

Reliability and Consistency of Three Value Frameworks for Oncology Therapeutics

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Background: In response to rising costs in oncology care, several organizations have developed frameworks to systematically assess the value of oncology drugs. The frameworks produce regimen-specific ratings reflecting factors such as efficacy, toxicity, costs, quality of life, and strength of evidence. The reliability and consistency of these frameworks have not been evaluated.

Methods: Six raters (3 MDs, 1 DNP, 2 PhDs) all rated 2 oncology products for each of 3 cancers (6 product-cancer combinations in all) using 3 frameworks:

- ASCO Value Framework
- ESMO Magnitude of Clinical Benefit Scale
- Institute for Clinical and Economic Review (ICER) Evidence Rating Matrix.

More prevalent and costly cancers and related products were selected to represent a range of indications (curative and palliative), malignancies (solid and hematologic) and mechanisms (cytotoxic, biologic, immunologic).

Raters received the published clinical data required to complete the evaluations and detailed instructions for each framework, but were provided no formal training. Intraclass correlation coefficients (ICC) were estimated to measure tool reliability. Drugs indicated for advanced disease (5 of the 6) were rank ordered by mean and individual scores, and Kendall's *W* coefficient was calculated to measure agreement among tools. In sensitivity analyses (SA) for ICC, raters were excluded one at a time.

Results: There were 6 ratings of 6 products for each of the 3 frameworks (108 ratings total). ICC results (SA range) were: ASCO 0.66 (0.61-0.70); ESMO 0.73 (0.67-0.78); ICER 0.72 (0.65-0.95). Rankings for the 5 advanced disease regimens (A-E) varied by framework:

| ASCO | ESMO | ICER |
|------|------|------|
| A | B | A |
| B | D | C |
| C | A | D |
| D | C | B |
| E | E | E |

Kendall's W across all 3 frameworks was 0.69 (range 0.59-0.85 among individual raters). Pairwise, Kendall's W was 0.75 for ASCO-ESMO, 0.85 ASCO-ICER, and 0.70 ESMO-ICER.

Conclusions: Knowledgeable but untrained raters, provided with key data, produced moderately reliable results using 3 recently published frameworks for assessing the value of cancer treatments. The frameworks had fair to good consistency, indicating convergent validity, although they led to significantly different conclusions about the relative value of treatments for advanced disease.