Exploring the Optimal Share of Pharmaceutical Value for Industry and Society: An Application to the US Context

EE314

Lee W[1], Ollendorf O[1], Lomas J[2], Chan H[3], Phillips M[1], Richardson M[1], Claxton K[2], Woods B[2]

[1]Institute for Clinical and Economic Review (ICER), Boston, MA, USA [2]University of York, York, United Kingdom,
[3]The Comparative Health Outcomes, Policy, and Economics (CHOICE) Institute, University of Washington, Seattle, WA, USA

Introduction

- Pharmaceutical pricing must balance affordability with incentives for innovation.
- Current cost-effectiveness analyses primarily focus on static efficiency and do not account for dynamic efficiency, potentially overlooking reward levels that maximize population health when future innovation is considered.
- **We estimated the share of the value generated by a drug that accrues to manufacturers and the resulting net population health under alternative US pricing scenarios, accounting for dynamic efficiency.**

Methods

- Three pricing policy scenarios were explored: (a) **status quo** using actual net prices, (b) **HBPB-based pricing** using ICER's health benefit price benchmarks (HBPB) at $150,000/QALY gained, and (c) "**dynamic-efficiency**" using prices that optimize the manufacturer's share of value to maximize net population health.
- For each scenario, we estimated the drug's lifetime value shared to the original manufacturer and net population health benefits.
- We used frameworks developed by Woods et al., adapted for US-specific market characteristics.
- We analyzed a purposive sample of 18 pharmaceuticals approved in the US and reviewed by ICER.

Results

- Under the **status quo**, manufacturers captured an aggregated mean of 71% of total value across 18 drugs (range: −1,072% to 1,150%), with 29% for the 8 drugs priced below ICER's HBPB and 327% for the 10 drugs priced above it. The total NHB across 18 drugs was 64M QALYs (76M for drugs priced below HBPB and -12M for those priced above)
- Applying **HBPB-based pricing** reduced manufacturer shares to 70% for drugs priced above the HBPB and increased them to 78% for those priced below, yielding an aggregated mean of 76% across all drugs (range: -123% to 278%). Total NHB was 58M QALYs (45M and 14M for drugs priced below and above the HBPB, respectively)
- Under the **dynamic efficiency** scenario, the manufacturer share that maximizes population health was 23% across all drugs. Under this pricing policy, the NHB were maximized at 123 M QALYs–92% higher than the status quo (99M and 23M for drugs priced below and above HBPB respectively).

Conclusion

- We quantified manufacturer value shares and the resulting population health impacts under alternative US drug pricing scenarios.
- Under current policies, some drugs allow manufacturers to capture more than the total value, which could be mitigated by value-based pricing.
- Dynamic-efficiency pricing offers a way to maximize net population health, but requires additional data and agreement on the optimal share of value for practical implementation.

Figure 1. Schematic of Value Accruing to Different Parties in Health Terms

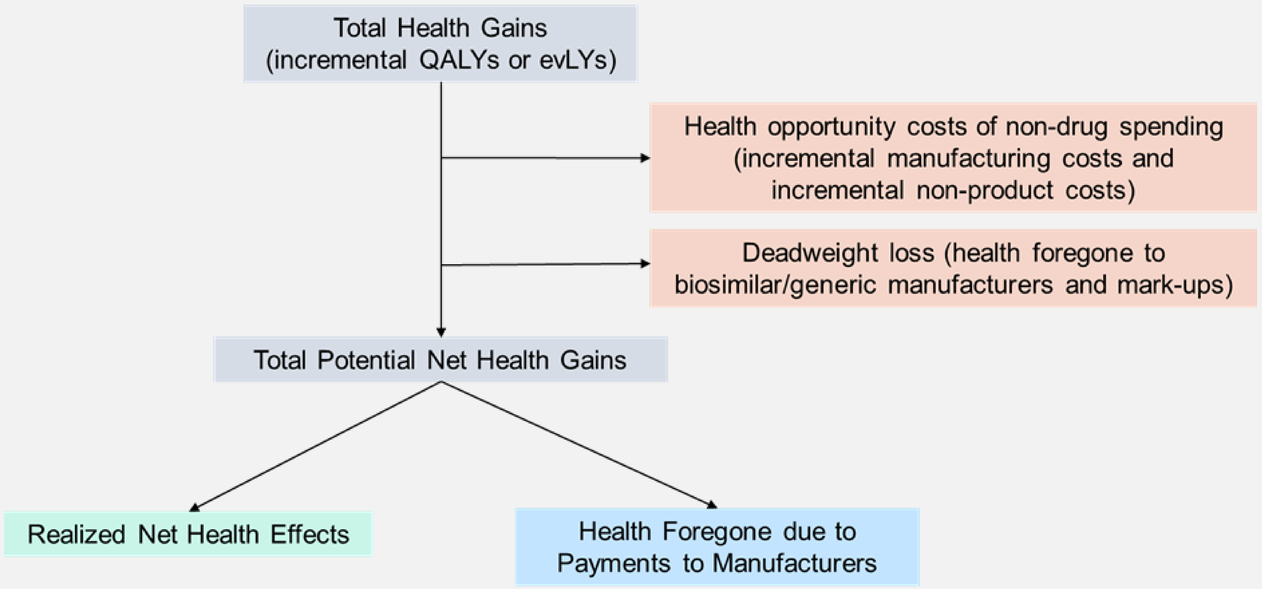

Table 1. Aggregated Share of Value to Originator Manufacturers

	Pricing Policy Scenarios		
	Status Quo	ICER HBPB	Dynamic efficiency
All drugs (N=18)	71%	76%	23%
Drugs priced above HBPB (N=10)	327%	70%	23%
Drugs priced below HBPB (N=8)[a]	29%	78%	23%

Table 2. Net health benefits realized among patients (in QALYs)[b]

	Pricing Policy Scenarios		
	Status Quo	ICER HBPB	Dynamic efficiency
All drugs (N=18)	63.9M	58.1M	122.8M
Drugs priced above HBPB (N=10)	-12.1M	13.5M	23.4M
Drugs priced below HBPB (N=8)[a]	76.0M	44.7M	99.4M

[a] Under the HBPB scenario, the prices of these 8 drugs increase relative to the status quo, raising manufacturer share and reducing NHB compared with the status quo.
[b] Population NHB comprises both net static benefits (from current treatments) and net dynamic benefits (from future innovation influenced by payment levels).

Acronyms

QALY: Quality adjusted life years; evLY: Equal-value life years; ICER: Institute for Clinical and Economic Reviews; HBPB: Health benefit price benchmark; NHB: Net health benefits; M: Million

Contact Information: Woojung Lee, wlee@icer.org