

Objective

- Health technology assessments and economic evaluations can be used to assess the value of ophthalmic interventions and determine optimal resource allocation.
- The purpose of this literature review was to identify hospital costs associated with the four major types of ophthalmic surgeries (cataract, glaucoma, vitreoretinal, and laser refractive) that could be used to inform future economic analyses.

Methods

A targeted search was performed and screened using the following strategy and criteria:

Databases:	Ovid MEDLINE and EMBASE
Date range:	November 12 th , 2014 – November 12 th , 2019
Inclusion criteria:	<ul style="list-style-type: none">• Reporting on any diagnostic test or procedure related to cataract, glaucoma, vitreoretinal, or laser refractive surgeries• English language
Outcomes of interest:	<ul style="list-style-type: none">• Hospital costs for diagnostics, procedures, monitoring, staff, facility, medications, anesthesia, consumables, complications, and administration/overhead

- Several cost categories were identified and were classified as follows: pre-surgery, surgery-specific, post-surgery, or overall procedure-related (overall) costs.
 - Overall costs represented the sum of costs accrued to diagnose, treat, and monitor a patient.
- Costs were converted and inflated to 2020 USD.

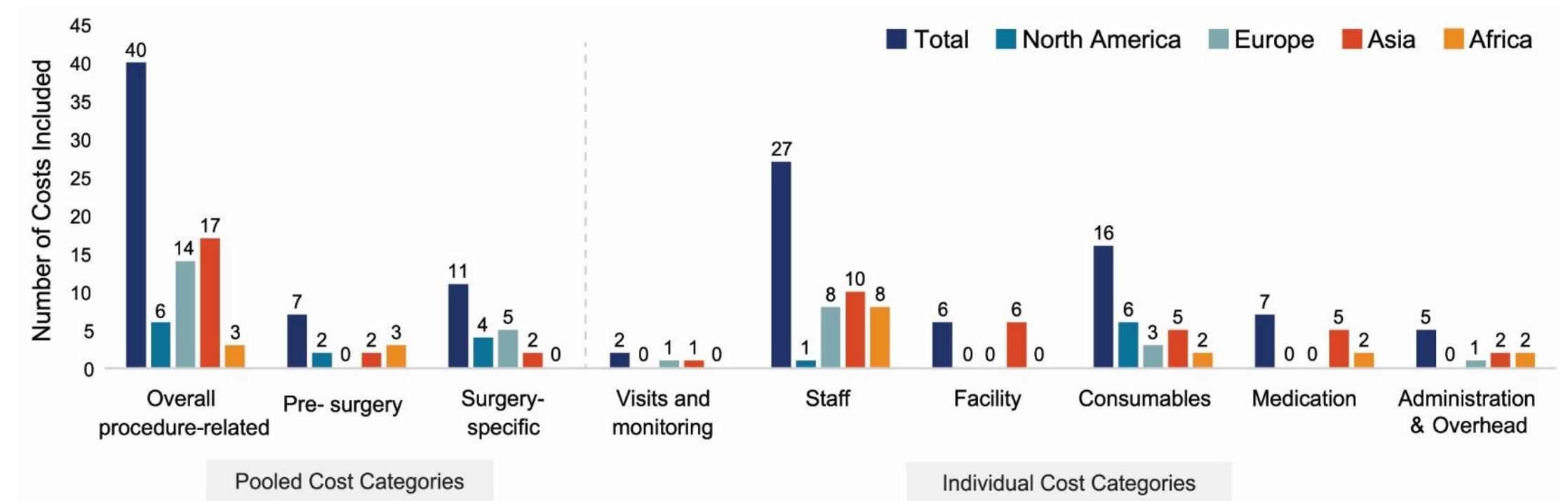
Results

- Twenty-seven articles reporting 258 costs were included: 121 for cataract, 85 for glaucoma, 5 for vitreoretinal, and 1 for laser refractive.
- Costs from North America (Canada and USA), Europe (UK, Italy, Greece, Poland, Finland, and Norway), Asia (Indonesia, Malaysia, India, China, Nepal, and Sri Lanka), and Africa (Malawi, Zambia, and Ghana) were captured.

Cataract Surgery

- Costs were identified from 13 countries across North America, Europe, Asia, and Africa (**Figure 1**).¹⁻²⁰
- Overall costs were reported most frequently, followed by staff and consumables costs. Post-surgery-specific, diagnostics, anesthesia, and complication costs were not identified (**Figure 1**).

Figure 1. Cataract surgery costs by cost category and region



- The overall cost of cataract surgery was generally higher in North America (**\$627-\$958**)¹ and Europe (**\$807-\$3,425**)^{15,17} than in most of Asia* (**\$19-\$2,798**)^{6,20} and Africa (**\$107-\$330**)^{3,5}, but costs varied greatly between Asian countries.

Glaucoma Surgery

- Glaucoma surgery costs from Canada, USA, Ghana, and Greece were identified.^{1,17,18,21-24}
- The most reported cost categories were overall procedure-related costs, consumables, pre-surgery costs, and staff, but some medication and surgery-specific costs were also captured.
- In Canada, costs ranged from **\$128** for selective laser trabeculoplasty to **\$1,922** for trabeculectomy.¹ Few overall costs were identified from other regions.

*Overall costs in Malaysia and China ranged from \$1,266-\$2,798,^{7,20} but the range for all other Asian countries was \$19-\$288.^{6,10}

Results

Vitreoretinal Surgery

- Costs were identified from England, Indonesia, Greece, Norway, and Italy.^{11,17,25-27}
- Surgery-specific costs were reported most frequently, followed by staff, facility, and overall procedure-related costs.
- Most overall costs were reported for vitrectomy, which ranged from **\$234** in Indonesia²⁷ to **\$2,585** in England.²⁶

Laser Refractive Surgery

- One study reported that the total cost of equipment and technology required to establish a refractive surgery unit in Nepal was **\$684,060**.²⁸

Conclusions

- This review captured a variety of hospital costs for cataract, glaucoma, vitreoretinal, and laser refractive surgeries, which may be useful for economic analyses.
- Several gaps in the literature were highlighted:
 - No diagnostics-, anesthesia-, or complications-related hospital costs were identified for any procedure.
 - Only one laser refractive cost was identified.
- Robust data collection on hospital costs should be emphasized to determine costs for additional procedures and countries.
- The authors intend to update this literature review in 2022.

References

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