

# A snapshot assessment of the implementation of broader elements of value in economic evaluations:

## From guidance to practice

Riley D<sup>1</sup>, Oswald C<sup>1</sup>, Enstone A<sup>1</sup>, Heron L<sup>1</sup>

<sup>1</sup>Adelphi Values PROVE, Bollington, Cheshire, SK10 5JB, United Kingdom



### Background and Objectives

- Accurately capturing the full impact of novel interventions in economic evaluations is important to reflect the true value of therapeutic advances. Incorporating broader elements of value could substantially influence cost-effectiveness estimates.<sup>1</sup>
- Therefore, there is a need to broaden the view of healthcare “value”, to include impacts beyond traditional clinical and cost outcomes, ensuring that decision-making better reflects the full societal and patient benefit of interventions.
- In 2018, ISPOR task force introduced the “Value Flower”, a framework that identified both core elements of value and additional (broader) elements of value beyond those which are typically included in conventional cost-effectiveness analyses (CEAs) (see Table 1).<sup>2</sup>
- The elements included in the ISPOR Value Flower are summarized below:

**Table 1. The Professional Society for Health Economics and Outcomes Research (ISPOR) task force Value Flower**

Use	Element of value
Core elements of value	Quality adjusted life-years (QALYs) gained
	Net costs
Common but inconsistently used elements of value	Productivity
	Family spillovers
Novel element of value	Value of knowing
	Insurance value: financial and health
	Fear of contagion and disease
	Severity of disease
	Value of hope
	Real option-value
	Equity
Scientific spillovers	

Adapted from Lakdawalla et al.<sup>2</sup>

- While the Value Flower provides a structured conceptual framework, the ISPOR Task Force concluded that additional research is needed to determine how these concepts should be operationalised within health technology assessment (HTA) processes.<sup>2</sup>
- The extent to which inclusion of these broader elements of value affects quantitative estimates of treatment value likely varies by disease area and treatment context.
- Furthermore, there is limited methodological and operational guidance for researchers and policymakers on how to select, incorporate, and quantify these elements in CEAs.<sup>3</sup>
- Despite conceptualization of the ISPOR Value Flower and recognition of the importance of these broader impacts, it remains unclear how consistently broader elements of value are operationalized in CEAs and HTA processes.
- We, therefore, wanted to explore the inclusion of broader elements of value from the ISPOR Value Flower in economic evaluations to better understand the extent to which current practice depicts the true value of interventions and reflects the full societal and patient impacts of care.

### Methods

- A focused review was conducted to assess the empirical application of broader elements of value in economic evaluations.
- We searched the Tufts CEA Registry from 2021 to 2025 using key search terms representing the 10 broader elements of value in the ISPOR Value Flower (Table 2). As this review was seeking to identify broader elements of value, the two core elements of value were not included.

**Table 2. Search terms used to identify Novel Elements of Value in the Tufts CEA Registry from 2021 to 2025\***

Value Flower element	Element of value
N/A	“value element”
N/A	“societal-level cost-effectiveness”
Productivity	“productivity loss” OR “caregiver productivity”
Family spillovers	“spillovers”
Adherence-improving factors**	“adherence benefit”
Value of knowing	“value of knowing”
Insurance value: financial and health	“insurance value” OR “financial risk protection” OR “risk reduction value”
Fear of contagion and disease	“fear of contagion” OR “fear of disease”
Severity of disease	“end-of-life” OR “severity-adjusted”
Value of hope	“value of hope” OR “hope benefit”
Real option value	“real option value” OR “option value”
Equity	“equity weighting” OR “distributional cost-effectiveness”
Scientific spillovers	“spillover”
Other societal benefits (e.g., macroeconomic, education, environmental)**	“macroeconomic impact” OR “education benefit” OR “environmental impact” OR “carbon footprint”

\*Grey shading indicates general term of the Value Flower rather than a specific broader element of value.  
\*\*Additional elements of value to capture categories of value beyond core clinical outcomes.

- Titles and abstracts were screened by a single reviewer to determine whether ISPOR Value Flower element(s) were explicitly referenced.

1. Ma S, Ochaniski N, Cohen JT, Ollendorf DA, Neumann PJ, Kim DD. The Impact of Broader Value Elements on Cost-Effectiveness Analysis: Two Case Studies. *Value in Health*. 2022;25(8):1336-1343.  
2. Lakdawalla DN, Doshi JA, Garrison LP, Phelps CE, Basu A, Danzon PM. Defining Elements of Value in Health Care—An ISPOR Special Task Force Report [3]. *Value in Health*. 2018; 21(2):131-139.  
3. Shafiq J, Denisen S, Fedirchuk P, et al. For which diseases do broader value elements matter most? An evaluation across 20 ICER evidence reports. *J Manag Care Spec Pharm*. May 2021;27(5):650-659.  
4. Chow JW, Graf M, Diaz Espinosa O, Brewer J, Heim Z, Baumgardner J. Generalized Cost-Effectiveness Analysis to Assess Treatment Value in Hepatitis C. *American Journal of Managed Care*. 2023;29(12).  
5. Feldhaus I, Nagpal S, Verguet S. Alleviating the burden of diabetes with health equity funds: economic evaluation of the health and financial risk protection benefits in Cambodia. *PLoS One*. 2021 Nov 5;16(11):e0259628.  
6. De Neve JW, Andriantavison RL, Croke K, Krasim J, Rajotea VH, Rakotoarivony RA, Rambeloson V, Schuitz L, Qamruddin J, Verguet S. Health, financial, and education gains of investing in preventive chemotherapy for schistosomiasis, soil-transmitted helminthiasis, and lymphatic filariasis in Madagascar: a modeling study. *PLoS neglected tropical diseases*. 2018 Dec 27;12(12):e0007002.

### Results

We identified 329 CEAs through the search strategy. Of these, 15 CEAs incorporated at least one of the 10 Value Flower elements assessed (Figure 1), representing likely <1% of CEAs uploaded to the Tufts CEA Registry between 2021 and 2025. Of the 15 CEAs, 10 included adherence-improving factors and productivity. Only 9 reported novel broader elements of value, including spillover effects, environmental impact, educational gains, health equity, insurance value, value of hope, and option value. Four CEAs quantified productivity and at least one other novel broader value element. Reporting of broader elements of value was inconsistent. Where elements of value were quantified, methodological variability and uncertainty were observed, highlighting a lack of standardized approach for including broader elements of value. The identified broader elements of value across the 15 included CEAs are summarized in Figure 1.

- Broader elements of value were more frequently incorporated in CEAs evaluating high-cost, high-uncertainty interventions, such as gene therapies and novel oncology treatments. These interventions tended to include a wider range of value components, including option value, equity, and scientific spillovers.
- In contrast, more established pharmacological indications (e.g., HIV, diabetes) were more likely to adopt common but inconsistently used elements of value, primarily focusing on productivity gains and adherence-related outcomes.
- Overall, the inclusion of broader value elements appears to be linked to both the innovation level and uncertainty profile of the intervention, as well as what is most meaningful to patients within a specific disease context, such as HIV, where long-term adherence is essential.
- Table 3 summarises the CEAs identified (N=15), categorised by broader element(s) of value included, disease, therapy type, and country.

**Figure 1. Identified CEAs that include broader elements of value (N=15) by elements of value\***

**Table 3. Relevant CEAs identified (N=15) by reported broader element of value(s), disease area, therapeutic type, and country**

CEA title description	Broader value element(s)	Disease area	Therapeutic type	Country
Generalized cost-effectiveness analysis of treatment value in Hepatitis C <sup>4</sup>	Scientific spillovers	Hepatitis C	Cost-effectiveness modelling	United States
Alleviating the burden of diabetes with Health Equity Funds: Economic evaluation of the health and financial risk protection benefits in Cambodia <sup>5</sup>	Productivity; insurance value	Diabetes	Health financing intervention	Cambodia
Health, financial, and education gains of investing in preventive chemotherapy for schistosomiasis, soil-transmitted helminthiasis, and lymphatic filariasis in Madagascar: A modeling study <sup>6</sup>	Productivity	Neglected tropical diseases	Preventive chemotherapy	Madagascar
Cost-Effectiveness of Lovotibeglogene Autotemcel (Lovo-Cel) Gene Therapy for Patients with Sickle Cell Disease and Recurrent Vaso-Occlusive Events in the United States <sup>7</sup>	Productivity; scientific spillovers	Sickle cell disease	Gene therapy	United States
Effectiveness and cost-effectiveness of online recorded recovery narratives (NEON) in non-psychotic mental health problems <sup>8</sup>	Productivity; value of hope	Mental health (non-psychotic disorders)	Digital psychological intervention	UK
Isavuconazole for suspected invasive pulmonary aspergillosis (Canada) <sup>9</sup>	Productivity	Invasive pulmonary aspergillosis	Antifungal pharmacotherapy	Canada
An economic evaluation of eptinezumab for the preventive treatment of migraine in the UK <sup>10</sup>	Productivity	Migraine	Monoclonal antibody therapy	UK
Cost-Effectiveness of Teduglutide for Pediatric Patients with Short Bowel Syndrome in Japan, Including Caregiver Burden <sup>11</sup>	Productivity	Short bowel syndrome	Hormone analogue therapy	Japan
The economic benefit of timely, adequate, and adherence to Parkinson's disease treatment: the Value of Treatment Project 2 <sup>12</sup>	Productivity; adherence-improving factors	Parkinson's disease	Pharmacological optimisation	Germany and UK
Cost-Effectiveness of Interventions to Improve HIV Pre-exposure Prophylaxis Initiation, Adherence, and Persistence Among Men Who Have Sex With Men <sup>13</sup>	Productivity; adherence-improving factors	HIV (MSM)	Behavioural / implementation intervention	United States
Providing universal access to modern contraceptive methods: An extended cost-effectiveness analysis of meeting the demand for modern contraception in Ethiopia <sup>14</sup>	Insurance value	Contraception	Public health intervention	Ethiopia
How Does Option Value Affect the Potential Cost-Effectiveness of a Treatment? The Case of Ipilimumab for Metastatic Melanoma <sup>15</sup>	Option value / real option value	Metastatic melanoma	Immunotherapy	United States
Distributional Cost-Effectiveness of Equity-Enhancing Gene Therapy in Sickle Cell Disease in the United States <sup>16</sup>	Equity	Sickle cell disease	Gene therapy	United States
The Impact of Tocilizumab Coverage on Health Equity for Inpatients with COVID-19 in the USA: A Distributional Cost-Effectiveness Analysis <sup>17</sup>	Equity	COVID-19 (hospitalised patients)	Immunomodulatory therapy	United States
Cost-effectiveness of midostaurin in the treatment of newly diagnosed FLT3-mutated acute myeloid leukemia in France <sup>18</sup>	Severity of disease	Acute myeloid leukemia	Targeted therapy	France

- Studies from low- and middle-income countries (e.g., Ethiopia, Cambodia, Madagascar) more commonly captured broader value through financial risk protection and productivity gains, reflecting a stronger emphasis on access, affordability, and population health impacts rather than more abstract value constructs.
- Overall, inclusion of broader elements of value appears to vary by country context, with high-income settings adopting a wider conceptual range of value elements, while LMIC settings focus on pragmatic and system-level value such as risk protection and productivity.
- The figure below illustrates the country in which each CEA was conducted, alongside the broader element(s) of value reported.

**Figure 2. Relevant CEAs identified (n=15) by reported broader element of value(s) on country**

- One CEA, published in 2023, was examined in greater depth, as it explicitly referenced the incorporation of broader elements of value, providing further insight into their application.<sup>4</sup>
- A wide range of novel value elements were identified as having been ‘reasonably estimated’ from the published literature within the relevant disease area, which may have facilitated their inclusion in the analysis.
- This CEA highlighted the value of a generalized CEA framework (as explicitly defined by study authors) in more accurately reflecting the true value that novel therapies can offer to society, demonstrating a stepwise approach in which additional value elements are layered onto a traditional CEA model.
- Compared with the base analysis, incorporating dynamic transmission and pricing effects led to a substantial reduction in the ICER (\$64,512 vs \$6,406), illustrating the importance of capturing system-level and price-related feedback effects. Expanding the model to include productivity losses and caregiver burden resulted in a further, though smaller, decrease in the ICER (\$6,406 vs \$5,609), suggesting that while these factors are relevant, they may contribute less to overall value than commonly assumed. Finally, applying the GRACE framework to account for elements such as differential valuation of life years versus quality of life, disease severity, and insurance value further reduced the ICER (\$5,609 vs \$4,487), reflecting additional value dimensions that are particularly relevant in severe and infectious diseases.
- At the time of this review, no other generalized CEA adopting such a comprehensive and holistic approach was identified since.

### Conclusion

The ISPOR Special Task Force has played a key role in advancing a more comprehensive framework for evaluating healthcare interventions, highlighting important limitations of traditional economic evaluations that often fail to capture full societal and patient value. Despite this progress, the incorporation of broader elements of value in published CEAs remains limited and inconsistent, indicating a gap between conceptual development and real-world application. A key barrier appears to be the limited availability of empirical data and operational methods for quantifying these elements, which constrains their routine inclusion in economic evaluations. This underscores the need for clear, practical methodological guidance to support the consistent definition, measurement, and application of broader value elements in CEAs, particularly to strengthen HTA and decision-making processes. In this context, organisations such as ISPOR are well positioned to lead the development of standardised best-practice recommendations to improve consistency and comparability across studies. Strengthening and standardising the integration of broader value elements would enable more comprehensive economic evaluations that better reflect the full societal and patient-centred value of health interventions.

7. Herring WL, Gallagher ME, Shah N, Morse KD, Madadi D, Dong DM, Chawla A, Leitang JW, Zhang L, Paramore C, Andamariam B. Cost-effectiveness of lovotibeglogene autotemcel (Lovo-Cel) gene therapy for patients with sickle cell disease and recurrent vaso-occlusive events in the United States. *Pharmacoeconomics*. 2024 Jun;42(6):693-714.  
8. Slade M, Rernick-Egglestone S, Robinson C, Newby C, Elliott RA, Ali Y, Yeo C, Glover T, Gavan SP, Paterson L, Pollock K. Effectiveness and cost-effectiveness of online recorded recovery narratives in improving quality of life for people with psychosis experience (NEON Trial): a pragmatic randomised controlled trial. *The Lancet Regional Health-Europe*. 2024 Dec 1:147.  
9. Beuschlein C, Guinan K, Claveau D, Dufresne SF, Rotstein C. Economic evaluation of isavuconazole for suspected invasive pulmonary aspergillosis in Canada. *Expert Review of Pharmacoeconomics & Outcomes Research*. 2022 Jul 4;22(5):805-14.  
10. Griffin E, Shirley G, Lee XY, Awad SF, Tyng A, Goldsby PJ. An economic evaluation of eptinezumab for the preventive treatment of migraine in the UK, with consideration for natural history and work productivity. *The Journal of Headache and Pain*. 2024 Apr 18;25(1):59.  
11. Deguchi H, Kato M. Cost-Effectiveness of Teduglutide for Pediatric Patients with Short Bowel Syndrome in Japan, Including Caregiver Burden. *Advances in Therapy*. 2024 Dec;41(12):4463-75.  
12. Dodel R, Tinelli M, Deuschli G, Petersen G, Oertel W, Ahmerekamp-Böhme J. The economic benefit of timely, adequate, and adherence to Parkinson's disease treatment: the Value of Treatment Project 2. *European Journal of Neurology*. 2021 Feb;28(2):707-16.  
13. Whalley MM, Knowlton G, Kao SY, Jensen SM, Erns EA. Cost-effectiveness of interventions to improve HIV pre-exposure prophylaxis initiation, adherence, and persistence among men who have sex with men. *AIDS Journal of Acquired Immune Deficiency Syndromes*. 2022 May 1;90(1):1-9.  
14. Endan MR, Tolla MT, Norheim OF. Providing universal access to modern contraceptive methods: An extended cost-effectiveness analysis of meeting the demand for modern contraception in Ethiopia. *Social Science & Medicine*. 2021 Jul 1;231:114476.  
15. Uj M, Basu A, Bennette C, Venstra D, Garrison Jr LP. How does option value affect the potential cost-effectiveness of a treatment? The case of ipilimumab for metastatic melanoma. *Value in Health*. 2019 Jul 1;22(7):777-84.  
16. Goshua G, Calhoun C, Ito S, James LP, Luviano A, Krishnamurti L, Pandya A. Distributional cost-effectiveness of equity-enhancing gene therapy in sickle cell disease in the United States. *Annals of Internal Medicine*. 2023 Jun;178(6):779-87.  
17. Kowal S, Rosette KL. The impact of tocilizumab coverage on health equity for inpatients with COVID-19 in the USA: a distributional cost-effectiveness analysis. *Pharmacoeconomics*. 2025 Jan;43(1):67-82.  
18. Tremblay G, Carreau C, Recher C, Dolph M, Brant P, Bianco AS, Fonythe A. Cost-effectiveness of midostaurin in the treatment of newly diagnosed FLT3-mutated acute myeloid leukemia in France. G. Tremblay et al. *The European Journal of Health Economics*. 2020 Jun;21(4):543-55.