Economic burden, utilities and cost effectiveness of the first-line treatment of extensive-stage small cell lung cancer (ES-SCLC): a systematic literature review (SLR)

Authors: Priedane E[1]*, Shodimu V[2], Munro I[2], Ng J[3], Hughes R[2]

Affiliations: [1]BeOne Medicines, Ltd, United Kingdom, [2]Source Health Economics, United Kingdom, [3]BeOne Medicines, Ltd, Singapore

ABSTRACT

Objectives:
ES-SCLC is an aggressive form of lung cancer with early development of metastases, poor prognosis, and high healthcare resource use (HCRU) burden. New immuno-chemotherapy regimens (IO-chemo) have recently been developed, including programmed death-ligand 1 (PD-L1) inhibitors. Three SLRs were conducted to assess the economic impact of first-line treatment for ES-SCLC by identifying studies reporting: 1) economic evaluations; 2) HCRU and cost outcomes; and 3) health state utility values (HSUVs), to inform future health technology assessments (HTAs).

Methods:
Electronic databases (Embase, MEDLINE, Cochrane and EconLit), recent oncology conference proceedings, and previous HTA reports were searched in October 2024 according to the National Institute for Health and Care Excellence (NICE) guidelines. Identified records were dual screened for eligibility according to pre-specified inclusion criteria. Quality assessment for economic evaluations was conducted using the Drummond Checklist.

Results:
The SLRs identified 35 economic evaluations (29 publications, six HTAs), 51 studies reporting HCRU and costs (43 publications, eight HTAs), and eight studies reporting HSUVs (seven publications, one HTA). Across economic evaluations, total costs were $6,789–$418,010; total life-years were 0.57–2.47, and total quality-adjusted life years (QALYs) gained were 0.15–1.51. Key value drivers included immunotherapy costs and HSUVs. The HCRU/costs SLR included 19 cost-utility/effectiveness analyses, one budget-impact analysis, and one survey. Total costs for managing adverse events (AEs) were $4,743–$23,323 in the United States (US) and $118–$2,907 in China. Common AEs linked to high costs included febrile neutropenia, thrombocytopenia, and decreased platelet count. Mean utility scores ranged from 0 (death) to 0.85 (life expectancy ≥60 days or response), while the

mean disutility scores due to AEs were higher for IO-chemo regimens than for chemotherapy alone, where reported.

Conclusion:

The SLRs identified sufficient evidence to inform the development of future economic models for new IO-chemo regimens in first-line ES-SCLC although limited to US, China, and Japan perspectives.