Quick PartSA

Background

Gain early insights into the cost-effectiveness of early stage oncology products

During the early stage of development of an oncology product, the estimation of its cost-effectiveness can be instrumental to understand how clinical characteristics and pricing influence its ICER[1].
Cost-effectiveness models are complex and lengthy to build; and aren't always available early in the development process.
We developed Quick PartSA (**Quick Part**itioned **S**urvival **A**nalysis) to enable users to estimate the cost-effectiveness of an investigational intervention using a partitioned survival model. Instead of relying on patient-level survival data, this tool approximates survival curves using known OS[2] and PFS[3] survival probabilities and the hazard ratio for survival outcomes between an intervention and its comparator arm.
Quick PartSA can be useful to explore scenarios under which an intervention can reach cost-effectiveness.

Give QuickPartSA a try and let us know what you think:
https://www.lpccomputing.com/QuickPartSA/

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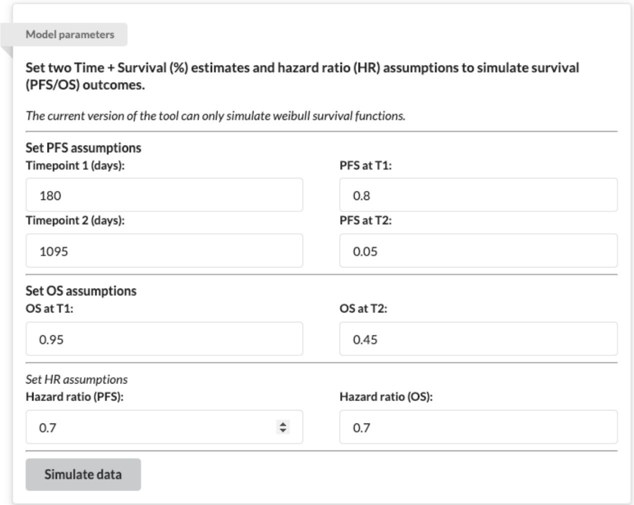
[1] ICER: Incremental Cost-Effectiveness Ratio
[2] OS: Overall survival
[3] PFS: Progression-free survival

Example situation

Let's assume that our company wants to get information on the potential cost-effectiveness of its new intervention in a specific indication.

Model Survival

Before computing cost-effectiveness outcomes, reference OS and PFS survival curves are approximated using known or estimated probability values.

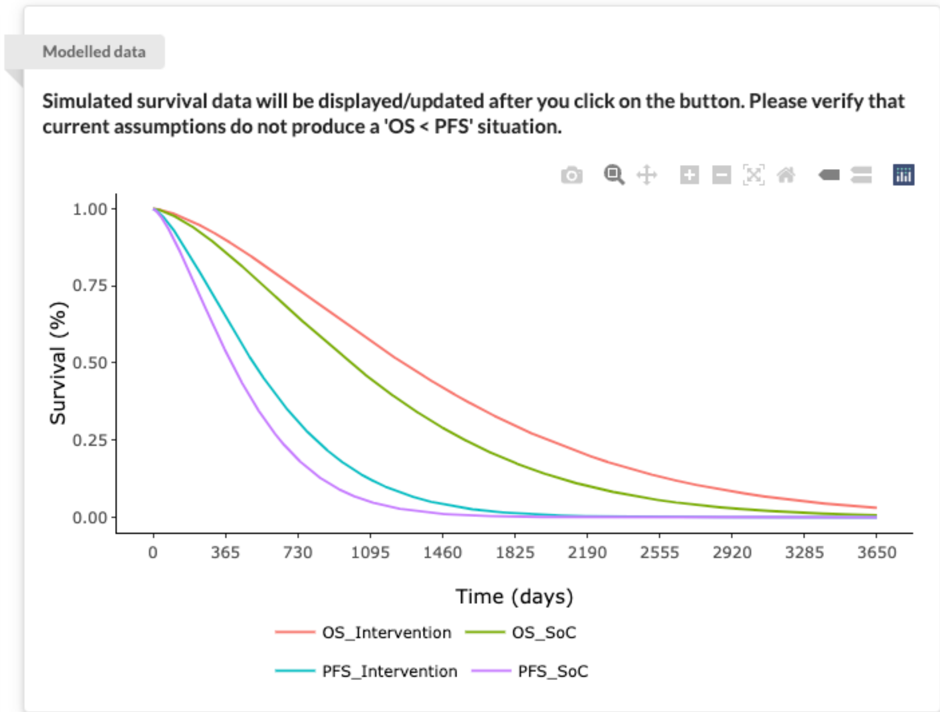


Let's start by entering survival values associated with the current standard of care (SoC).

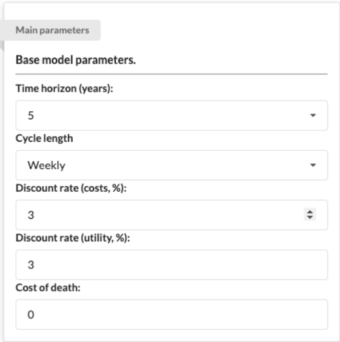
In this case, the progression (PFS) probability of the SoC at 180 and 1095 days is of 0.8 and 0.05, respectively and of 0.95 and 0.45 for survival (OS).

Now, let's define the assumptions for our intervention using hazards ratios against the SoC (0.7 both for PFS and OS).

By clicking on **Simulate data**, survival curves for the current SoC and our intervention are estimated on the right part of the screen.

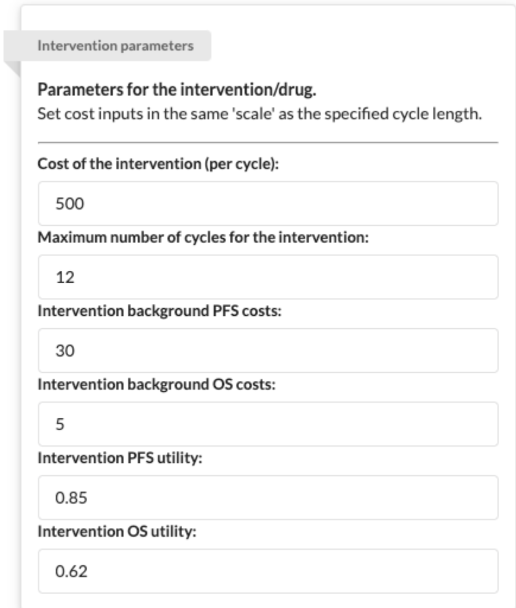


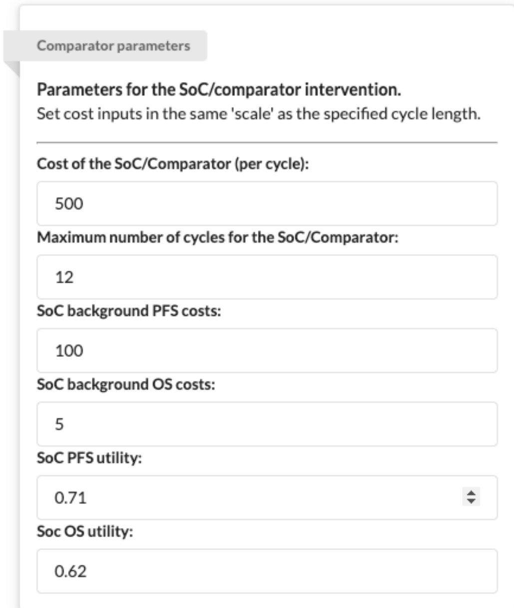
PartSA



Now, let's define the details of the economic model. In this case, we are interested in estimating cost-effectiveness during a horizon of 5 years, with a weekly cycle length and a discount rate for both costs and utility of 3%. We chose not to include the one-time cost of patient death.

Economic assumptions are then selected for both drugs. Assume that both drugs have the same cost per cycle (500) and are allowed for the same duration (12 cycles). However, non-treatment related costs in the non-progressed state will be lower with our new intervention compared to the SoC (30 vs 100), while costs in the progressed state will be equivalent (5). Our new intervention will also have a higher utility value of 0.85 in the non-progressed state (0.71 for SoC). Finally, the utility value of both agents will be equivalent after progression (0.62).





Press "Run/Update" to see the ICER associated with the model. In this example, the ICER is negative (dominant), showing that our new intervention is more effective and less costly than the current standard-of-care.