



Adrian Towse, MA, MPhil
Office of Health Economics
London, UK

Specific Value Assessment Considerations

Indication Based Pricing

A better way to value drugs?

Adrian Towse
Director of the Office of Health Economics and
Visiting Professor, London School of Economics

ISPOR Value Summit October 2018

What are the economic implications of an alternative model?

Office of Health Economics Consulting

Consulting Report

The Debate on Indication-Based Pricing in the U.S. and Five Major European Countries

May 2018
Adrian Towse, Amanda Cole and Bernarda Zamora

Towse, A., Cole, A., and Zamora, B. (2018). The Debate on Indication-Based Pricing in the U.S. and Five Major European Countries. OHE Consulting Report, London: Office of Health Economics. Available at: <https://www.ohe.org/publications/debate-indicationbased-pricing-us-and-five-major-european-countries>

Office of Health Economics Research

Research Paper 18/04

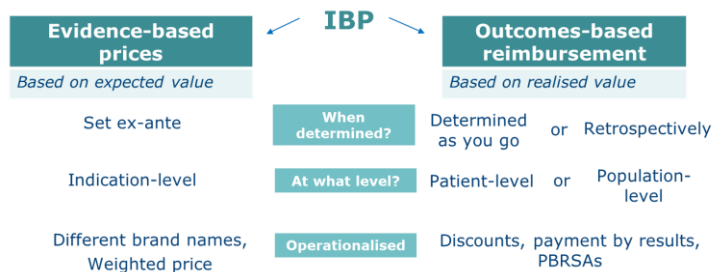
Economics of Innovative Payment Models Compared with Single Pricing of Pharmaceuticals

July 2018
Amanda Cole, Adrian Towse, Paula Lorgelly, and Richard Sullivan

Cole, A., Towse, A., Lorgelly, P. and Sullivan, R. (2018). Economics of Innovative Payment Models Compared with Single Pricing of Pharmaceuticals. OHE Research Paper 18/04, London: Office of Health Economics. Available at: <https://www.ohe.org/publications/economics-innovative-payment-models-comparedsingle-pricing-pharmaceuticals#overlay-context=publications>

What is the need for IBP, and in what format?

- Price should be linked in some way to value
- Increasingly medicines offer patient benefit in multiple different contexts
- A single price for a single drug creates a disconnect between price and value
- We use the term *indication-based pricing (IBP)* to refer to the concept of having different prices when a drug is used in different contexts



What are the arguments for and against: single price model vs IBP



Bach (2014)

IBP would increase transparency and lead to rational prices for drugs, potentially lowering prices for lower value indications



Chandra & Garthwaite (2017)

IBP would lead to higher prices for patients who benefit the most, higher utilisation for patients who benefit the least, higher overall spending and higher manufacturer profits

The crucial difference is that starting point: how is the single price set?

Initial static effects: Critique of the literature

Uniform price ↻ High/low value at uniform price

What could IBP look like?

		Survival gain (years)	Typical treatment duration (months)	Total typical treatment cost (\$)	Current monthly price (\$)	Indicator of current value: Cost per life year gained (approx.) [#]	Monthly price based on Indication with most value	Monthly price based on Indication with least value	Monthly price based on value of \$150,000 per life year gained
First line – low value indication (LOW VALUE)	(i) first-line treatment recurrent/metastatic HNSCC	0.23	4.16	\$42,875	\$10,319	\$190,556	\$471 ↓	\$10,319	\$8,123
Locally advanced – high value indication (HIGH VALUE)	(ii) locally advanced HNSCC	1.64	1.39	\$14,292	\$10,319	\$8,706	\$10,319	\$226,075 ↑	\$177,798

HNSCC: Squamous cell carcinoma of the head and neck

Bach (2014)

Price goes down for low-value indication

Chandra & Garthwaite (2017)

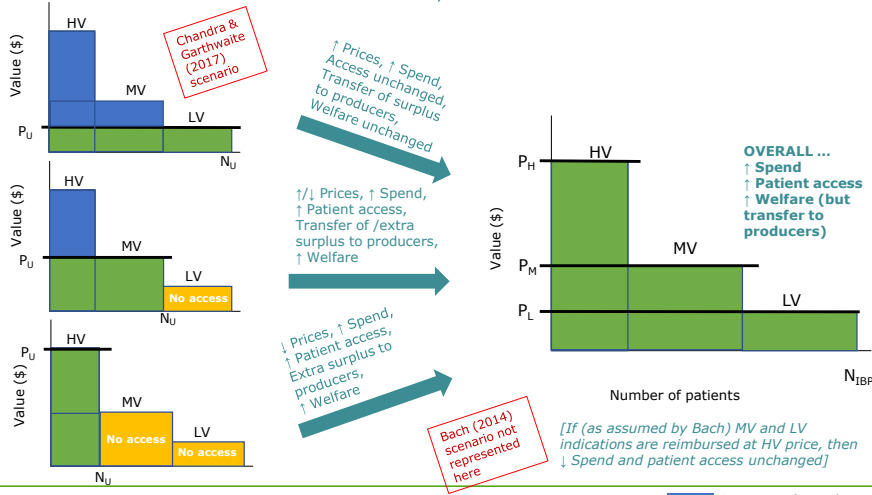
Price goes up for high-value indication

"Value-based" prices

The varying impacts of moving to IBP



Uniform pricing scenarios: \longrightarrow IBP scenario (static)



Office of Health Economics Research

N: Number of patients (N_U under uniform pricing, N_{IBP} under IBP)
P: Price (P_U under uniform pricing scenarios, P_H [high value] P_M [medium value] P_L [low value] under IBP)
Value: HV- High value; MV: Medium value; LV: Low value

■ Consumer (payer) surplus
■ Producer surplus
■ No patient access

Existing literature fails to take into account three critical factors



1. Level of uniform price assumed under a single price
 - Is it credible to assume profit-maximising uniform price would be equivalent to lowest value indication?
 - More likely profit-maximising uniform price corresponds with higher value indications, with manufacturers choosing to forgo lower value indications altogether to protect profits
 - Where IBP expands access, *social welfare is increased*
2. The presence of an HTA system to guarantee value
 - If differentiated prices under IBP are set using an acceptable cost-effectiveness threshold, then *the spend is a worthwhile and cost-effective way to generate health gains for patients.*
3. The **dynamic context**...
 - Impact on *incentives for R&D* and *role of competition*

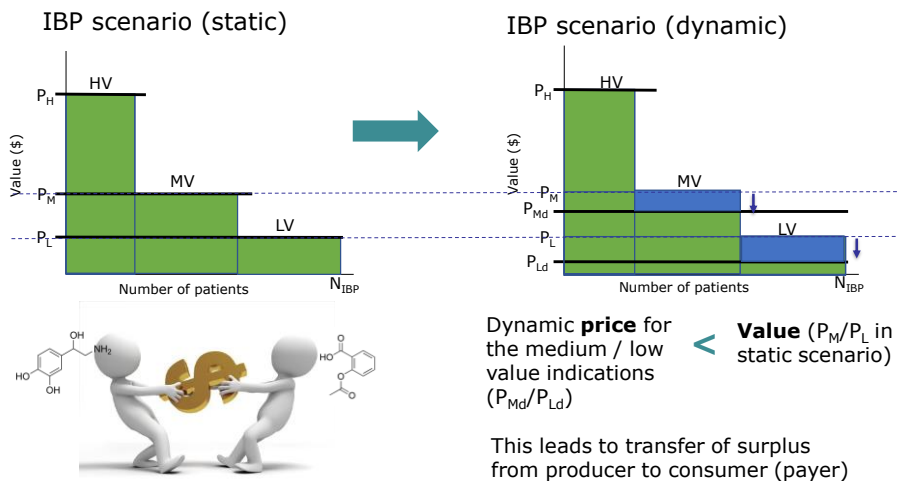
Office of Health Economics Research

2. Short-term ("static") effects of IBP

Dynamic context has an impact on R&D and on pricing

- IBP could optimise R&D incentives:
 - Allowing companies to target further indications – by permitting entry into new indication markets without compromising presence in existing indication markets
 - In turn, this will likely drive competition at the indication-level
- Manufacturers are not price-setting monopolists. There can be competing entry during patent-life
- Value-based indication prices (based on setting price at the maximum WTP) should therefore be seen as price ‘ceilings’; competition can drive prices down below these levels.

The potential impact of competition



N: Number of patients (N_u under uniform pricing, N_{IBP} under IBP)

P: Price (P_u under uniform pricing scenarios, P_H [high value] P_M [medium value] P_L [low value] under IBP)

Value: HV- High value; MV: Medium value; LV: Low value

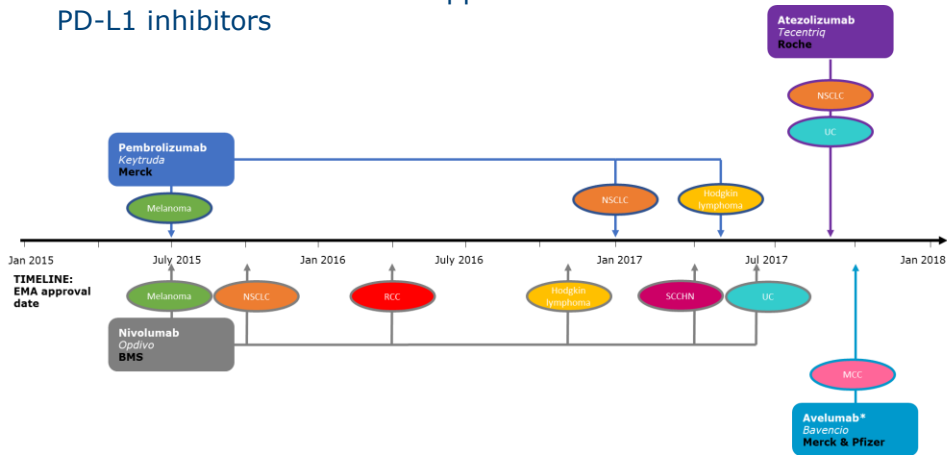
Consumer (payer) surplus

Producer surplus

Timelines for PD-1 and PD-L1 inhibitors



Indication timeline for EMA-approved PD-1 and PD-L1 inhibitors



Source: EMA authorisation documentation

3. Longer-term ("dynamic") effects of IBP

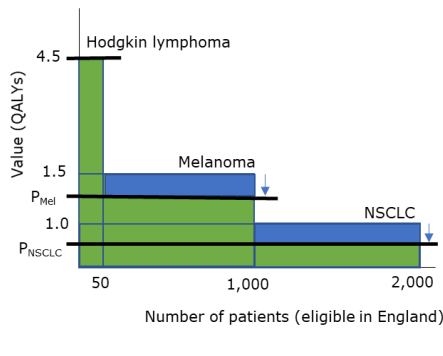
*Note that Avelumab is an orphan medicinal product granted *conditional approval* by the EMA

Abbreviations: Non-Small Cell Lung Cancer (NSCLC); Renal Cell Carcinoma (RCC); Squamous Cell Cancer of the Head and Neck (SCCHN); Urothelial Carcinoma (UC); Merkel Cell Carcinoma (MCC).

Potential impact of competition with IBP PD-1/L1 inhibitors



Using indication information from the previous slide together with evidence from HTA value assessments* we illustrate the potential for competition using the IBP PD-1/L1 inhibitors in three indications.



- Competition at the indication-level can drive down prices below value-based 'ceilings'
- Transfer of surplus from producer (payer), thus limiting the impact of IBP on payer budgets.

*Indicative data on gain in quality-adjusted life years (QALYs) and patient numbers obtained from documentation from NICE and the Institute for Clinical and Economic Review.

3. Longer-term ("dynamic") effects of IBP

Can innovative payment models really work? Practical challenges



- Legal and regulatory hurdles
 - e.g. Medicaid's best price rule, Off-label use, anti-kickback statute, data privacy issues
- Contractual or financial flow issues
 - Payer who agrees the price with the manufacturer may be reimbursing the provider who in turn pays the wholesaler who pays the manufacturer ...
- Data collection that tracks uses and outcomes by indication
 - Proxies or surrogate measures: e.g. treatment duration?
- Arbitrage (re-selling) must be difficult
- How to attribute value between drugs for combination therapies?

Conclusion



Short term rewards of greater patient access, long term gains of incentivising R&D and competition

- In the short term, IBP can *improve overall welfare* if patient access increases, but expenditure may rise
- Existing research has neglected longer term impact: *optimised incentives for R&D can lead to new treatments options for patients*
- Increased price competition at the indication-level drives down prices and *delivers better value to the health system*
 - The UK NHSE competitive tendering process for Hepatitis C drugs separates tenders by genotype – in effect by indication
 - US health plans and PBMs are currently piloting IBP approaches with the objective to better manage expenditure

Reference list



- Bach, P.B., 2016. Walking the Tightrope Between Treatment Efficacy and Price. *Journal of Clinical Oncology*; 34(9): 889-891.
- Bach P.B., 2014. Indication-specific pricing for cancer drugs. *JAMA*. 2014 Oct 22-29;312(16):1629-30.
- Bradley, J., 2017. Cancer, Financial Burden, and Medicare Beneficiaries *Journal of Clinical Oncology* 35, no. 22 (August 2017) 2461-2462.
- Chandra A, Garthwalte C., 2017. The Economics of Indication-Based Drug Pricing. *N Engl J Med*. Jul 13; 377(2):103-106.
- Cole, A., Towse, A., Lorgelly, P. and Sullivan, R. (2018). Economics of Innovative Payment Models Compared with Single Pricing of Pharmaceuticals. OHE Research Paper 18/04, London: Office of Health Economics. Available at: <https://www.ohe.org/publications/economics-innovative-payment-models-comparedsingle-pricing-pharmaceuticals#overlay-context=publications>
- Flume M, Bardou M, Capri S, Sola-Morales O, Cunningham D, Levin L-A, et al., 2016. Feasibility and attractiveness of indication value-based pricing in key EU countries. *Journal of Market Access & Health Policy*; 4(1):30970.
- Garrison LP Jr, Veenstra DL., 2009. The economic value of innovative treatments over the product life cycle: the case of targeted trastuzumab therapy for breast cancer. *Value Health*; 12(8):1118-23.
- Hui L, von Keudell G, Wang R, Zeidan AM, Gore SD, Ma X, Davidoff AJ, Huntington SF, 2017. Costeffectiveness analysis of consolidation with brentuximab vedotin for high-risk Hodgkin lymphoma after autologous stem cell transplantation. *Cancer*. 2017 Oct 1;123(19):3763-3771.
- Mestre-Ferrandiz, J., Towse, A., Dellamano, R., and Pistollato, M. 2015. Multi-indication Pricing: Pros, Cons and Applicability to the UK. Seminar Briefing 56. Office of Health Economics. 2015.
- Pearson SD, Dreitlein WB, Henshall C, Towse A., 2017. Indication-specific pricing of pharmaceuticals in the US healthcare system. *J Comp Eff Res*. Jul; 6(5):397-404.
- Sachs R, Bagley N, Lakdawalla DN., 2017. Innovative Contracting for Pharmaceuticals and Medicaid's Best-Price Rule. *J Health Polit Policy Law*. Sep 28
- Towse, A., Cole, A., and Zamora, B. (2018). The Debate on Indication-Based Pricing in the U.S. and Five Major European Countries. OHE Consulting Report, London: Office of Health Economics. Available at: <https://www.ohe.org/publications/debate-indicationbased-pricing-us-and-five-major-european-countries>
- Yeung K, Li M, Carlson JJ. Using Performance-Based Risk-Sharing Arrangements to Address Uncertainty in Indication-Based Pricing. *J Manag Care Spec Pharm*. 2017; 3(10):1010-1015

Thank you for listening



To enquire about additional information and analyses, please contact
Amanda Cole (acole@ohe.org) or Adrian Towse (atowse@ohe.org)

To keep up with the latest news and research, subscribe to our blog, [OHE News](#)
Follow us on Twitter [@OHENews](#), [LinkedIn](#) and [SlideShare](#)

Office of Health Economics (OHE)

Southside, 7th Floor
105 Victoria Street
London SW1E 6QT
United Kingdom

+44 20 7747 8850
www.ohe.org

OHE's publications may be downloaded free of charge from our website