ICER Thresholds Across Asia - What They Are, How Are They Determined and Used? What Are the Implications of This for Patient Access?

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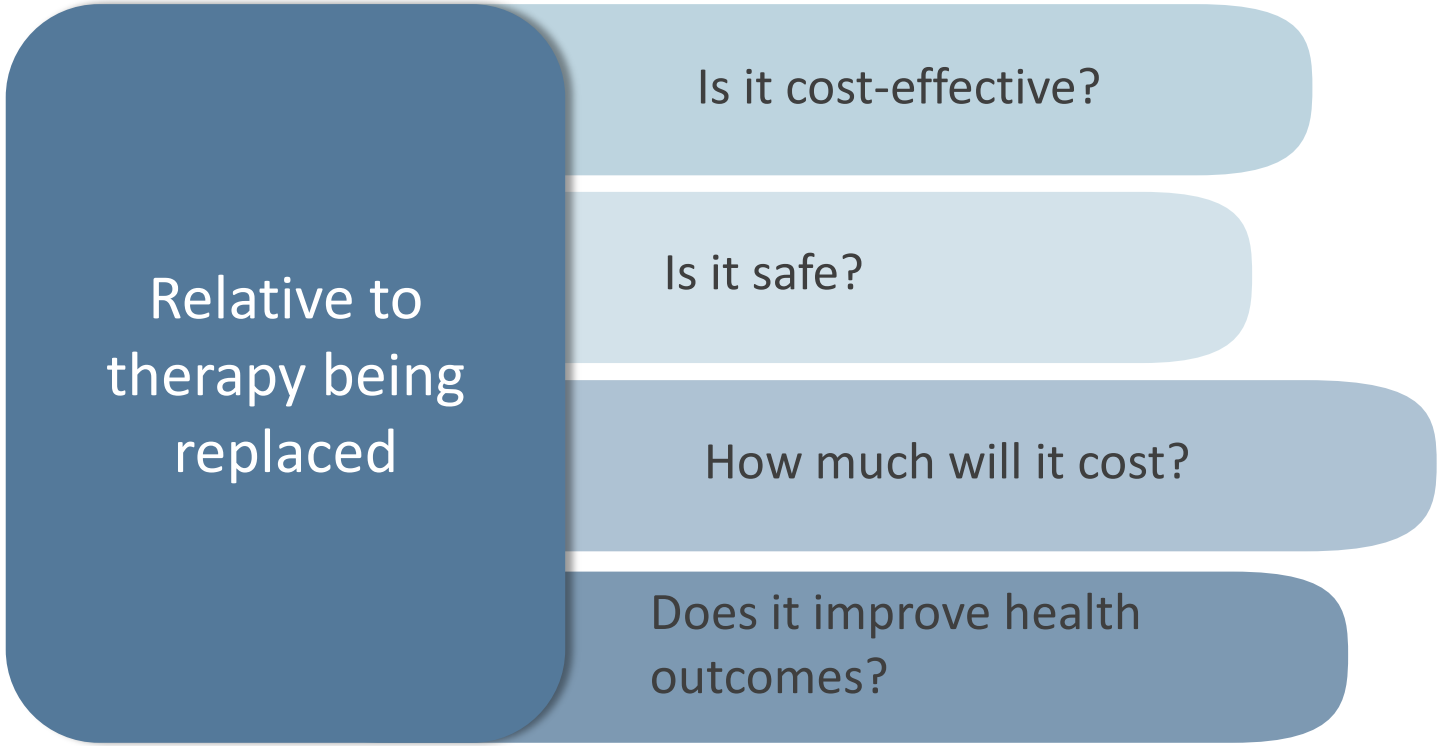
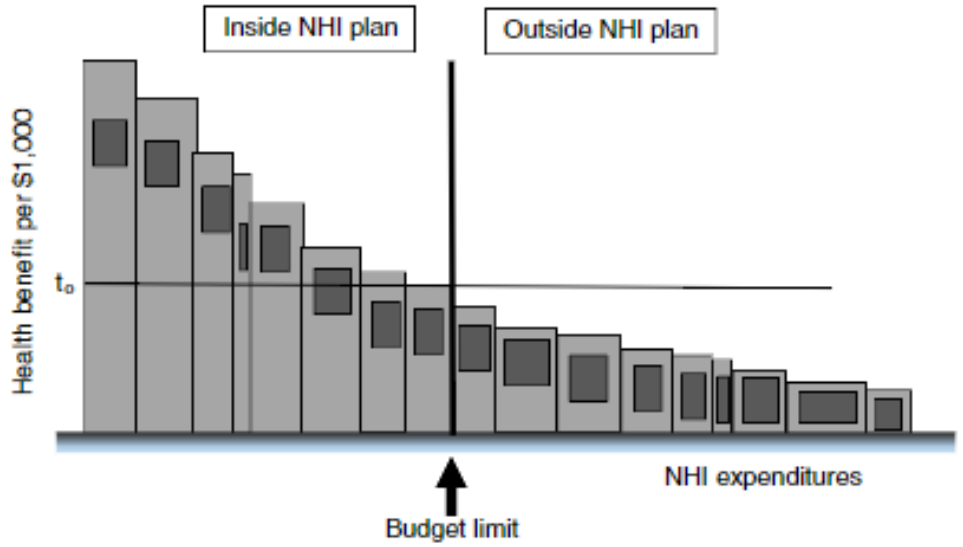
HTANALYSTS

Many payors use HTA to assess several elements of new technologies/services – in order to make informed and evidence-based decisions



We often have many choices for funding so we have to make decisions to minimise the opportunity cost



An ICER provides a measure of efficiency so we can minimise opportunity cost

$$\text{CE ratio} = \frac{\text{cost}_{\text{new strategy}} - \text{cost}_{\text{current practice}}}{\text{effect}_{\text{new strategy}} - \text{effect}_{\text{current practice}}}$$

What do we do with an ICER?

Table 2 A cost effectiveness league table. Cost per quality adjusted life year (QALY) of competing therapies—some tentative estimates

Intervention	Cost per QALY (£, 1990 prices)
GP advice to stop smoking	270
Antihypertensive therapy	940
Pacemaker insertion	1100
Hip replacement	1180
Value replacement for aortic stenosis	1410
Coronary artery bypass graft	2090
Kidney transplant	4710
Breast screening	5780
Heart transplant	7840
Hospital haemodialysis	21970

How do you estimate a threshold?

Opportunity cost

That is, the value of health that would have to be given up by investing the healthcare budget in a health-care service

Willingness-to-pay

Willingness-to-pay
for a year of staying healthy

A number of explicit and implicit thresholds exist internationally

Table 1. The results of the review of the available C/E thresholds by country.

Country	Cost-Effective Threshold (2015 USD PPP)	Notes	Health-Adjusted Life Expectancy (HALEs)	GDP per capita (2015 USD)	Study
Australia	63,096	Not a clear threshold, 51% of interventions rejected at this ICER or lower	70.10	46,223	Paris, Belloni (2013)
Belgium	180,653	Implicit	68.55	42,578	Paris, Belloni (2013)
Brazil	27,620	Implicit, per life years	63.85	15,838	Schwarzer et al. (2015)
Canada	98,183		69.60	44,057	Paris, Belloni (2013), Jaswal (2013)
Czech Republic	29,015	3x GDP/capita	67.20	30,407	Kowalczuk et al. (2015), Gulacsi et al. (2014)
Hungary	25,473	Implicit, 3x GDP	64.20	24,721	Gulacsi et al. (2014)
Ireland	84,094	Explicit	68.85	48,755	NCPE (2009–2016)
Japan	83,938	'Frequently referred to'	73.05	36,426	Shiroiwa et al. (2013)
South Korea	23,124	Implicit and societal perspective, GDP per capita used as reference value	70.25	34,356	Paris, Belloni (2013)
Netherlands	132,340	Some orphan drugs are exception	69.05	47,663	Zorginsituut Nederland
Norway	173,971	Implicit. '[S]evere illnesses and orphan medicines are not supposed to be treated differently.' Even though Norway does not have a clear C/E, this WHO-inspired value may be representative of Norway's C/E	68.00	64,856	Paris, Belloni (2013)
Poland	19,006	3x GDP/capita. 'There is no clear relationship between C/E of drug and whether it is improved for reimbursement.' Many drugs are rejected for other reasons.	66.05	24,745	Kowalczuk et al. (2015)
Portugal	31,890	'Anecdotal evidence suggests that the Portuguese National Authority of Medicines (Infarmed) adopts an informal threshold of 30,000/QALY.'	68.55	28,393	Yazdanpanah et al. (2013)
Sweden	50,173	Uses societal perspective	69.60	45,183	Paris, Belloni (2013)
Thailand	4419	Explicit	65.25	15,735	Schwarzer et al. (2015)
UK	65,871	Explicit	68.60	39,762	Paris, Belloni (2013)
USA	100,000.00	This value is often referred to as both QALYs gained and DALYs averted	67.85	54,630	Neuman (2014)

Data [3,13,22,34–37,51].

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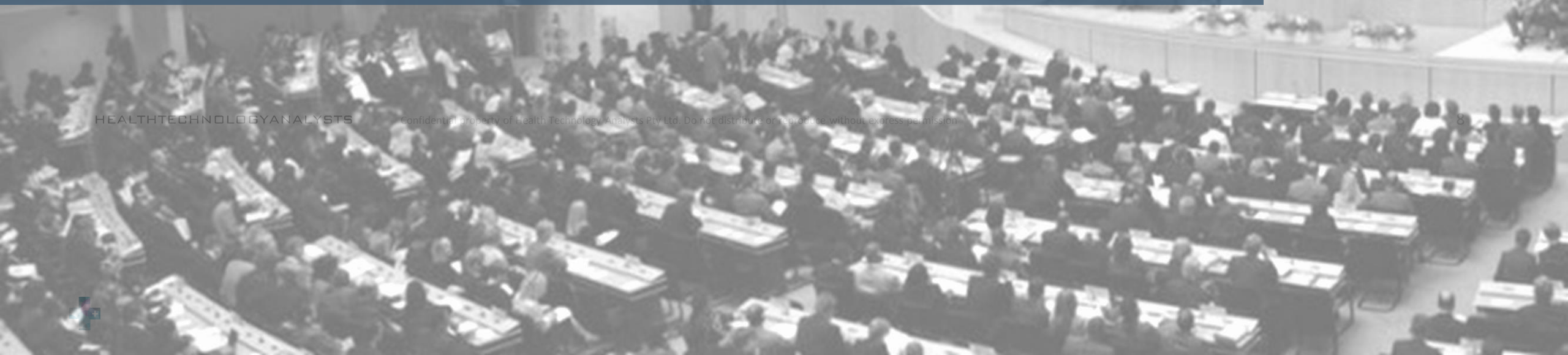
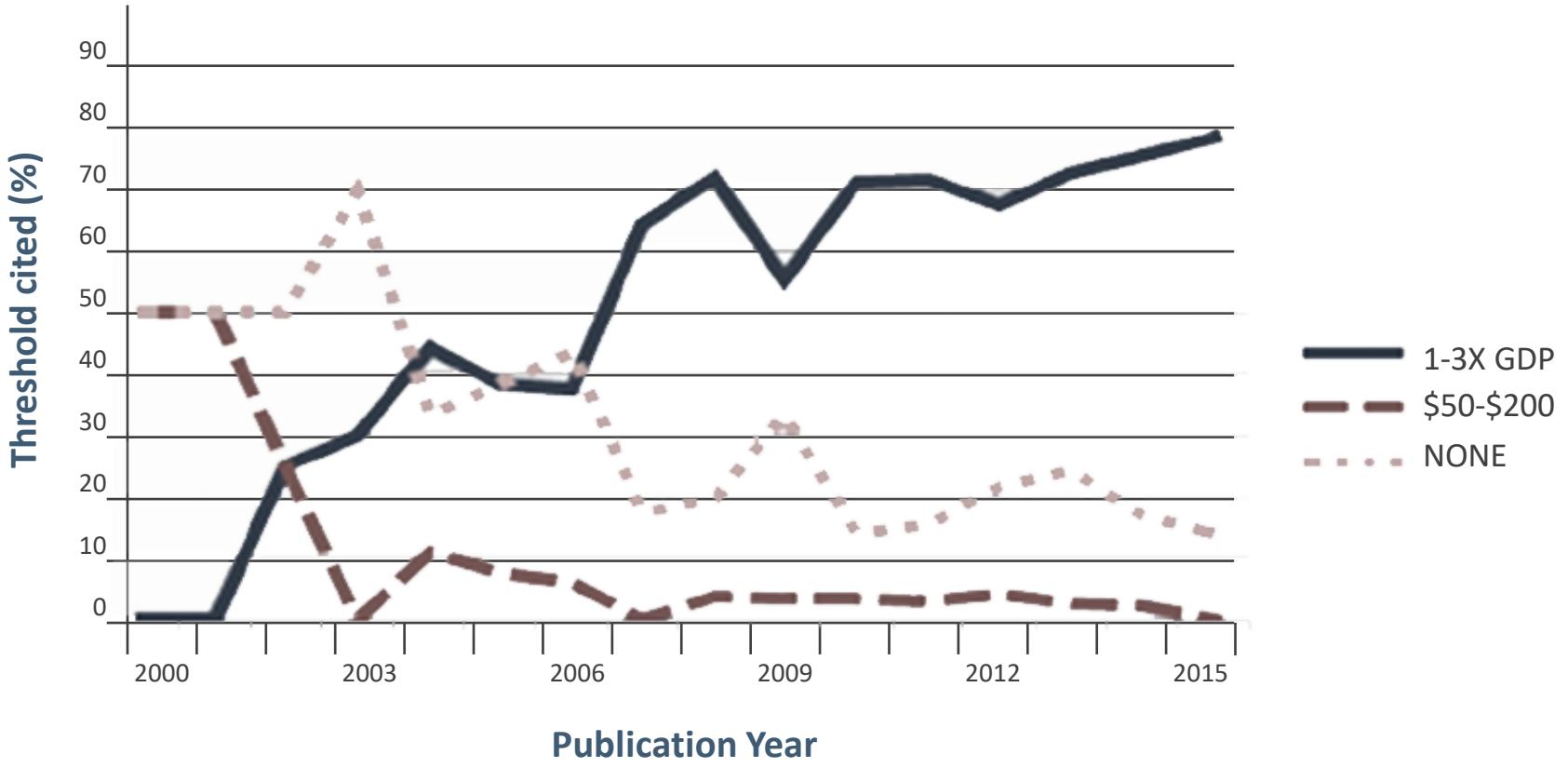
What is cost-effective?

Interventions that avert one DALY for less than **average per capita income** for a given country or region are considered very cost-effective; interventions that cost less **than three times average per capita** income per DALY averted are still considered cost-effective; and those that exceed this level are considered not cost-effective

World Health Organization

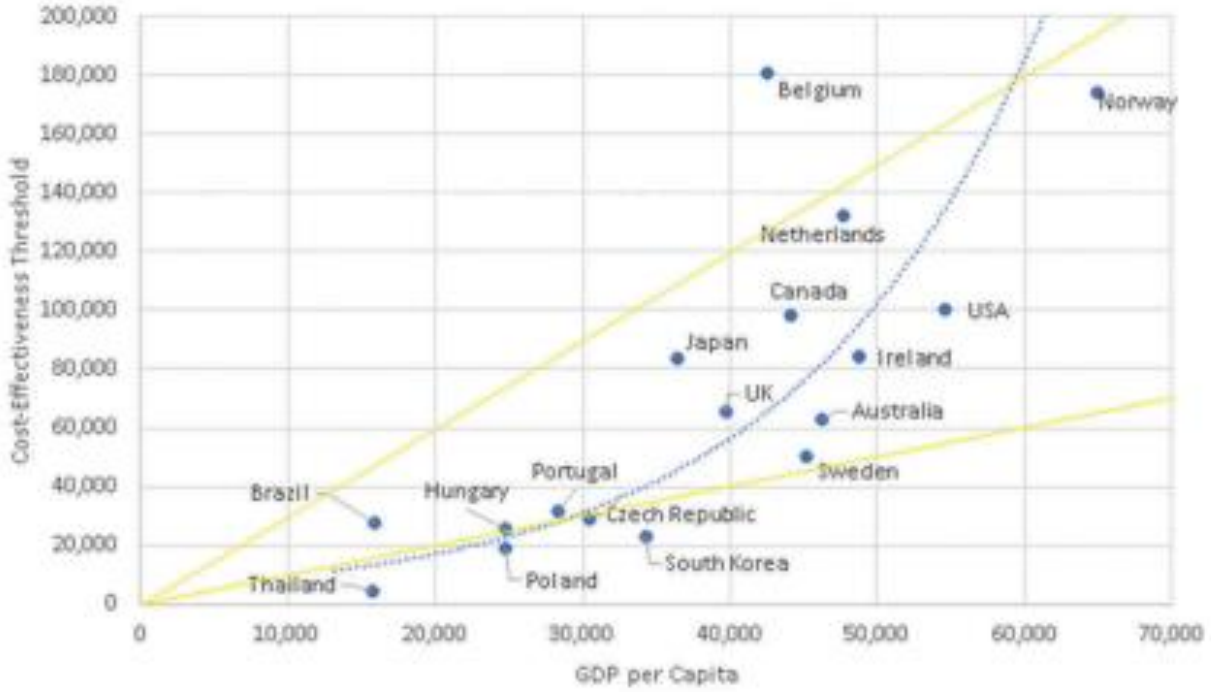


Thresholds cited in LMIC cost/DALY averted studies



Leech et al (2018). Value in Health

Most countries with thresholds fall withing WHO guidance



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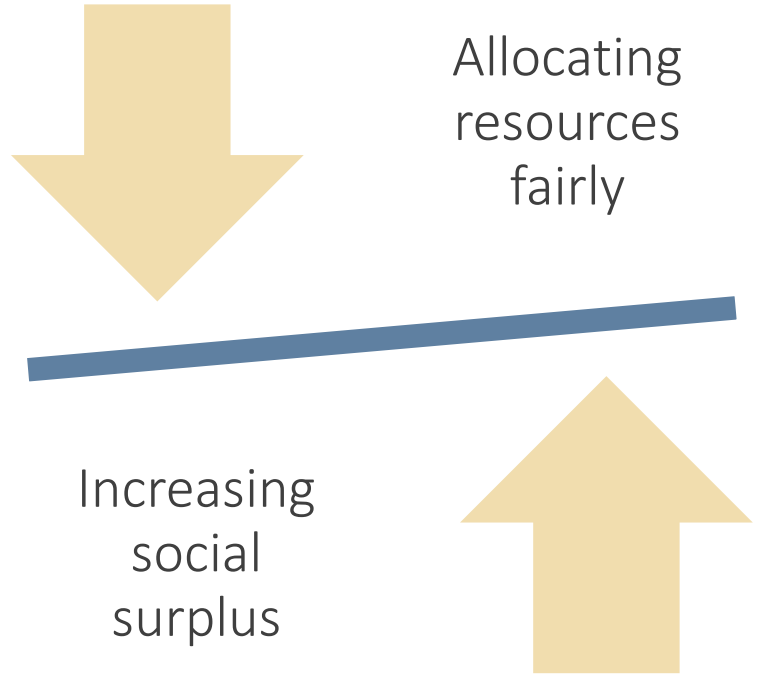
Efficiency is not everything

Efficiency is not the only objective in choosing how health care resources should be allocated.

We also need to think about equity, or the fair distribution of resources and benefits, which is also an objective in health care decision-making.



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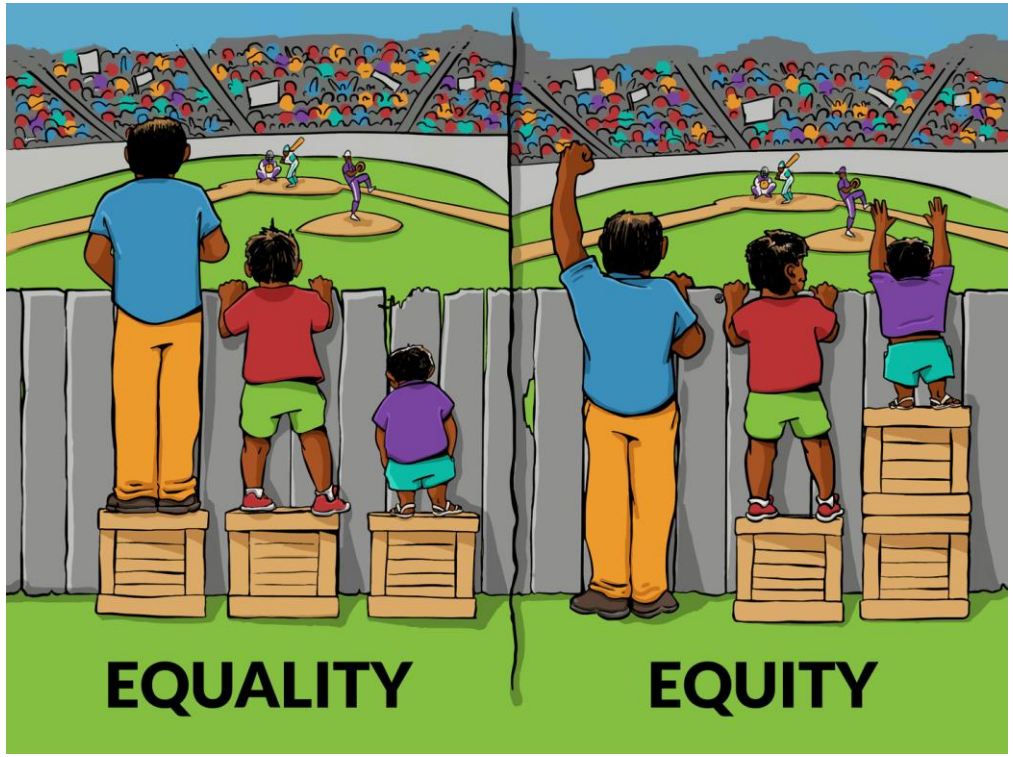
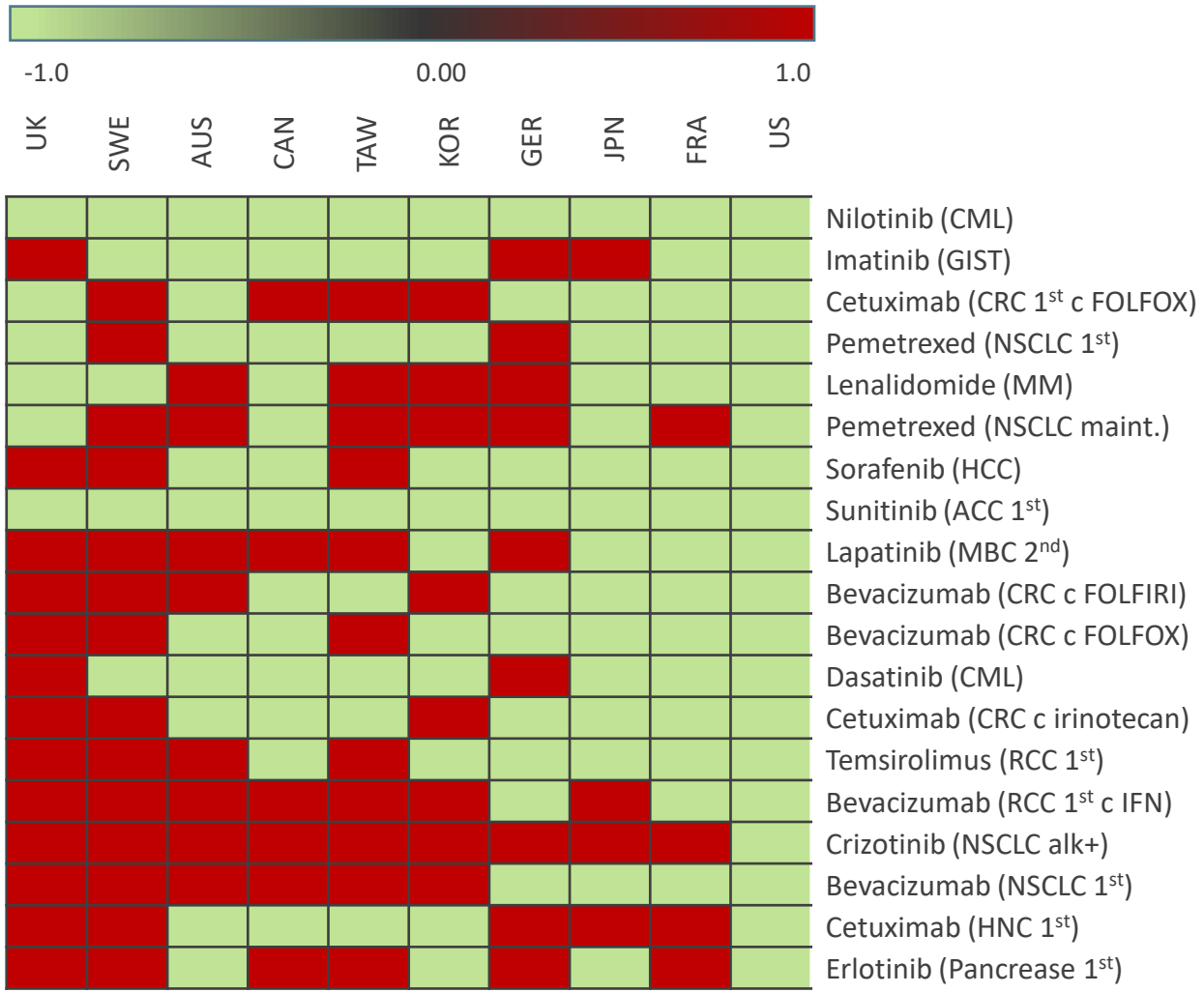


Ruthless efficiency can lead to inequity

How influential is the ICER?



MOST COST EFFECTIVE

LEAST COST EFFECTIVE

Lim et al. (2014) Health Services Res 14 p595

Introducing our speakers

Professor Jonathan Karnon, MSc, PhD (Australia)

Flinders University, Adelaide, SA, Australia

Professor Bor-Sheng Ko, MD, PhD (Taiwan)

Department of Hematological Oncology, National Taiwan University Cancer Center, Taiwan

Professor Jing Wu , PhD (China)

Tianjin University, Tianjin