

# **A Cost-Benefit Analysis Comparing Trifocal Intraocular Lens (IOL) with Monofocal IOL from Patient Perspective in the USA**

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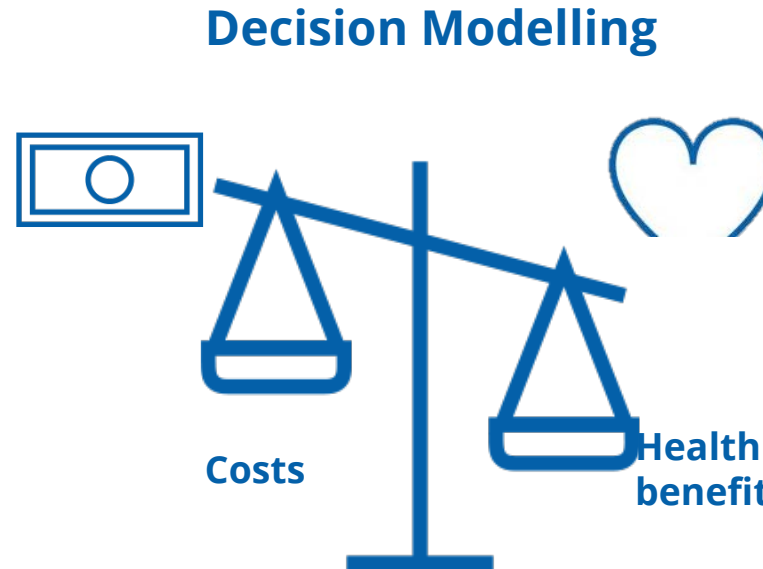
# Financial Disclosures

- John Berdahl received consulting fees from Alcon Vision LLC.
- Chandra Bala received consulting fees from Alcon Vision LLC.
- Mukesh Dhariwal is an employee of Alcon Vision LLC (the study sponsor).
- Hemant Rathi and Ritu Gupta are employee of Skyward Analytics and received consulting fees from Alcon Vision LLC.

# What is the utility of health economic evaluation?

## Limitations of Clinical Data for new Med-Tech products

- Partial Comparisons
- Lack of Generalisability
- May not Reflect Routine Clinical Care
- Short follow-up
- Actual costs (beyond the product)



## An appropriate Health Economic Evaluation can fill the gaps:

- All evidence (beyond trial)
- Quantification of uncertainty
- All relevant comparisons
- Long-term Time horizon
- Detailed cost perspective




## Study Objective

- To evaluate the improved vision related quality of life and the net monetary benefit for choosing AcrySof™ IQ PanOptix™ vs. standard monofocal IOL

## Methodology

- **Type of analysis:** Cost-benefit analysis
- **Modeling method:** Markov model
- **Time horizon:** remaining patient lifetime (distributed using CDC life-expectancy tables, max=30 years)
- **Perspective:** Patient
- **Country:** USA
- **Intervention:** PanOptix™
- **Comparator:** Monofocal (SN60AT)

# Key Health Economic Concepts relevant to this study

| Concept                          | What is it?   |
|----------------------------------|---|
| Patient's Quality of Life        |  <ul style="list-style-type: none"> <li>✓ Multi-dimensional concept; includes patients' subjective evaluations of positive/negative aspects of life/disease condition<sup>1</sup></li> <li>✓ Quantified using metric called as Quality Adjusted Life Year (QALY)*</li> </ul> |
| Patient Willingness-To-Pay (WTP) |  <ul style="list-style-type: none"> <li>✓ How much patients are willing to pay for an additional health outcome (QALY); WTP in the US is \$50k-\$150k per QALY gain<sup>2</sup></li> </ul>   |
| Net Monetary Benefit (NMB)       |  <ul style="list-style-type: none"> <li>✓ Clinical benefit difference between two treatments is expressed in monetary units after accounting for cost-difference between them</li> </ul>  |

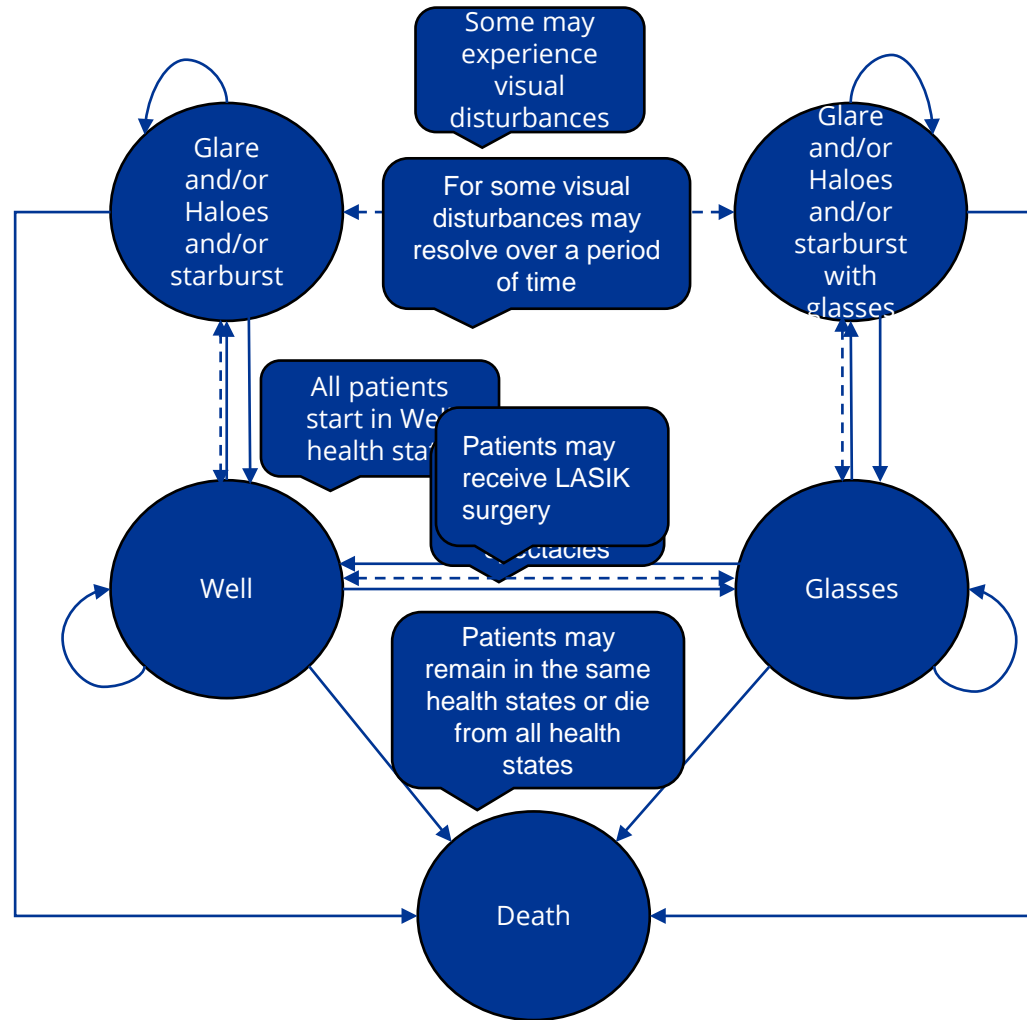
\* QALY = Length of life spent in a condition x Quality of life gained/lost due to a condition/treatment); Utility informs 'quality' weight in QALY, and it varies from 0 (death) to 1 (perfect life)

1. CDC, Health-Related Quality of Life (HRQOL). Accessed July 01, 2020; 2. ICER 2020-2023 Value Assessment Framework. Accessed May 10, 2021.

# Model outcomes

- **Model estimates the following outcomes for each intervention (PanOptix™ and monofocal):**
  - **Expected Lifetime Costs to patients**
  - **Expected Patient's Quality of Life improvement** (measured using Quality Adjusted Life Year (QALY) metric)
- **Incremental analysis:**
  - Improved quality of life (Bilateral PanOptix™ vs. Monofocal)
  - Net Return on Patient's upfront investment in PCIOL (measured by Net Monetary Benefit (NMB))

# Model Structure



# Model Inputs

| Parameter  | Value  |        | Source                                     |
|--|--|--------|--|
|  | PanOptix   | SN60AT |  |
| • Bothersome Visual Disturbances (Glare or Halos or Starbursts)*         | 12%  | 7%     | FDA IDE Study/Modi et al 2020 <sup>3</sup> |
| • Post-op Overall Spectacle Dependence**                                 | 19.5%  | 91.2%  |  |
| • IOL explantation rate  | 0.8%   | 0.9%   |  |
| • YAG capsulotomy rate   | 24.8   | 6.1%   |  |
| • Cost of bilateral procedure  | \$6,000  | \$ 517 | Assumption                                 |
| • YAG procedure, lens exchange, optometrist visit, post-op eye drops     | Assumed at 15% patient co-pay for national Medicare FFS schedule |        |  |
| • Cost of spectacles per year  | Readers: \$48<br>Distance: \$101<br>Bifocal/Progressive: \$400   |        | Walmart.com, internal data                 |
| • Patient reported impact on quality of life due to post-cataract events | Visual disturbances: -18%  |        | Brown 2009                                 |
|  | Spectacles: -7%  |        | Dobrez 2004                                |
|  | Explantation: -15%   |        | Busbee 2003                                |

## Notes:

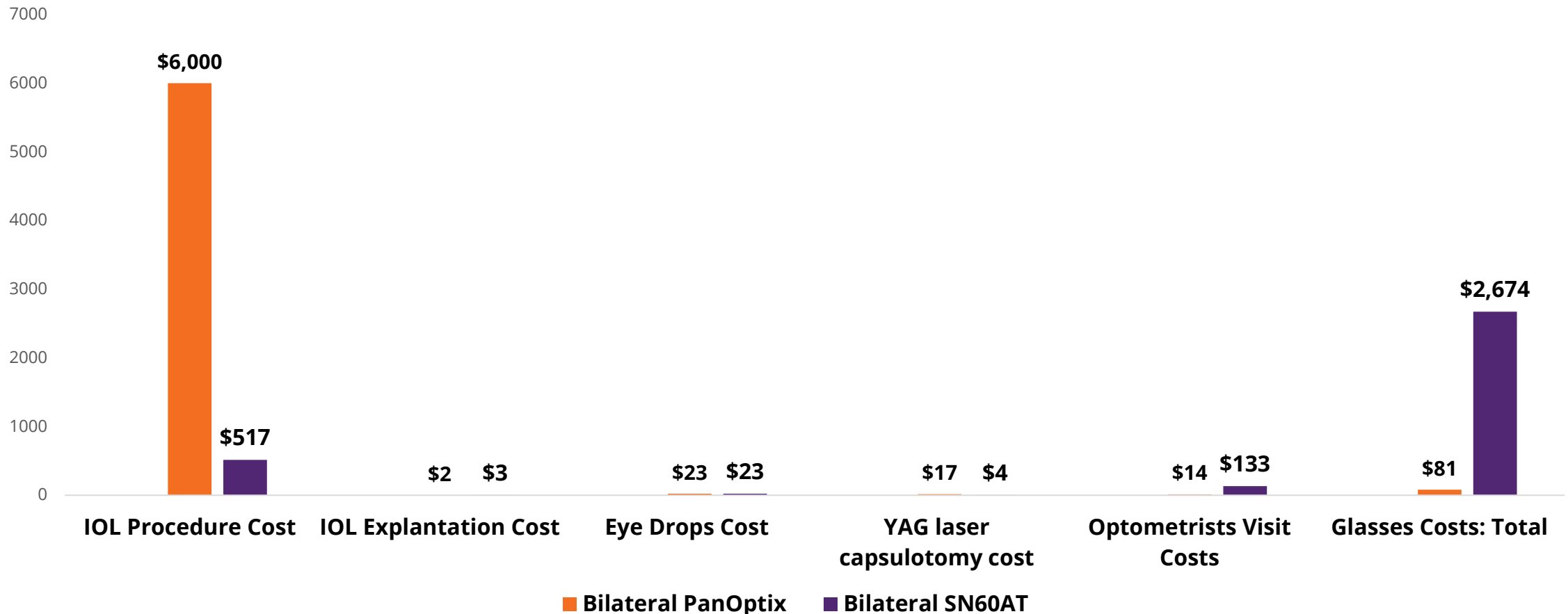
\*Resolution rate of bothersome visual disturbances was assumed to be 81% at 6 months post surgery, similar to a recent multifocal IOL cost-effectiveness study (Q Hu et al. 2019<sup>4</sup>)

\*\* Type of spectacle dependence (Near/Distance/bifocal or progressive): PanOptix (75%/20%/2.5%/2.5%); Monofocal (40%/10%/25%/25%)-clinical experience input; 50% of PanOptix patients requiring reading glasses and 75% of patients requiring distance/bifocal/progressive spectacles were assumed to undergo LASIK surgery, out of which 90% will become spectacle independent



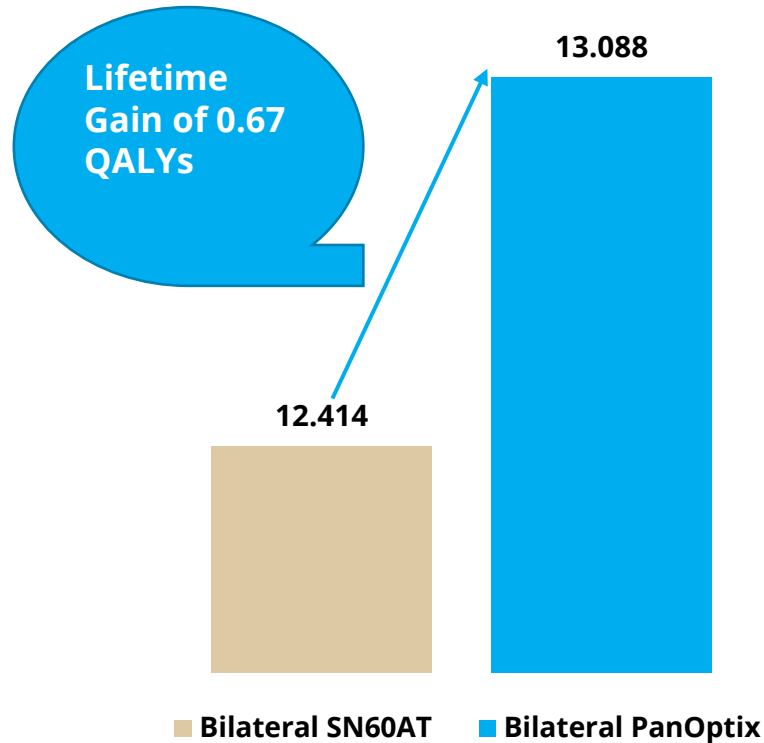
# Lifetime cost of spectacles for patients receiving monofocal IOL was estimated to be ~\$2,600 higher vs. PanOptix™

Lifetime patient costs of bilateral procedure (PanOptix™ vs. SN60AT)



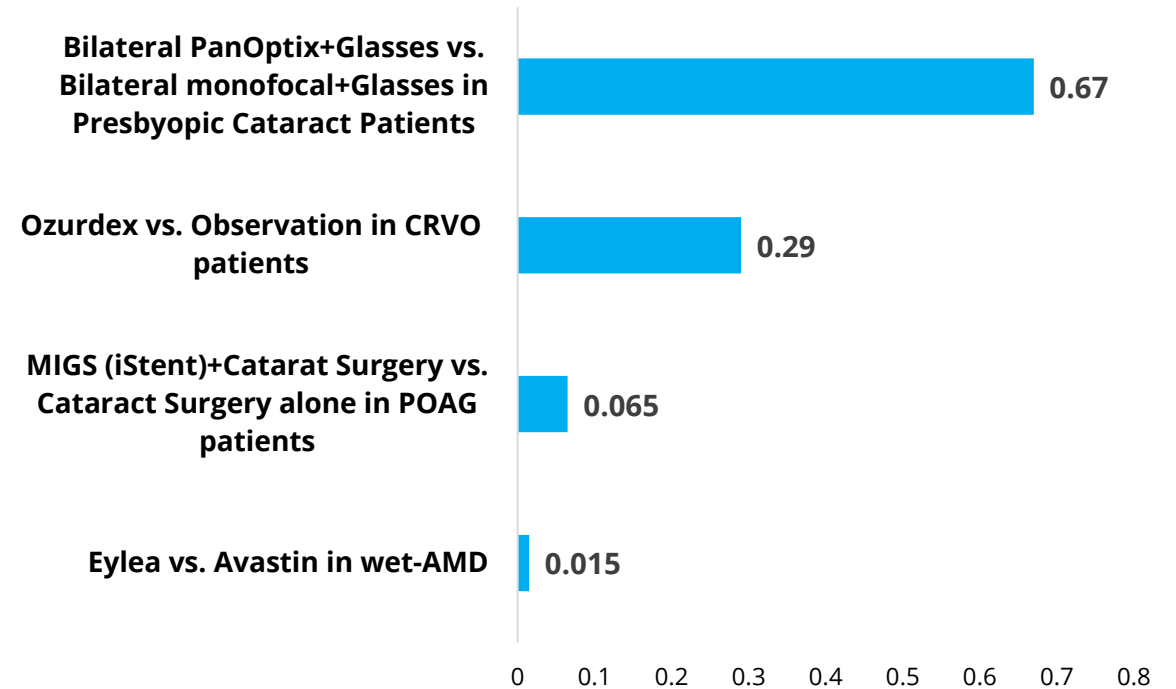
# Patients with bilateral PanOptix™ can experience improved vision related quality of life over lifetime

Lifetime vision related quality of life gain (Measured in QALYs)



## How does PanOptix™ compare with other Ophthalmology treatments?

QALY Gain over next Best Alternative (Base case)

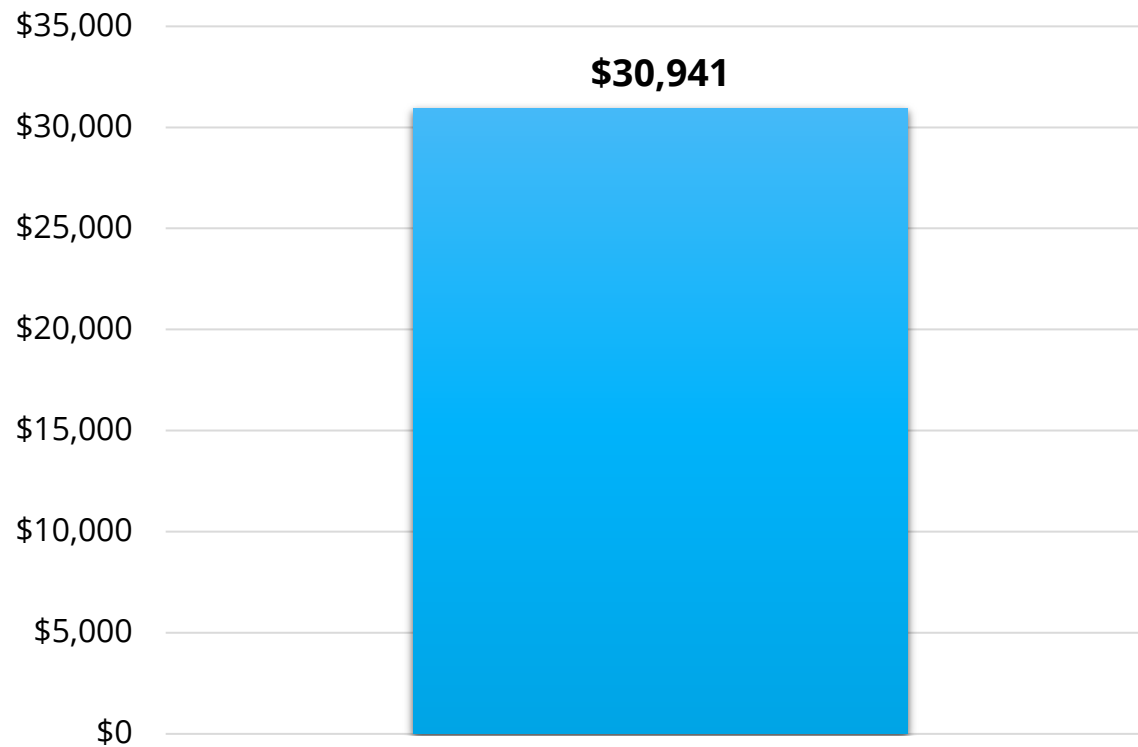


PanOptix™ quality of benefits are on the top of Cataract surgery which in a previously conducted analysis (Brown et al 2013<sup>13</sup>) showed an incremental QALYs of 2.82 over lifetime vs. no surgery

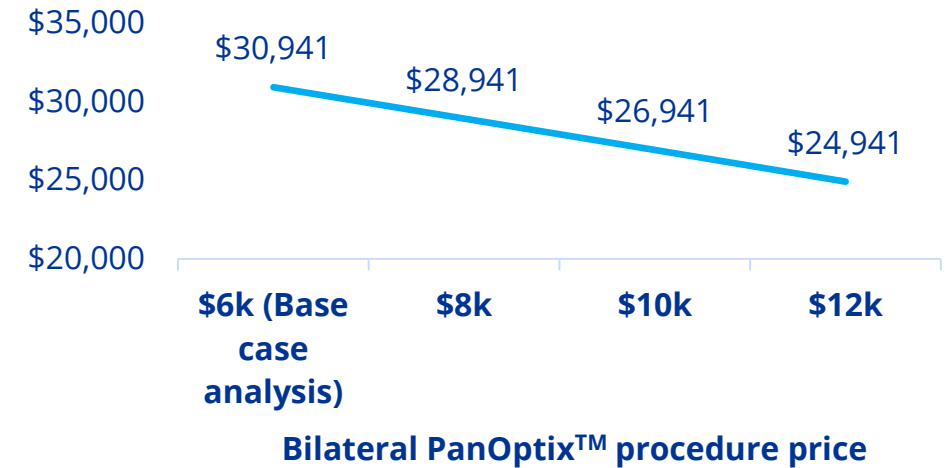
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# Improved Quality of life benefits with bilateral PanOptix™ implantation ~5 times over average bilateral PCIOL procedure price\*

Net Monetary Benefit (NMB) of bilateral PanOptix™ implantation\*



Net Monetary Benefit (Scenario Analysis)



*Scenario analysis shows even if the bilateral PanOptix™ procedure price is doubled to \$12k, patient ROI remains at least 2 times over their upfront investment*

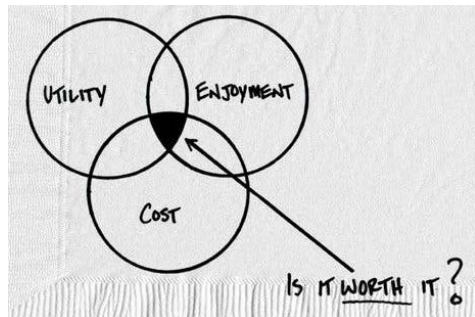
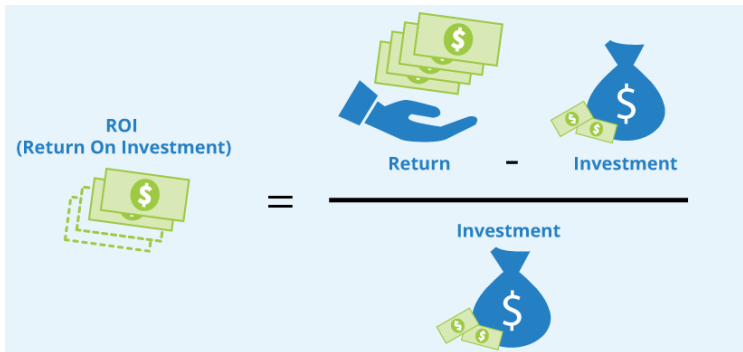
\* At a WTP threshold of \$50,000 per QALY gain, lifetime NMB per patient with bilateral AcrySof™ IQ PanOptix™ IOL implantation was \$30,941 over upfront investment of \$6k

# Conclusions



## This evaluation indicates bilateral implantation of PanOptix™ provides:

- Improved overall vision-related quality of life for patients (a gain of 0.67 QALYs over lifetime)
- This improved quality of life benefits translates into a net monetary benefit (aka ROI) for patients (2 to 5 times over bilateral PanOptix™ procedure price range: \$6k-\$12k)
- On average, PanOptix™ patients can expect lifetime spectacles cost savings of ~\$2600 vs. those who opt for standard monofocal procedure



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