

ICER Thresholds and League Tables

**Panel 135: HTA and Economic Analysis: Cost-Effectiveness
Threshold and other Factors in the Decision Making Process
HTAi 2011, Rio de Janeiro**

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Acknowledgment

This work was supported by the ONCOTYROL Center for Personalized Cancer Medicine.



ONCOTYROL is a K1-COMET Center and funded by the Federal Ministry for Transport Innovation and Technology (BMVIT) and the Federal Ministry of Economics and Labour/the Federal Ministry of Economy, Family and Youth (BMWA/BMWFJ), the Tyrolean Future Foundation (TZS) and the State of Styria represented by the Styrian Business Promotion Agency (SFG) and supported by UMIT - University for Health Sciences, Medical Informatics and Technology.

Overview

- Examples of League Tables and Influencing Factors
- IQWiG's Efficiency Frontier Approach

League Table

Table 4. Cost per QALY league table¹

Intervention	Extra cost per QALY gained (1990 £)
GP advice to stop smoking	270
Hip replacement	1,180
Cholesterol testing and treatment (all adults aged 40–69)	1,480
Kidney transplantation (cadaver)	4,710
Home haemodialysis	17,260
Hospital haemodialysis	21,970
Erythropoietin treatment for anaemia in dialysis patients (assuming 10% reduction in mortality)	54,380
Neurosurgery for malignant intracranial tumours	197,780

Source: www.evidence-based-medicine.co.uk

Recommendations

Recommendations in UK healthcare decision making based on cost per QALY and quality of evidence

Evidence quality	Cost per QALY gained (£)			
	<£3K	£3–20K	>£20K	Negative
I. At least one randomised controlled trial	Strongly recommended	Strongly recommended	Limited support	Not supported
II. Well designed controlled trial	Strongly recommended	Supported	Limited support	Not supported
III. Expert consensus or opinion	Supported	Limited support	Limited support	Not supported
IV. Conflicting or inadequate evidence	Not proven	Not proven	Not proven	Not supported

Source: www.evidence-based-medicine.co.uk

Fixed Threshold in UK?

- In November 2008, the UK government announced that the cost/QALY threshold for end-of-life treatments of particular cancer diseases may be increased
- *"Nice has long recognised that society places great value on extending the life of people with life-threatening diseases"*

Rawlins

League Table: Australia

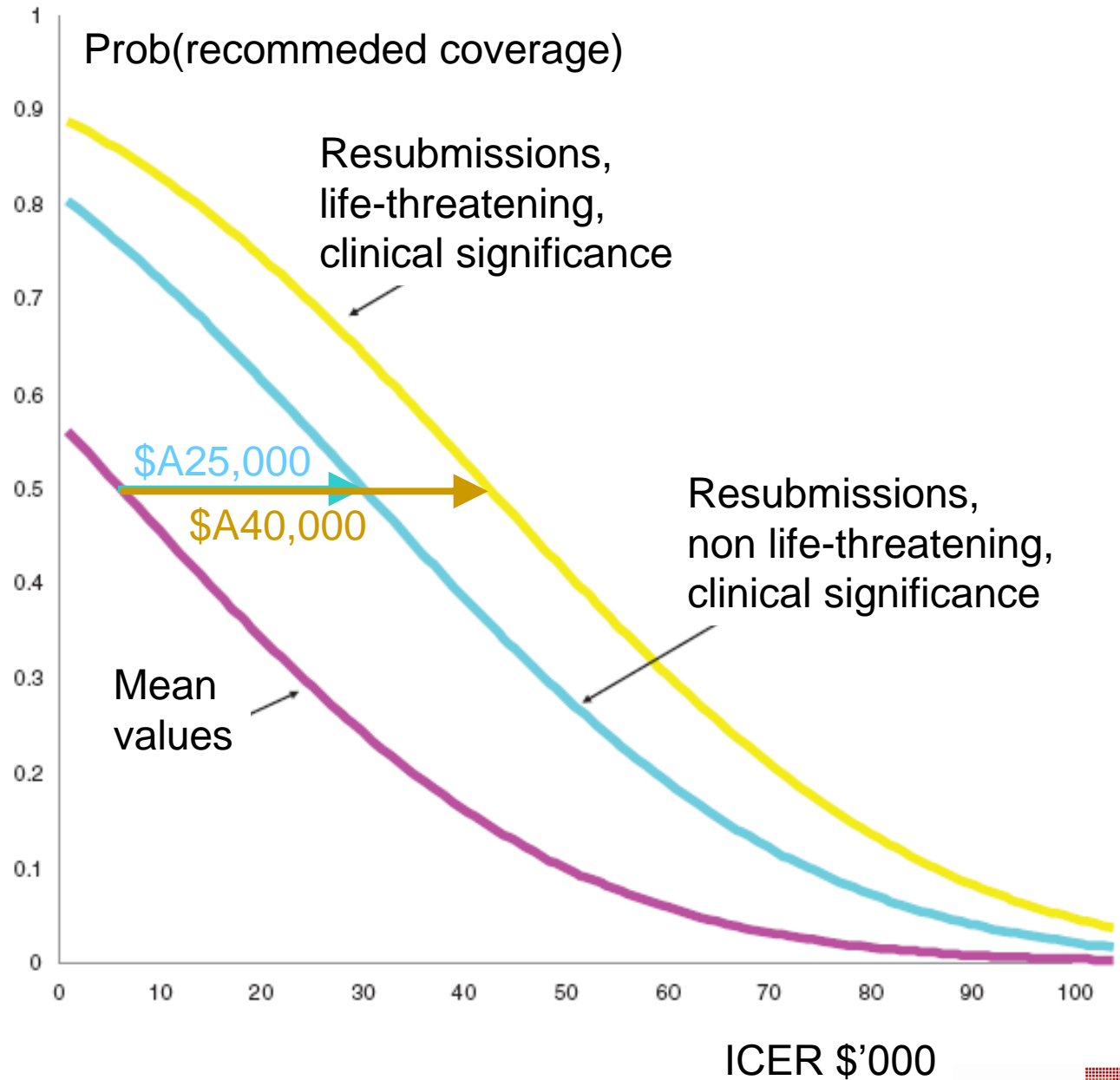
Number	Incremental cost per additional life-year gained at 1998/1999 prices (\$AU)	PBAC decision
1	5517	Recommend at price
2	8374	Recommend at price
3	8740	Recommend at price
4	17387	Recommend at price
5	18762	Recommend at price
6	18983	Recommend at price
7	19807	Recommend at lower price
8	22255	Recommend at price
9	26800	Recommend at price
10	38237	Recommend at price
11	39821	Recommend at price
12	42697	Reject
13	43550	Reject
14	43550	Defer
15	43550	Recommend at price
16	56175	Reject
17	57901	Recommend at price
18	63703	Reject
19	71582	Recommend at price
20	75286	Recommend at price
21	85385	Recommend at lower price
22	88865	Reject
23	98323	Reject
24	229064	Recommend at lower price
25	231650	Reject
26	256950	Reject

\$AU = Australian dollars. The average interbank exchange rate to US dollars for 1998/1999 was 0.63772 (range 0.68760 to 0.54850).
PBAC = Pharmaceutical Benefits Advisory Committee.

Source: George et al. *PharmacoEconomics* 2001; 19(11): 1103-1109.

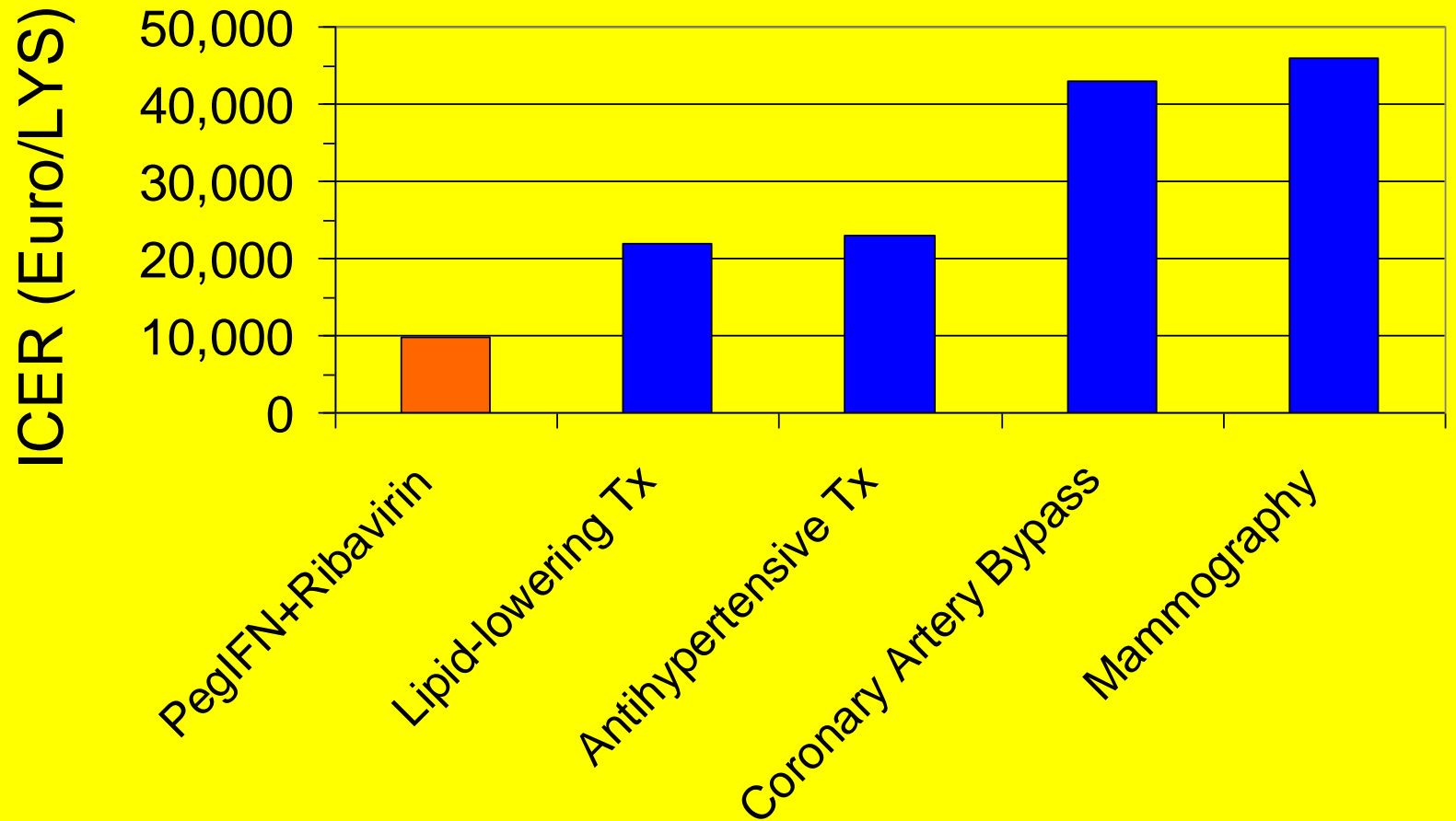
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Threshold Australia



Harris, MDM 2008

Comparison with Other Well-Accepted Interventions in Medicine



ICER Thresholds Based on GDP

Discounted	QALY per woman	Cost per woman	ICER	ICER Thresholds		
				1 x GDP/capita (very cost-effective)	3 x GDP/capita (cost-effective)	
Chile				<i>3 x GDP for EU countries with no threshold</i>		
Non-vaccinated	29.528	\$ 83.23				
Vaccinated	29.537	\$ 272.24				
Difference	0.01	\$ 189.01	\$ 19 685			\$ 9 033
Finland						
Non-vaccinated	44.046	€ 307.59				
Vaccinated	44.067	€ 684.70				
Difference	0.021	€ 377.11	€ 18 431	€ 32 013	€ 96 038	
Ireland						
Non-vaccinated	26.612	€ 369.43				
Vaccinated	26.623	€ 653.33				
Difference	0.011	€ 283.90	€ 24 799	€ 41 764	€ 125 291	
Poland						
Non-vaccinated	26.476	zł 93.49				
Vaccinated	26.497	zł 1 191.20				
Difference	0.022	zł 1 097.71	zł 66 687	zł 27 586	zł 82 757	
Taiwan						
Non-vaccinated	41.873	NT\$ 3 279.58				
Vaccinated	41.914	NT\$ 14 559.78				
Difference	0.04	NT\$ 11 280.20	NT\$ 278 665	NT\$ 503 625	NT\$ 1 510 875	













Source: Suarez et al., Vaccine 2008

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Major Approaches of Using ICER Thresholds

- Traditional/most countries:
Cost-utility analysis (CUA) comparing ICURs across the health care system, different ways to derive threshold
- IQWiG/Germany:
Efficiency frontier (EF) approach comparing ICERs only within area of indication

Use of ICERS

WBIL	high 	lower middle 	high 	high 	high 	high 	upper middle 	high 	high 	high 	high 	high 
	NICE	HITAP	SBU	AHRQ	CADTH	MSAC	DECIT-CGATS	DAHTA/ DIMDI	HAS	LBI-HTA	BIQG/ GOEG	IQWIG
PCM	EoL	x	x	x	x	x	x	x	x	x	x	x
€	25,322 - 37,983/ QALY	6,745/ DALY averted**	73,000/QALY	37,460/ LYG	16,7696 - 85,245/ QALY	20,000–36,000/ LYG (*36,000/QALY)	19,327/YLS (CE) 6,442/YLS (VCE)					
US \$	32,005-48,007/ QALY	9,866/ DALY averted**	107,000/QALY	50,000/ LYG	24,542 -124,757/ QALY	23,791-42,828/ LYG (*52.000/QALY)	25,876/YLS (CE) 8,625/YLS (VCE)	x	x	x	x	explicitly rejected; alternatively: efficiency frontiers
	Explicit	Explicit	Implicit	Implicit	Implicit	Implicit	Implicit	NR	NR	NR	NR	NR
GDP-1	35,631	8,700	36,790	47,186	38,975	38,637	10,466	35,432	33,090	37,858	37,858	35,432
GDP-3	106,893	26,100	110,370	141,558	116,925	115,911	31,398	106,296	99,270	113,574	113,574	106,296
TEXP	8.4%	3.7%	9.1%	15.7%	10.1%	8.9%	8.4%	10.4%	11.0%	10.1%	10.1%	10.4%
S	1999 introduced by NICE advisory committees, NICE 2008 Guide	HITAP et al. 2008 Guideline (WHO recommendation, GDP p.c. based)	Persson / Hjelmgren 2003 Road accident statistics, VSL	1992 introduced, arbitrary used	Laupacis 1992 guideline recommendations	George 2001: past allocation decisions; *Official Institution	cost-effectiveness studies; using WHO recommendation GDP p.c. based***					

Legend: WBIL: World Bank Income Level; PCM: Existence of personalized cancer medicine guidelines; EoL: End of life treatments; €: values in Euro (2011), US\$: same values in US\$ (2011); S: main source of threshold values; GDP: Gross Domestic Product per capita (in US\$ of 2008, OECD Factbook 2010, Thailand: CIA World Fact Book 2009); GDP-1: 1-times GDP p.c. in US\$; GDP-3: 3-times GDP p.c. in US\$ (equal to lower and upper boundary of recommended WHO threshold range); TEXP: Total Expenditure on Health as % of GDP (OECD 2007); S: Source for threshold values; *other source PBAC chair cit. 2009 in www.commonwealthfund.org; ** Thai Guide uses only the upper WHO threshold instead of the range of 1-3 times GDP per capita (in US\$/DALY averted); *** WHO-threshold not indicating DALYs. Notes: With reference to the common disregard to economic changes over time in threshold use, values are converted in € or US\$ of 2011 without inflation;

Abbreviations: AHRQ: Agency for Healthcare Research and Quality; BIQG: Bundesinstitut für Qualität im Gesundheitswesen; CADTH: Canadian Agency for Drugs and Technologies in Health; CE: cost-effective; DAHTA @DIMDI: German Agency for HTA at the German Institute for Medical Documentation and Information; DALY: Disability-adjusted Life Year; DECIT-CGATS: Secretaria de Ciência, Tecnologia e Insumos Estratégicos, Departamento de Ciência e Tecnologia; GÖG: Gesundheit Österreich GmbH; HAS: Haute Autorité de Santé; HITAP: Health Intervention and Technology Assessment Program; IQWIG: Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen; LBI: Ludwig Boltzmann Institut for Health Technology Assessment; MSAC: Medical Services Advisory Committee; NICE: National Institute for Health and Clinical Excellence; NR: Not relevant; SBU: Swedish Council on Technology Assessment in Health Care; LYG: Life years gained; QALY: Quality-adjusted Life Year; VCE: Very cost-effective; YLS: Years Life Saved; VSL: Value of Statistical Life; WHO: World Health Organization

Schwarzer et al, HTAi, 2011 (Poster)

Efficiency Frontier Approach in Germany (IQWiG)

- Comparison within indication area
- Generate efficiency frontier and compare costs and benefits of new technology to efficiency frontier

IQWiG Institut für Qualität und
Wirtschaftlichkeit im Gesundheitswesen
Institute for Quality and Efficiency in Health Care

Allgemeine Methoden zur Bewertung von
Verhältnissen zwischen Nutzen und Kosten

Version 1.0 vom 12.10.2009

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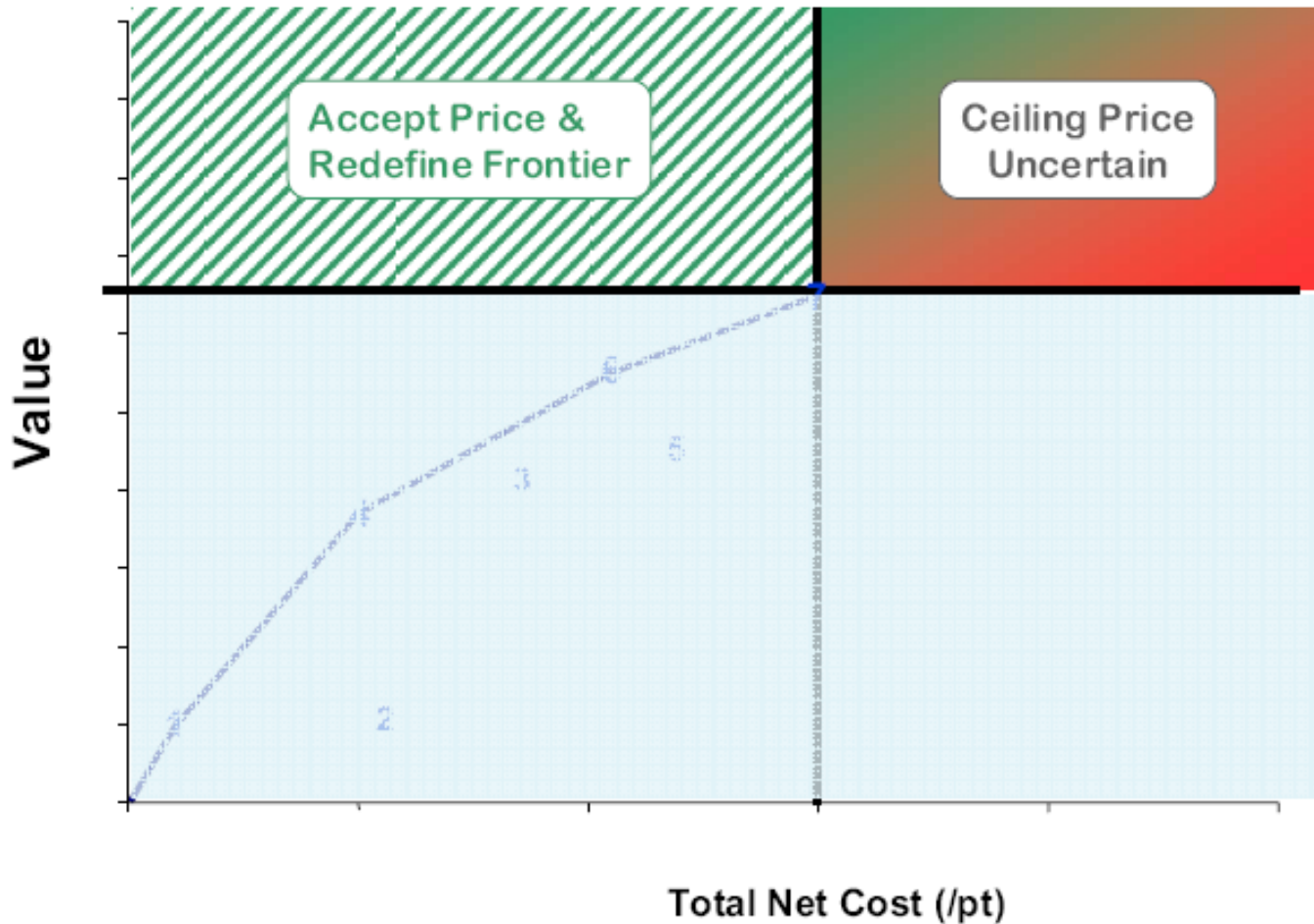


Figure 2-15 Decision zones above the superiority boundary.

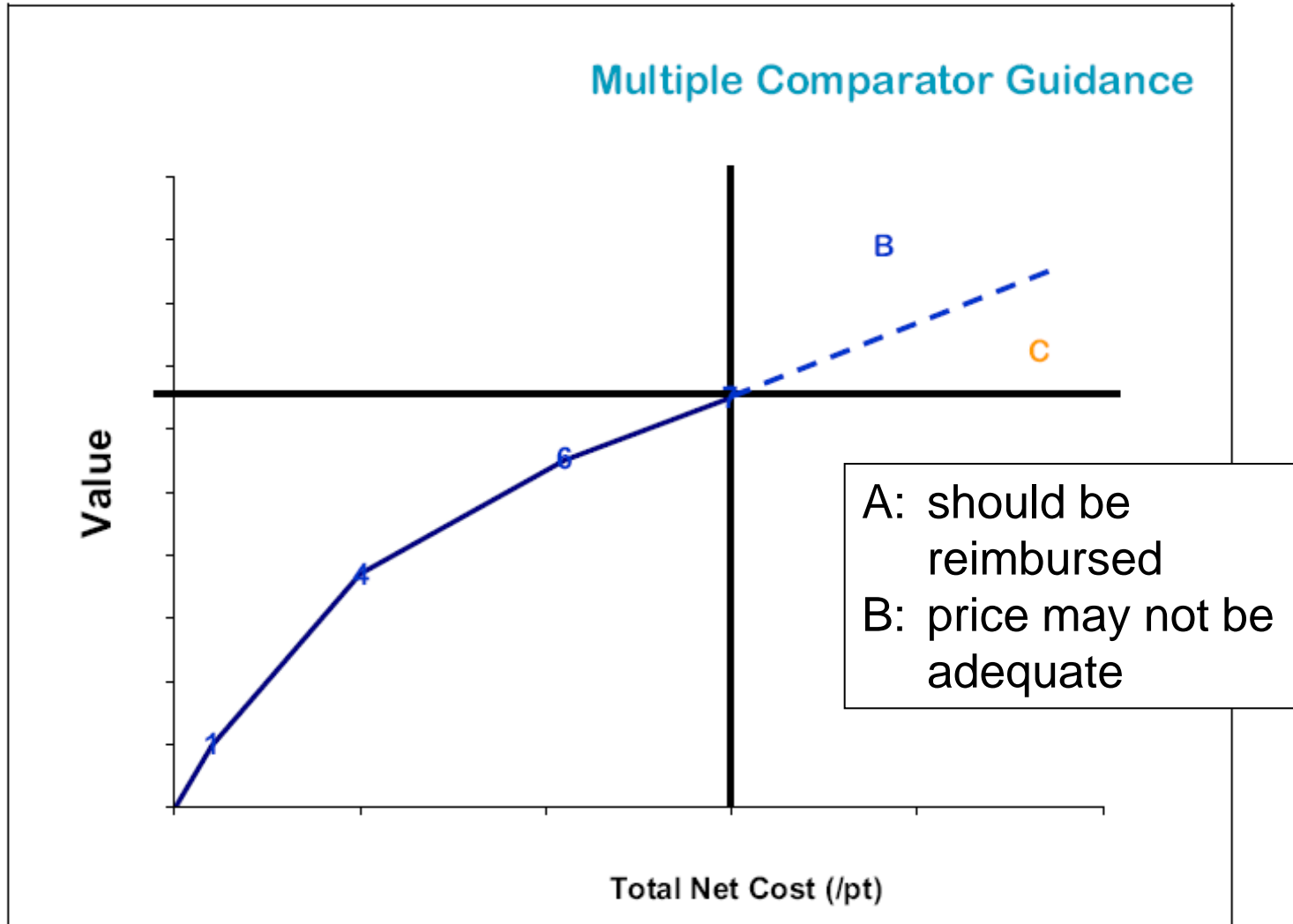


Figure 2-18 Simple projection of the theoretical efficiency frontier¹¹

Multiple Comparator Guidance

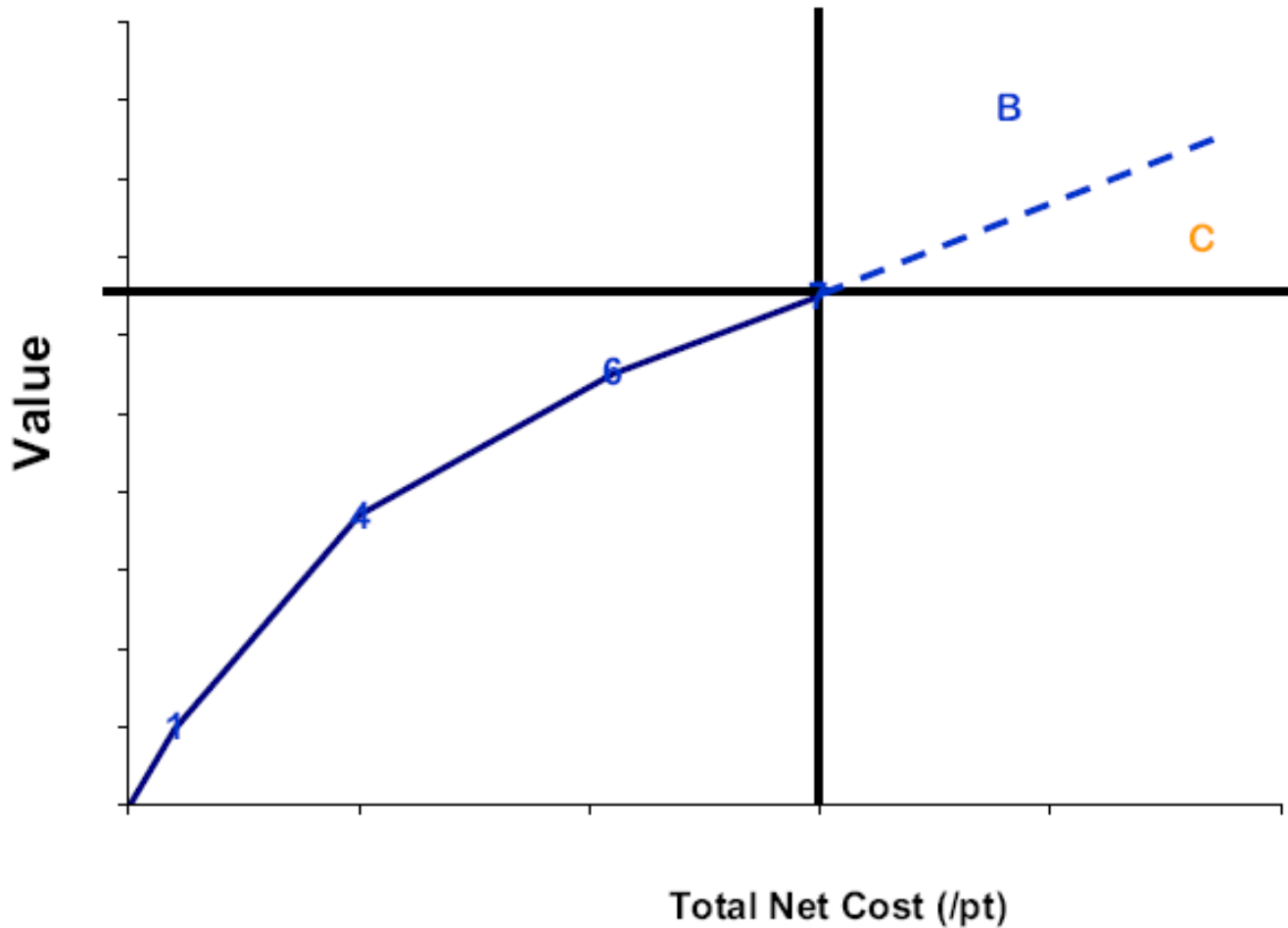
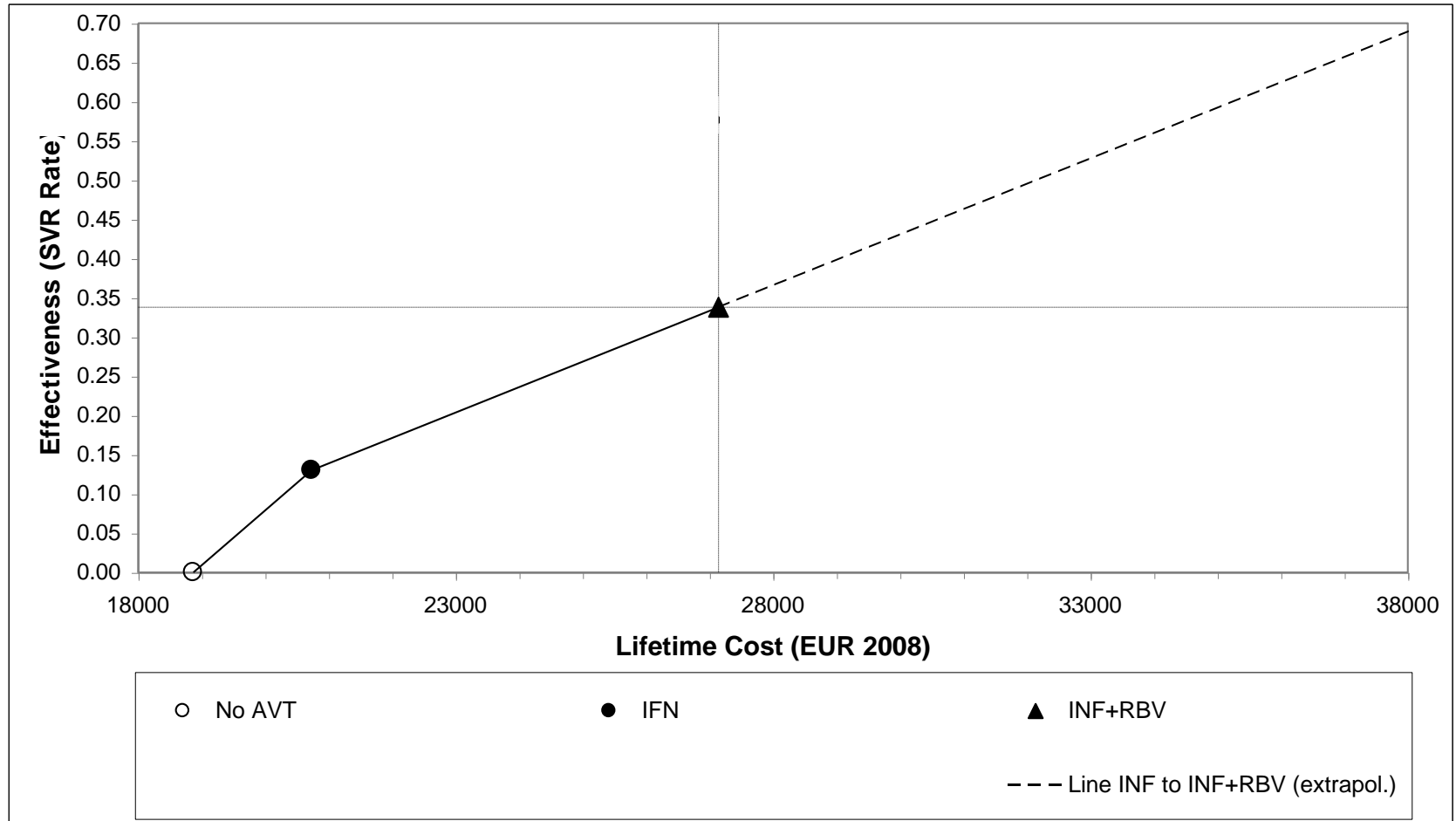


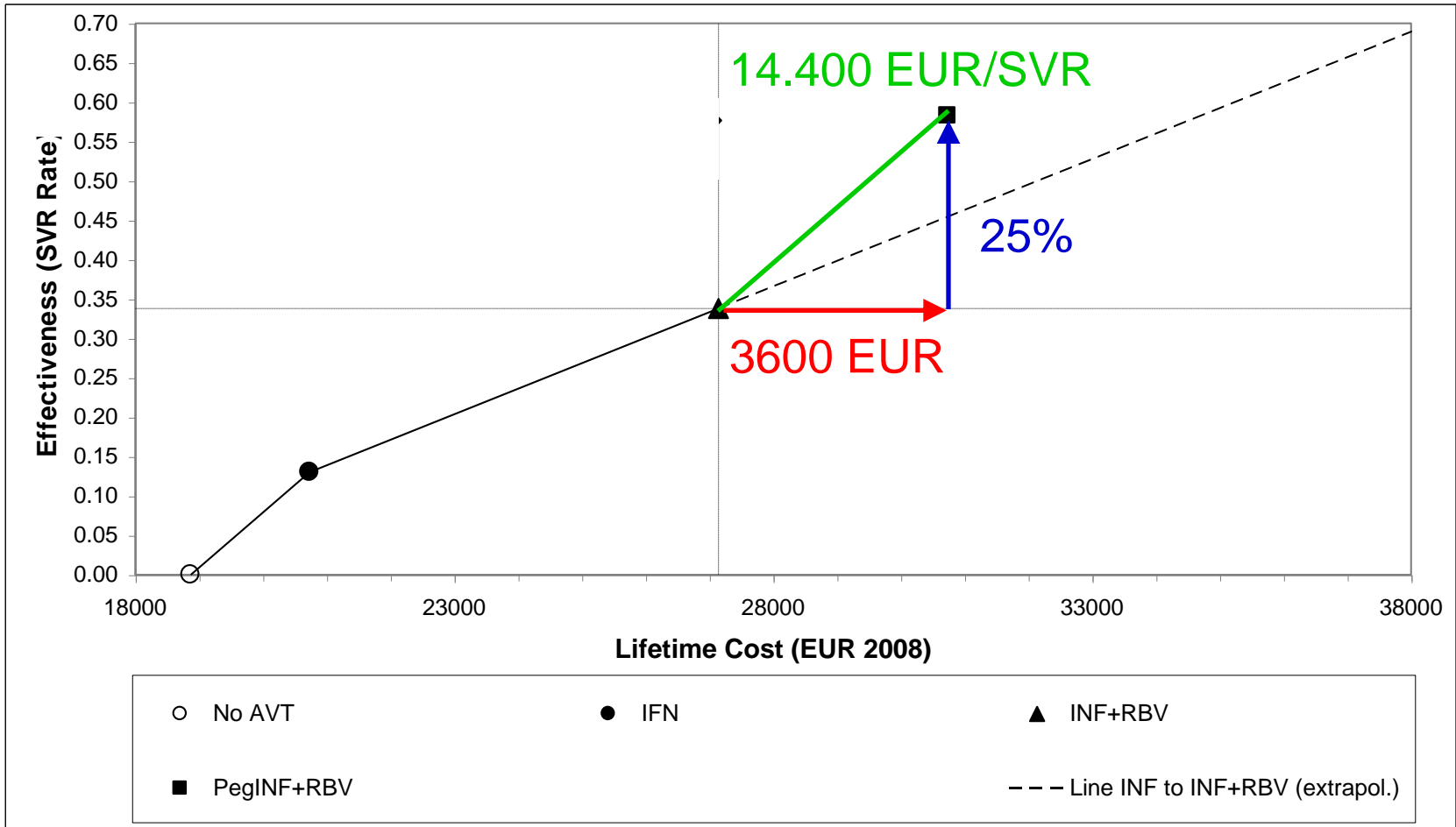
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IQWiG Pilot Study: AVT Hepatitis C



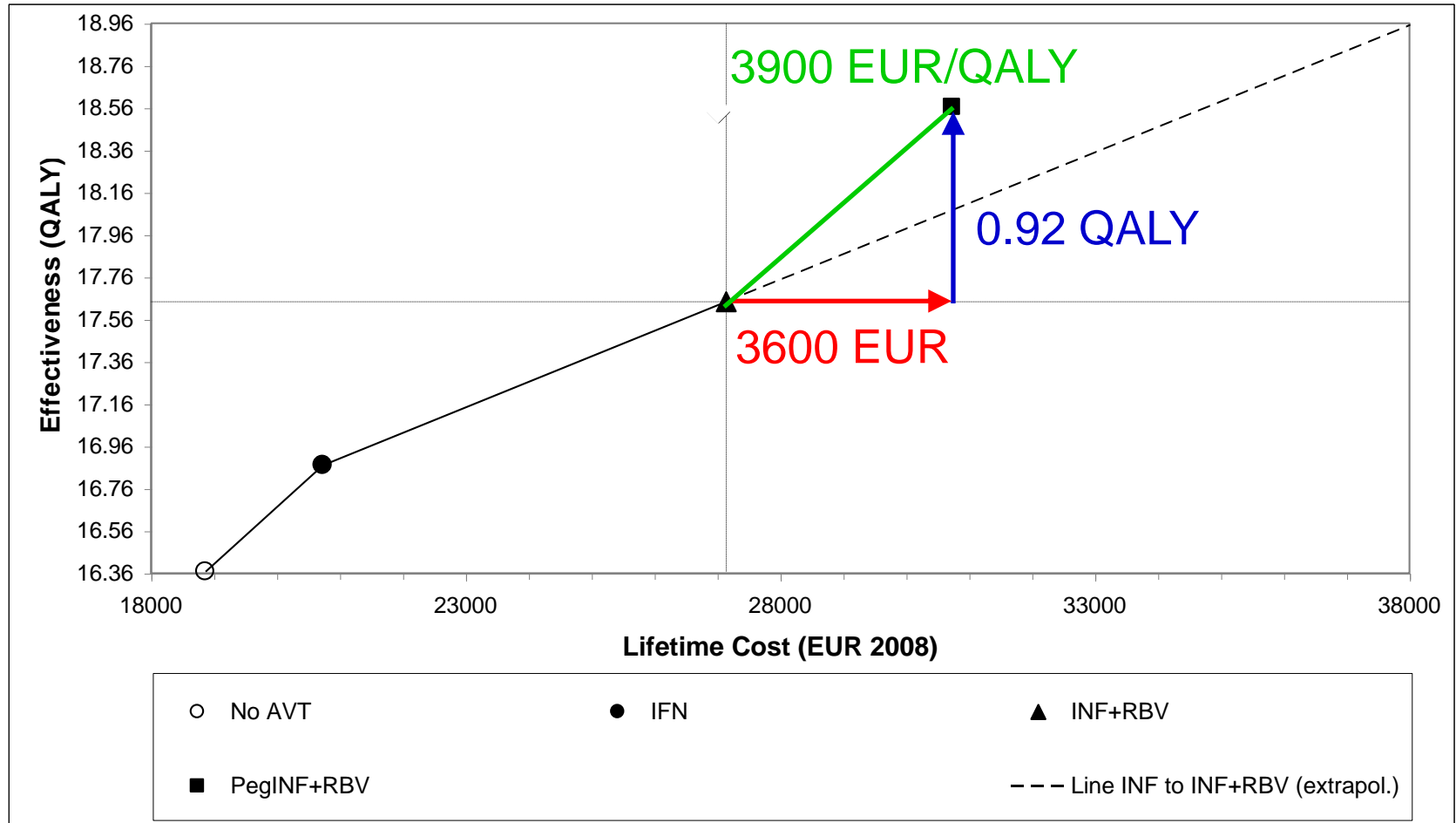
Siebert et al. 2009, IQWiG

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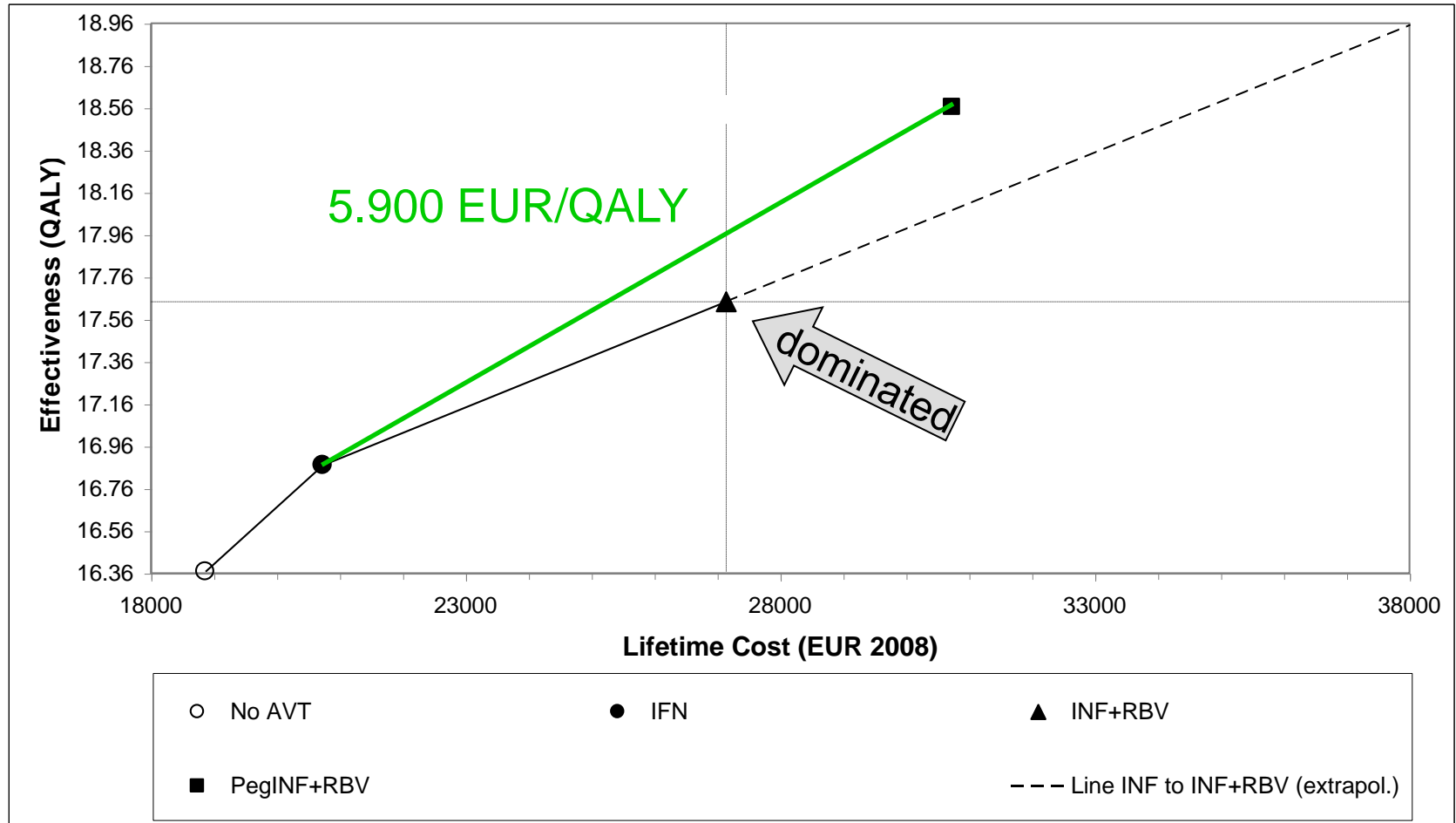
Siebert et al. 2009, IQWiG

Efficiency Frontier: QALY



Siebert et al. 2009, IQWiG

IQWiG Pilot Study: AVT Hepatitis C



Siebert et al. 2009, IQWiG

Conclusions

- Several Factors have an explicit or implicit influence on reimbursement decisions. Among those factors are:
 - Clinical significance, clinical net benefit,
 - Severity of disease
 - Quality of evidence
 - Cost-effectiveness
 - Previous decisions
 - Factors “behind closed doors”
 - Others ...
- Relevance of such factors may vary across countries

