Cataract extraction is the most frequent operative procedure worldwide. The clouded natural lens is replaced by an artificial intraocular lens (IOL) implant, in most cases a hydrophobic or hydrophilic acrylic IOL. The most common long-term complication after cataract surgery is the development of a posterior capsule opacifications (PCO). Which is conditioned by Nd:YAG laser capsulotomy. The aim of this study was to assess real world data on the impact of different IOL material types on the incidence of post-operative PCO treatment as well as associated follow-up costs from a Statutory Health Insurance (SHI) perspective in Germany.

### Methodological Approach

**Approach**
- Retrospective analysis
- 4-year follow-up
- Assessing the impact of two different IOL material types (hydrophobic and hydrophilic acrylic)

**Measurement Overview**
- Incidence of PCO measured by incidence of Nd:YAG laser capsulotomy after cataract extraction in relation to hydrophobic and hydrophilic acrylic IOL implantation in current German practice
- Associated costs of Nd:YAG laser capsulotomy due to PCO after cataract extraction from an SHI perspective

**Data**
- Anonymized claims data from the Institut für angewandte Gesundheitsforschung (InGef)
- Covers approximately 6.7 million insured persons from different German SHIs
- Representative for the German population with respect to age and sex
- Includes demographic information, diagnoses, utilization of ambulatory services, hospitalizations, reimbursed drugs, remedies and aids on a patient individual level

**Methods**
- Including patients who underwent cataract extraction and implantation of either an acrylic hydrophobic or hydrophilic IOL in 2010
- Assessing clinical outcomes and comparing direct costs in a 4-year follow-up period after cataract surgery

### Sample

**Study Population and Subgroup Comparison**
- Total 3,025 patients included
- 2,078 patients obtained a hydrophobic IOL (study population A: Hydrophobic IOL) and 947 patients got a hydrophilic implant (study population B: Hydrophilic IOL)

### Results

**Clinical Impact**

Since PCO is the most frequent complication after IOL implantation, its incidence rate is a valid indicator of treatment quality

- Incidence of PCO was identified in patients who underwent Nd:YAG laser capsulotomy
- PCO treatment in 4-year follow-up period significantly (p<0.0001) lower for patients with a hydrophilic IOL implant (study population A)

**Economic Impact**

The economic analysis compared direct costs over a period of 48 months after cataract surgery from an SHI payer perspective

<table>
<thead>
<tr>
<th>Timeframe (quarter)</th>
<th>Study population A</th>
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| Costs PCO treatment | 5,095.29 € | 5,235.14 € |

**Discussion and Implications**

Considering the high prevalence of cataract, the economic burden associated with treatment of long-term complications after cataract extraction is of great relevance for the German SHI. Implanting hydrophobic lenses seems to be superior regarding both medical and economic results.

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