

A Conceptual Model for Economic Evaluations of Solid-Organ Transplantation – A Delphi Study

Solid organ transplantation is evolving rapidly, with new approaches in organ preservation, immunosuppression, donor selection, and regenerative therapies. Economic evaluations are increasingly used to assess the value of current and future interventions, considering health outcomes, healthcare resource use, and broader societal impacts. Mathematical models play a key role in these evaluations, enabling information from multiple sources to be combined, complementing trial evidence, extrapolating short-term results to a lifetime horizon, and exploring alternative scenarios. However, our previous scoping review of economic evaluations revealed that modelling in this area is underdeveloped. Key limitations included inconsistent representation of waitlist dynamics, complications, and time horizons, as well as limited transparency in methods and assumptions. As a result, important clinical and economic benefits are often not fully captured, which limits their ability to accurately reflect clinical practice or provide reliable guidance for decision-making.

To address this, we are developing a comprehensive, consensus-driven conceptual model for kidney, liver, lung, and heart transplantation. The conceptual model defines health states, patient pathways, key mechanisms, and potential treatment benefits in all phases before, during and after transplantation. It provides a common foundation for health-economic models that is flexible enough to accommodate both current practice and future innovations, and that can be tailored to specific interventions, decisions and comparisons. To achieve this, clinician involvement is crucial. The study aims to reach expert consensus on the key structure, events, outcomes, and assumptions for this conceptual model.

Methods

We use a Delphi approach, inviting transplant clinicians from multiple centres in the ESOT region to participate in max. four online survey rounds, or less if $\geq 68\%$ consensus is reached. Each round takes approximately 30–60 minutes, and only aggregated results will be shared, ensuring full confidentiality. If desired, participants may be acknowledged by name in any publications or outputs resulting from the study. Start of data collection: ca. April 2026.

Expected Impact

The model will provide a trusted, standardized framework for economic evaluation in transplantation, enhancing the credibility and interpretability of future cost-effectiveness analyses. It will support policy and guideline development by linking economic evaluation directly to clinical practice, while also enabling a forward-looking approach capable of evaluating emerging innovations.

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