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## BACKGROUND

- CD strictures increase the likelihood of surgery, and surgeries are associated with a significantly higher healthcare burden<sup>1,2</sup> above the already high healthcare burden of CD in the US
- In the last two decades, endoscopic therapies e.g. endoscopic balloon dilation (EBD), endoscopic stricturectomy (ES<sub>t</sub>) emerged as effective and less invasive therapies for strictures<sup>3</sup>
- ES<sub>t</sub> is advantageous for longer, fibrotic strictures, or strictures adjacent to anatomic structures requiring precision, and has shown a high rate of surgery-free survival<sup>4-6</sup>
- **Aim:** determine cost-effectiveness of ES<sub>t</sub> vs. resection surgery for patients with CD strictures

## METHODS

**Model:** microsimulation state-transition model comparing ES<sub>t</sub> vs. bowel resection surgery

**Primary Outcome:** quality-adjusted life years (QALYs)

**Willingness To Pay (WTP):** \$100,000/QALY

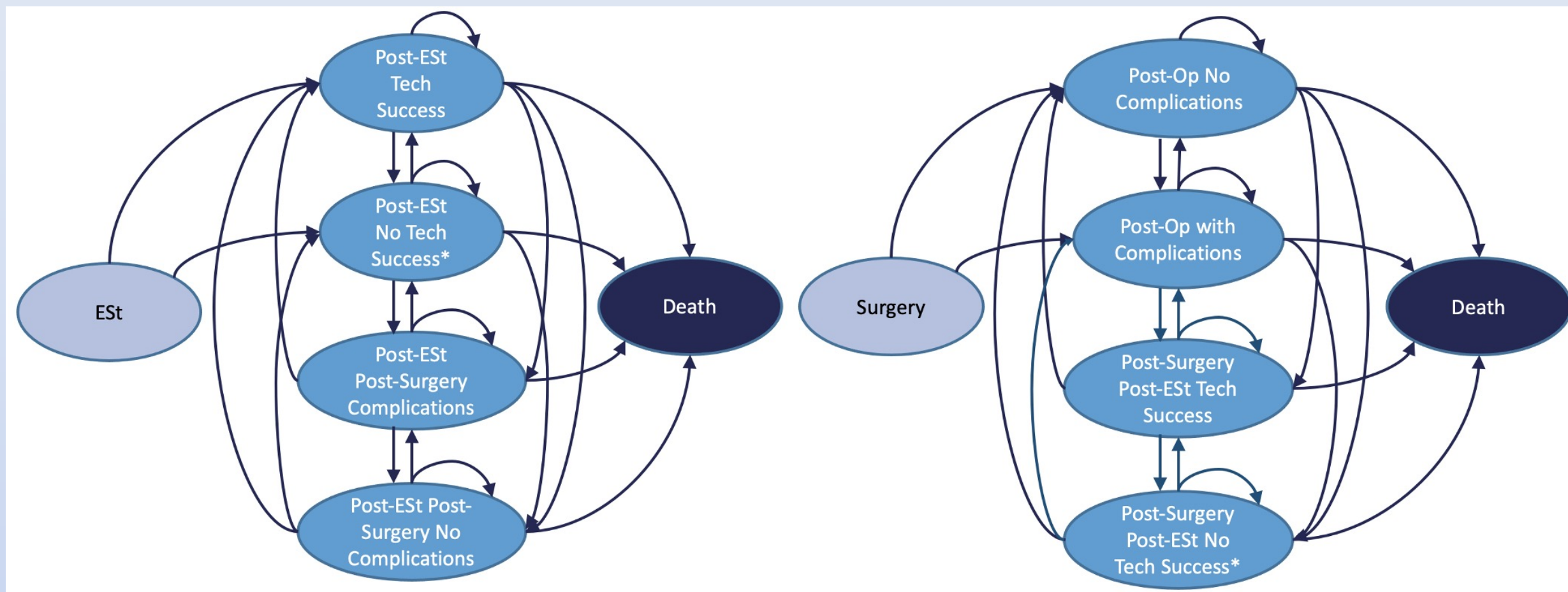
**Perspective & Time Horizon:** societal, 10 years

**Calculations:** costs (2022 \$US), incremental cost-effectiveness ratios (ICERs)

**Secondary Endpoints:** median, average, and maximum ES<sub>t</sub>s, surgeries, perforations, failed ES<sub>t</sub>s

**Sensitivity:** deterministic 1-way & probabilistic

**Figure 1. Microsimulation state transition diagram depicting health states and transitions between health states\***



\*Due to a 1-month cycle length and the implausibility of obtaining a subsequent ES<sub>t</sub> or surgery after an ES<sub>t</sub> with no technical success within 1 month, waiting rooms were implemented within the model representing 3- or 6-month wait period between a technically unsuccessful ES<sub>t</sub> and subsequent intervention.

## RESULTS

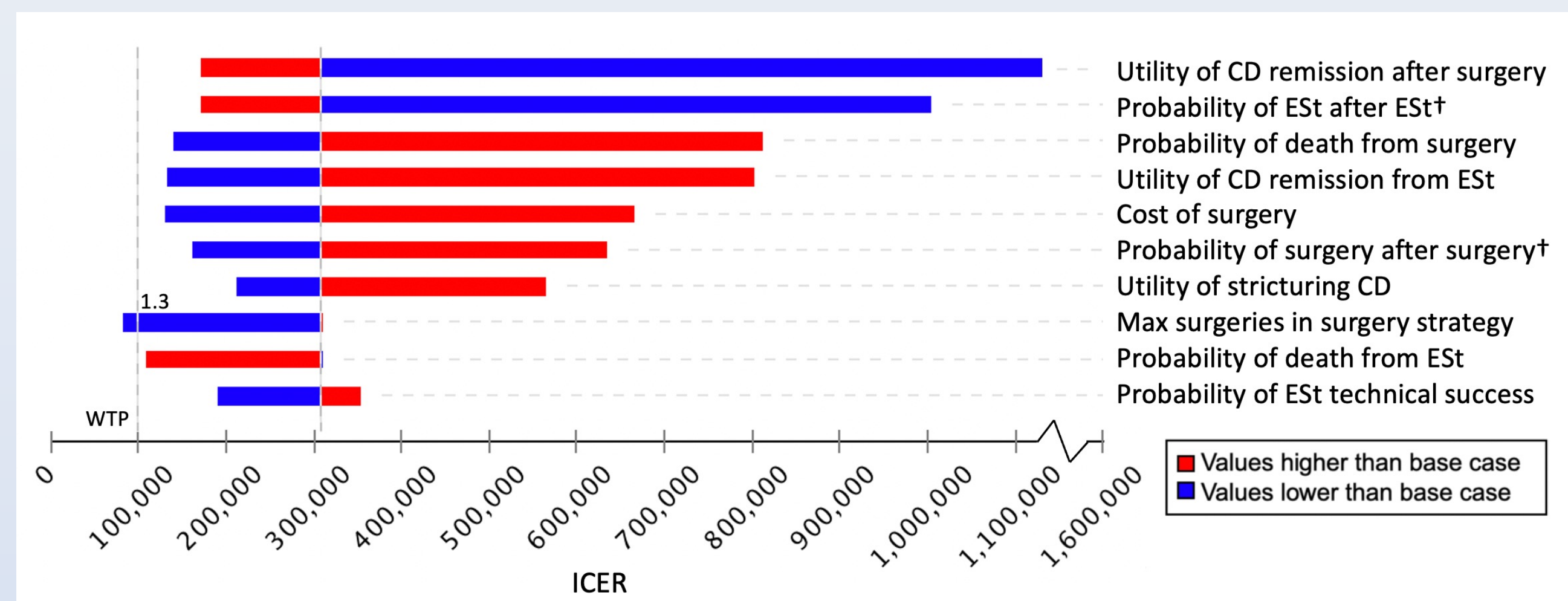
**Table 1. Cost-effectiveness Analysis**

	Cost (\$)	Incremental cost (\$)	Effectiveness (QALY)	Incremental effectiveness (QALY)	ICER (\$/QALY)
ES <sub>t</sub>	16,748		6.28		
Surgery	45,135	28,388	6.37	9 QALYs per 100 persons	308,787

**Table 2. Secondary Endpoints**

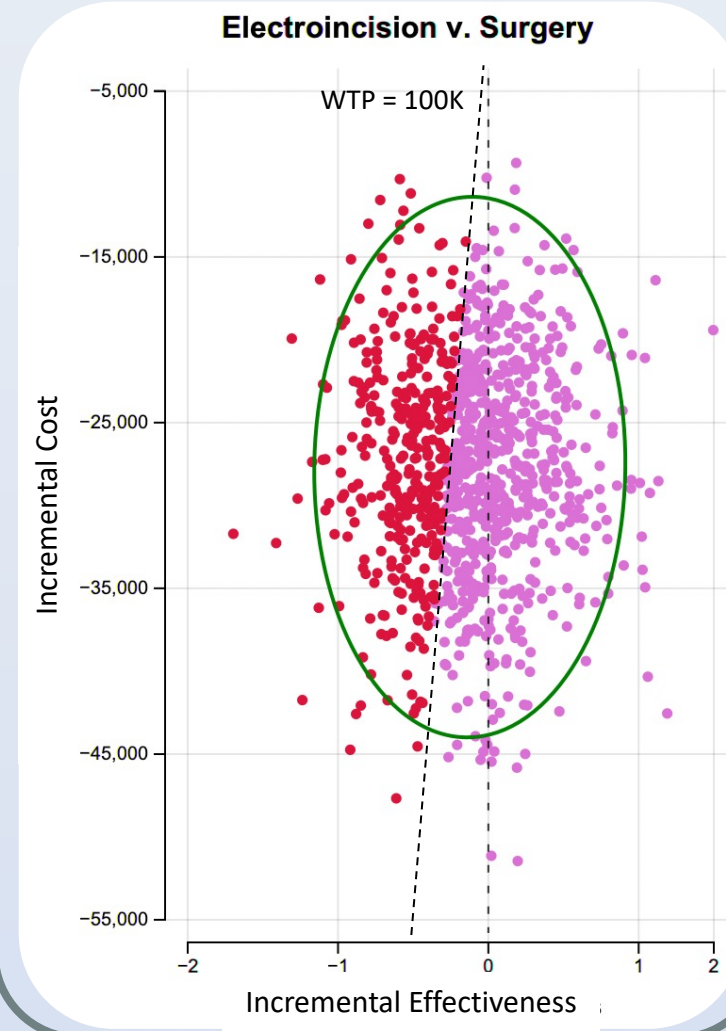
	ES <sub>t</sub>	Surgery
Median ES <sub>t</sub> s (±IQR)	4 (± 2)	0 (± 0)
Median surgeries (±IQR)	0 (± 1)	2 (± 1)
Maximum ES <sub>t</sub> s (not capped)	13	10
Maximum surgeries (cap at 5)	5	5
Median ES <sub>t</sub> perforations with emergency surgery (±IQR)	0 (± 0)	0 (± 0)
Median failed ES <sub>t</sub> s (±IQR)	0 (± 0)	0 (± 0)

**Figure 2. Tornado diagram showing main drivers (variables and sensitivity ranges) of the ICER\***



- Values represent threshold values that reduce the ICER to <\$100,000/QALY.
- †Multiplicative factor by which probability tables are multiplied.

**Figure 3. Probabilistic Sensitivity Analysis**



## CONCLUSIONS

- ES<sub>t</sub>, when feasible, is a cost-effective strategy for managing CD strictures
- Over the ten-year time horizon, the surgery strategy cost more than double the ES<sub>t</sub> strategy
- Surgery generated higher QALYs, but its increased cost resulted in an ICER of \$308,787 above the WTP
- Sensitivity analyses show that the most influential factors on cost and effectiveness are quality of life after intervention and probabilities of requiring repeated interventions
- The decision between ES<sub>t</sub> or surgery should be made considering cost-effectiveness amidst patients' risk and quality of life preferences

## REFERENCES

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