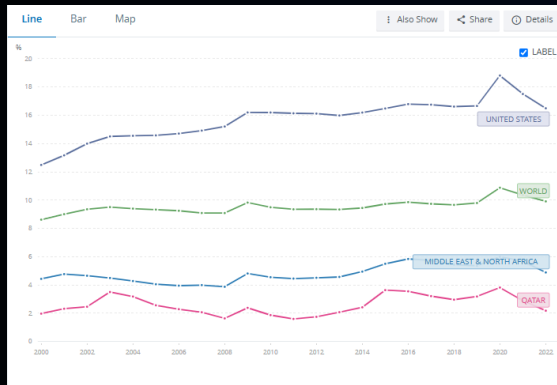


- Predictable budgets
- Improved outcomes
- Evidence-based reimbursement

For Patients



- Faster access to innovative, cost-effective therapies
- Affordable therapies



World Health Organization Global Health Expenditure database (apps.who.int/nha/database). The data was retrieved on April 4, 2025.

Why HEOR Matters?!

Inform payers to take tough decisions, eliminate uncertainties, and facilitate the need for prioritization.

Key Drivers

- Limited healthcare budgets
- Increasing demand for innovative therapies
- Shift toward value-based care
- HTA adoption by regulators
- Need for sustainability

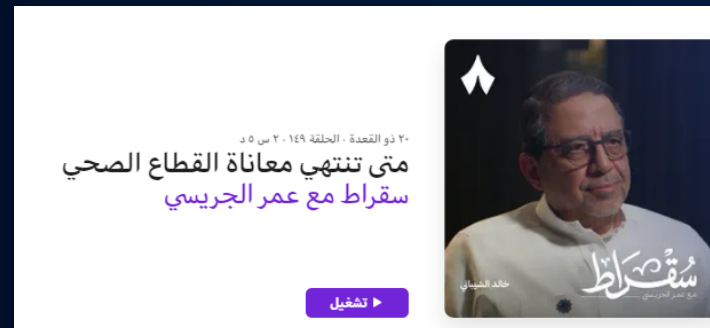
Examples of Decision Making Without HEOR

- *Wasted resources*
- *Inefficient allocation*
- *Uncertainties*

As innovation grows, so does the pressure to allocate budgets wisely. HEOR helps make these tough decisions."

Saudi Arabia dealing with a number of challenges: (key Drivers)

- Increasing **life expectancy**
- High **chronic diseases** rates
- Inadequate **primary care**
- Gaps in the **quality of service** provided to patients
- Gaps in **workforce capacity** and capability
- **Spending in-efficiency** & limited resources
- Increasing demand for innovative
- HTA adoption by regulators
- Need for sustainability



HEOR Ecosystem; Complex Interconnecting Relationships

R; Role - L; HEOR Link



Regulatory Authority



- **R:** Approves the safety and efficacy of drugs and medical technologies.
- **L:** Sets the foundation for market entry; does not primarily assess cost-effectiveness but increasingly collaborates with HTA for value-based approvals.

Policy Makers



- **R:** Develop healthcare policies, reimbursement rules, and pricing regulations at national level.
- **L:** Use HEOR evidence to shape coverage decisions, cost-containment strategies, and value-based healthcare frameworks.

Payers / Insurers



- **Role:** Finance healthcare by reimbursing treatments and services.
- **Link:** Rely on HEOR to decide what to cover, at what price, and under what conditions.

Service Providers



- **Role:** Deliver healthcare services and adopt new technologies.
- **Link:** Provide real-world data and implement value-based care models informed by HEOR; may face restrictions or incentives based on HTA outcomes.

HTA Bodies



- **Role:** Evaluate the clinical, economic, and social value of health technologies.
- **Link:** Core users of HEOR data; integrate cost-effectiveness, RWE, and QoL outcomes into coverage recommendations.

HTA Communities



- **Role:** Generate methodology, research, and training in HTA and HEOR.
- **Link:** Build local expertise, share best practices, and support evidence-based policy development.

Pharmaceutical Companies

- **Role:** Develop and commercialize drugs and technologies.
- **Link:** Generate clinical/economical evidence to support pricing, reimbursement, and MKA negotiations.



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HEOR

Health Economics + Outcome Research

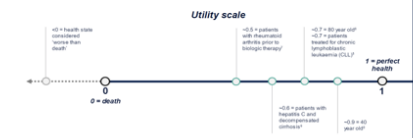
Cost of interventions + Real-world pt. outcomes



UTILITY

What is the utility?

Utility is a way of expressing QoL, and reflects the preference or value placed on different health states. It is measured on a scale where 0 represents death and 1 represents perfect health.



An individual's utility can change over time, with a decrease in utility scores reflecting a deterioration in overall health. The benefits of a treatment can therefore be demonstrated through increases in utility score that reflect patients being in an improved health state.

QALY

What is the Quality Adjusted Life Year ?

To compare the value of interventions across different therapy areas, HTA bodies often consider QALYs. QALYs are a universal measure of effectiveness that encompasses both the quantity (survival, measured as life years) and quality (QoL, measured as utility) of life. One year in perfect health would be equivalent to 1 QALY.

$$\text{Survival (life years)} \times \text{Quality of life (utility)} = \text{QALY}$$

	Total life years	Utility	QALYs
Drug X	3.810	0.74	2.829
Drug Y	3.514	0.76	2.678

WTP/CTP

Cost-effectiveness threshold & willingness-to-pay (WTP)

- A study estimated WTP for one QALY at:
 - US \$25,000 (adjusted to US \$32,000 for a 1-year health gain).
 - Compared to the Saudi GDP per capita (~US \$20,000), the thresholds are approximately 1-1.5x GDP per capita.

Health Economics Framework
Primary threshold: 1.5x GDP per capita, depending on disease severity.
For private reimbursement, a 2x GDP per capita threshold may apply.
WTP threshold of \$25,000 per QALY, equivalent to 1x GDP per capita.

ICER

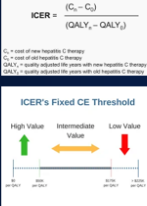
ICER; incremental cost-effectiveness ratio

Measure representing the economic value of an intervention, compared with an alternative (comparator). It is usually the main output or result of an economic evaluation.

$$\text{ICER} = \frac{(C_1 - C_0)}{(QALY_1 - QALY_0)}$$

An ICER is calculated by dividing the difference in total costs (incremental cost) by the difference in the chosen measure of health outcome or effect (incremental effect) to provide a ratio of 'extra cost per extra unit of health effect' - for the more expensive therapy vs the alternative.

In decision-making ICERs are most useful when the new intervention is more costly but generates improved health effect. ICERs reported by economic evaluations are compared with a pre-determined threshold in order to decide whether choosing the new intervention is an efficient use of resources.



CEA

CEA; Cost Effectiveness Analysis

A method of economic evaluation used to assess the value for money of pharmaceutical products.

This analysis compares the costs and health benefits of different medical interventions for population and determines which is the best value for money.

It often performed alongside clinical trials, where the unit of health outcome used in the analysis is often the **primary endpoint** for the clinical trial.



CUA

What if Comparison is Beyond same TA II PASI score versus hb1c

CUA; Cost Utility Analysis

Same concept as cost-effectiveness analysis except it uses QALYs as its core measure of benefit, rather than natural units.

Why ??

The advantage of using QALYs in cost-utility analysis is that this is a generic measure of health outcome. This means that outputs can be compared across disease areas.

CUA tends to be used where decisions are made at a system level or across disease areas; to compare two different drugs or procedures whose benefits may be different.

Pause & Practice

Pause & Practice

A new set of medications used to treat Endometriosis have been developed and released. The NHS needs to conduct a cost-effectiveness analysis to determine whether the new drugs should be available to those with Endometriosis.

Based on this table, calculate the incremental benefits and costs of B to E compared to the currently used A.

Medication	Benefit (QALY)	Cost (£k)	Incremental benefit vs A	Incremental cost vs A
A (currently used)	10	100	NA	NA
B	11	110	1	10
C	12	120	2	20
D	13	130	3	30
E	14	140	4	40

Pause & Practice

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South Africa is one of the world's most unequal countries. As a consequence of this system, there continues to be extreme inequality in terms of income between different groups. Willingness to pay for medications is strongly influenced by income and ability to pay; therefore, high-income individuals are more likely to pay out of pocket for higher-cost items.

The South African government also provides some healthcare for its population. At the margin, it pays **\$4,000 per QALY** for the treatments that it funds. Table below illustrates the differences in income and willingness to pay out of pocket for an additional QALY for low- and high-income South Africans.

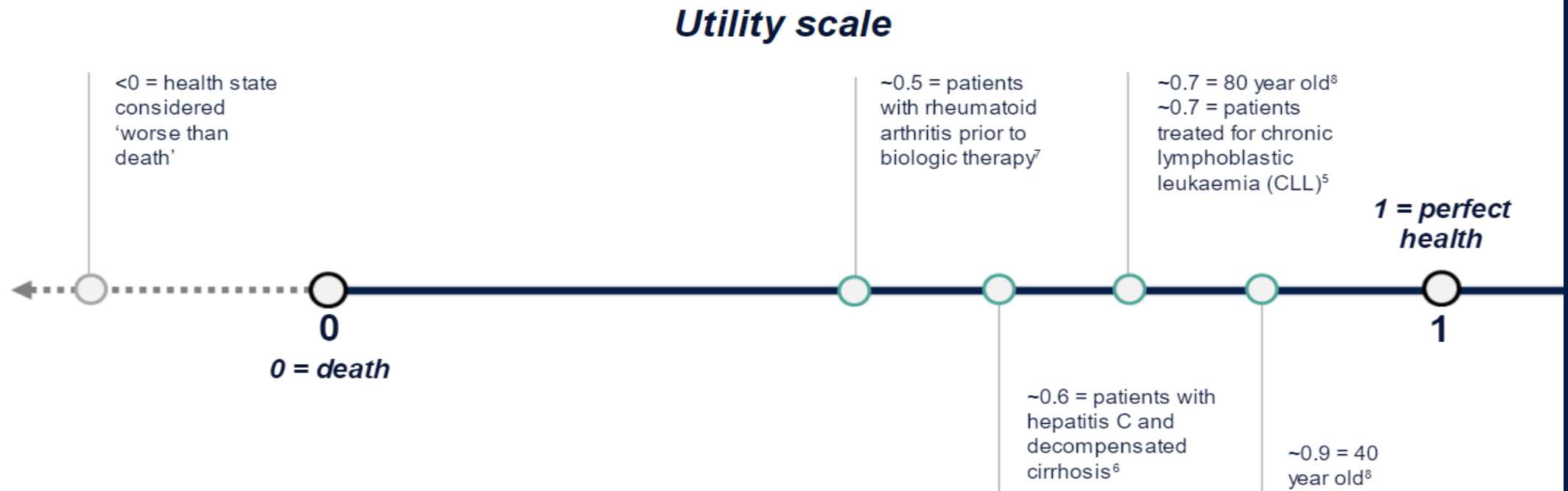
Patient paying out of pocket	Income (\$)	Willingness to pay per QALY (\$)
Low-income South Africans	10,000	2,000
High-income South Africans	50,000	11,000

WTP; willingness-to-pay, CET; Cost-effectiveness threshold

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Results

Based on the four approaches, we find a range of **SAR 42,046 per QALY gained (48% of GDP per capita)** to SAR 215,120 per QALY gained (246% of GDP per capita). Calculated potential central estimates from the average of estimated health gains based on each source gives a range of SAR 50,000–75,000. The results are in line with estimates from the emerging literature from across the world.

Conclusion

A cost-effectiveness threshold reflecting health opportunity costs can aid decision-making. Applying a cost-effectiveness threshold based on the range **SAR 50,000 to 75,000 per QALY** gained would ensure that resource allocation decisions in healthcare can be informed in a way that accounts for health opportunity costs.



- **Flexible CET framework:**
- **Primary threshold: 1-3× GDP per capita**, depending on disease severity.
- For **private reimbursement**, a **2× GDP per capita** threshold may apply.
- **WTP threshold of EGP 56,000 per QALY**, equivalent to **1× GDP per capita**.¹



A 2024 consensus study sought to define **CETs for the UAE**, using structured expert panels and voting exercises to align with both **international norms** and unique national healthcare considerations.

1. Nader Fasseeh A, Salem AA, Khalifa AY, ElBerri AK, Abaza N, Elezbawy B, Al Qasseer N, Nagy B, Kaló Z, Németh B, Hren R. Cost Utility Modeling of Reducing Waiting Times for Elective Surgical Interventions: Case Study of Egyptian Initiative. *Healthcare (Basel)*. 2025 Jul 7;13(13):1619. doi: 10.3390/healthcare13131619. PMID: 40648642; PMCID: PMC12250439. 2. Aldallal S, Farghaly M, Fahmy S, Alnaqbi KA, Al Naeem W, Alsaadi M, Moukarzel M, Nader Fasseeh A, Korra N, Abaza S, Kaló Z. Thresholds for the value judgement of health technologies in the United Arab Emirates: a consensus approach through voting sessions. *BMJ Open*. 2024 Nov 4;14(11):e090344. doi: 10.1136/bmjopen-2024-090344. PMID: 39496369; PMCID: PMC11535693.

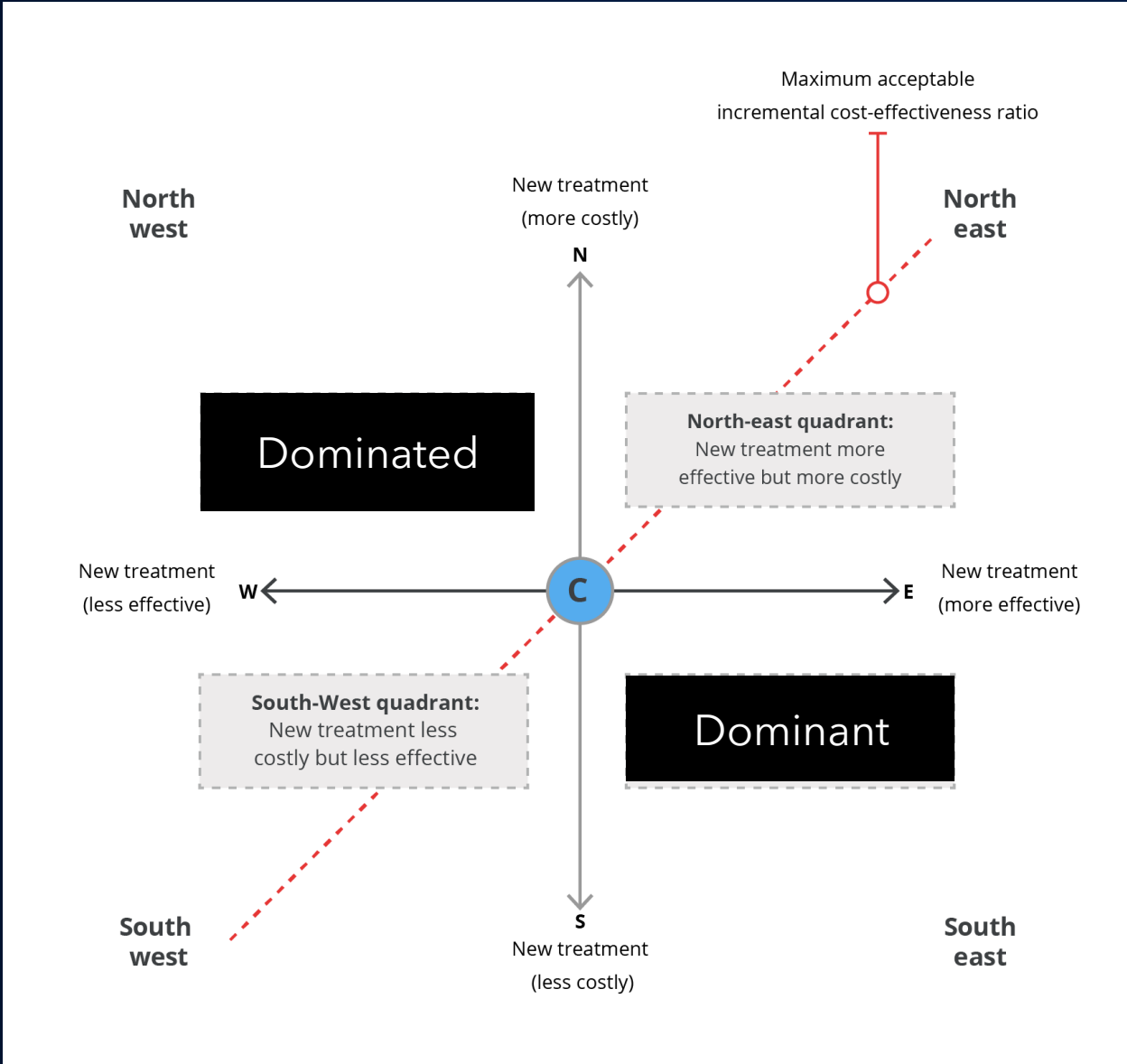


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B	8	150		
C	12	80		
D	13	130		
E	7	70		



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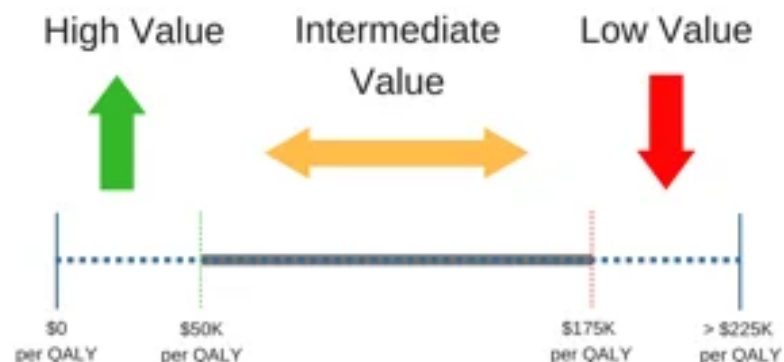
C_n = cost of new hepatitis C therapy

C_0 = cost of old hepatitis C therapy

$QALY_n$ = quality adjusted life years with new hepatitis C therapy

$QALY_0$ = quality adjusted life years with old hepatitis C therapy

ICER's Fixed CE Threshold





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Patient paying out of pocket	Income (\$)	Willingness to pay per QALY (\$)
Low-income South Africans	10,000	2,000
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**If the new medicine has a cost of \$3,000 per QALY, who would be willing to pay for it?
Select all applicable**

- a. High-income South Africans (OOP)*
- b. The South African government*
- c. None*
- d. Low-income South Africans (OOP)*





**If the new medicine has a cost of \$5,000 per QALY, who would be willing to pay for it?
Select all applicable**

- a. High-income South Africans (OOP)*
- b. The South African government*
- c. None*
- d. Low-income South Africans (OOP)*





How HTA can be leveraged at the pharmaceutical industry





Leveraging HTA, pharmaceutical companies can:

- 1.Enhance Market Access:** Early engagement with HTA bodies allows companies to tailor evidence packages to meet national health priorities, ensuring a smoother reimbursement process.
- 2.Drive Innovation:** By focusing on value-based outcomes rather than volume, HTA pushes companies to invest in technologies that truly address unmet needs or offer superior outcomes.
- 3.Strengthen Pricing and Reimbursement Strategies:** HTA helps in negotiating prices that reflect the real-world value of a drug—balancing innovation costs with societal value, particularly in complex or chronic disease areas like oncology and rheumatology.
- 4.Improve Clinical Trial Design:** HTA can guide pharmaceutical companies in designing trials that capture data beyond clinical efficacy, including quality of life and long-term cost benefits, which are essential for favorable assessments."

Take home message:-:-

- ❑ *In an era of high costs and tight budgets, a new drug needs to prove not only clinical effectiveness but also cost-effectiveness.*
- ❑ *Uncertainty is a root cause of wasted resources, slow innovation uptake, delayed patient access, and ultimately suboptimal care.*
- ❑ *HEOR is helping us decode uncertainty, bridge those gaps, and optimize patient care across diverse conditions.*
- ❑ *HEOR = Value + Access + Sustainability*
- ❑ *Clinical effectiveness $\neq$ Cost-effectiveness*
- ❑ *Middle East is moving towards HTA and value-based care*
- ❑ *Start small, scale with data & expertise*