

A Comparison Between ICER and NICE Cost-effectiveness Models

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Background and Objectives

- Though its reports lack statutory authority, the Institute for Clinical and Economic Review (ICER) has become prominent in the debate surrounding US drug pricing and coverage.
- ICER in the US and NICE in the UK are both Health Technology Assessment bodies that employ cost-effectiveness analyses to inform health policy recommendations.
- Using cost-effectiveness methods, a key metric is the ICER threshold (incremental cost-effectiveness ratio)
 - NICE employs a £20-30,000 per QALY threshold for cost-effectiveness for non-rare non-oncology therapies, while ICER employs a threshold 4-6x higher of \$150K/QALY to reflect differing healthcare costs in the US
- The objective of this study was to identify similarities and differences between the conclusions from the cost-effectiveness analyses performed by each organization to help sponsors prepare for possible review.

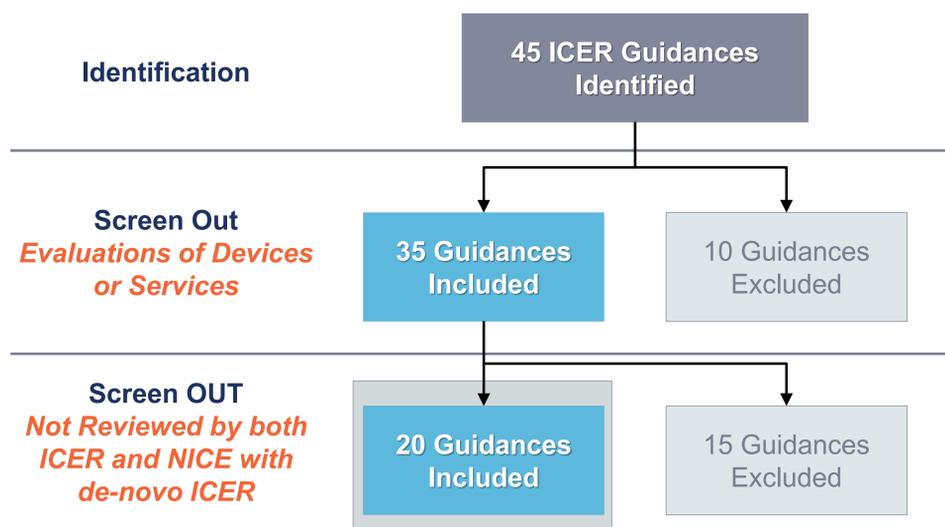
Methods

Dataset and Time Horizon

- We accessed all published assessments by ICER for the past 10 years, and the same assessments published by NICE in the same period.
- We excluded 1) ongoing assessments due to lack of final recommendations 2) assessments which included medical devices or services, given the focus of the assessment on pharmaceuticals 3) assessments for which either ICER or NICE had not published a cost-per-QALY estimate.

Analysis

- To discern trends, data was collected from the final published recommendations by both on: list price, cost-per QALY, and recommendation on comparative cost-effectiveness.
- Estimates in GBP were converted to USD with a flat exchange rate of 1.27.



Results

- From the initial set of 45 ICER assessments, 20 guidances with 26 pharmaceuticals met inclusion criteria.
- The average annual list price in the US was 1.8x the list price in the UK. However, the cost-per-QALY estimate was 3.4x higher by ICER in the US vs NICE in the UK, which likely cannot be entirely explained by price differences.

Table 1: Average Price and ICER for US vs UK

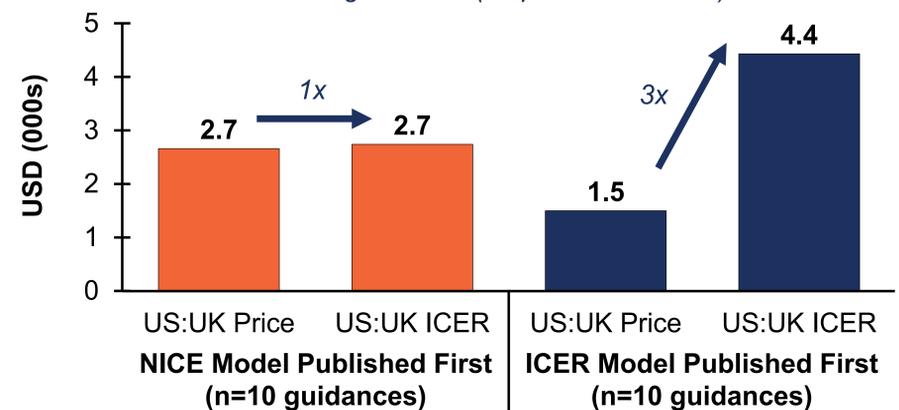
N = 20 guidances with 26 drugs

	ICER (US)	NICE (UK)	US:UK Ratio
Average List Price	\$80,264	\$44,039	1.8x
Average ICER (Cost/QALY)	\$233,141	\$69,045	3.4x

Results (cont.)

- This discrepancy was larger on average when ICER published before NICE

FIGURE: ICER vs NICE Cost-Effectiveness Model Characteristics
N=20 guidances (26 pharmaceuticals)



- In fact, several of the analyses that ICER in the US completed had incremental cost-effectiveness ratios more than 5 times the one estimated by NICE in the UK for the same product.

US ICER vs UK ICER

	US ICER vs UK ICER	NICE Model Published First (Before ICER)	ICER Model Published First (Before NICE)
More	\$\$\$\$\$		<ul style="list-style-type: none"> Multiple Myeloma High Cholesterol – <i>evolocumab</i> and <i>alicorunab</i> NSCLC (Non-small cell lung cancer) – <i>nivolumab</i>
Discrepancy Between US and UK	US ICER >6x UK		<ul style="list-style-type: none"> NSCLC – <i>pembrolizumab</i> Ovarian Cancer – <i>niraparib</i>
	\$\$\$	<ul style="list-style-type: none"> RA (7 drugs) Ovarian Cancer – <i>olaparib</i> Psoriasis – <i>adalimumab</i>, <i>ustekinumab</i> 	<ul style="list-style-type: none"> Atopic Dermatitis Psoriasis – <i>etanercept</i> CHF (Congestive Heart Failure)
	1-3x UK	<ul style="list-style-type: none"> Cystic Fibrosis Prostate Cancer Psoriasis – <i>ixekizumab</i>, <i>infliximab</i>, <i>secukinumab</i>, <i>apremilast</i> 	
Less	<1x UK		<ul style="list-style-type: none"> ALL (Acute lymphoblastic leukemia)

- Nevertheless, the policy recommendations on cost-effectiveness were relatively in line between the two (~25% negative, ~30% positive, and 45% with stipulations or recommendations for discounts or managed entry agreements).
- Some limitations to this study are the fact that drug list prices do not reflect confidential discounts achieved in each market. In addition, the exact assumptions of each model are not clear enough to elucidate what is driving the discrepancy.
- While the differences in ICER did not substantially impact the policy recommendations, further research may be warranted to elucidate the key drivers of differential cost savings assessments in the US vs the UK.

Conclusions

- Even though ICER and NICE both use cost-effectiveness methods, their cost-per-QALY estimates differ for the same products and indications due to price differences between countries and possibly model assumptions.
- To mitigate these differences, sponsors could 1) employ a pricing strategy in line with target ICER thresholds to increase predictability of HTA response and speed negotiations and 2) develop early economic evidence to increase the transparency and reduce the uncertainty in model assumptions.

References

- ICER Published Guidances
- NICE Published HTA Decisions
- Exchange rate of USD: GBP of 1.27 used based on January 5th, 2019 exchange rate on Google Finance