Routine Monitoring of Cataract Outcome
Outcome of cataract surgery is:

- the change in functional disability as a result of cataract operation
- usually expressed as visual acuity
Outcome depends on:

- skills and knowledge of eye surgeon
- surgical technique used
- surgical facilities and environment
- post-operative care
- optical correction provided
- patient-related risk factors, like ocular co-morbidity (glaucoma, age-related macula degeneration, etc.)
Good outcome will motivate other patients to come forward for surgery

Poor outcome will deter other cases

In most surveys fear of losing sight was major reason not to come for surgery

When causes of poor outcome are known, it will be possible to address these causes and thereby improve results of cataract surgery

Improved outcome will lead to more patients coming forward for surgery
<table>
<thead>
<tr>
<th>Barrier</th>
<th>Madurai ('86)</th>
<th>Karnataka ('95)</th>
<th>South India ('98)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear of losing sight</td>
<td>17</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Fear of surgery</td>
<td>17</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Cannot afford</td>
<td>17</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>No company</td>
<td>25</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Not yet mature</td>
<td>2</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>No time</td>
<td>14</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>No need</td>
<td>24</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>No information</td>
<td>24</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Other barriers</td>
<td>18</td>
<td>37</td>
<td></td>
</tr>
</tbody>
</table>
Best corrected vision after 1 year in clinical trials:

<table>
<thead>
<tr>
<th>Visual Acuity</th>
<th>LAHAN</th>
<th>ARAVIND</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICCE + specs</td>
<td>ICCE + AC-IOL</td>
</tr>
<tr>
<td>6/6 - 6/18</td>
<td>93.2</td>
<td>89.9</td>
</tr>
<tr>
<td>&lt; 6/18 - 6/60</td>
<td>4.6</td>
<td>7.5</td>
</tr>
<tr>
<td>&lt; 6/60</td>
<td>2.2</td>
<td>2.6</td>
</tr>
<tr>
<td>n=</td>
<td>914</td>
<td>906</td>
</tr>
<tr>
<td>follow-up</td>
<td>91%</td>
<td></td>
</tr>
</tbody>
</table>
## Average visual outcome in population based studies:

<table>
<thead>
<tr>
<th>Place</th>
<th>Year</th>
<th>No. of eyes</th>
<th>% eyes with VA&lt;6/60</th>
<th>With available correction</th>
<th>With ‘best’ correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nepal</td>
<td>1998</td>
<td>220</td>
<td>30.5</td>
<td>10.9</td>
<td></td>
</tr>
<tr>
<td>Shunyi, China</td>
<td>1998</td>
<td>116</td>
<td>44.8</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Doumen, China</td>
<td>1999</td>
<td>152</td>
<td>52.6</td>
<td>21.0</td>
<td></td>
</tr>
<tr>
<td>Karnataka, India</td>
<td>1995</td>
<td>2401</td>
<td>26.4</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Ahmedabad, India</td>
<td>1997</td>
<td>776</td>
<td>24.0</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Hyderabad, India</td>
<td>1999</td>
<td>131</td>
<td>21.4</td>
<td>16.8</td>
<td></td>
</tr>
<tr>
<td>Punjab, India</td>
<td>2000</td>
<td>428</td>
<td>23.1</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>2000</td>
<td>258</td>
<td>34.5</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
Outcome in population based surveys
Please note variation in:

- Post-operative period (weeks to decades)
- Quality of surgical facilities (basic to excellent)
- Experience and skills of surgeons (couchers)
- Supply and replacement of spectacles
- Initial good outcome may go down due to other eye disorders, reducing vision with age
- Outcome data from surveys may not do justice to recent advancements in IOL surgery, but may very well reflect what the public sees and what determines their expectations and trust to regain sight after surgery
### WHO guidelines on Visual Outcome of Cataract Surgery

<table>
<thead>
<tr>
<th>Grade</th>
<th>Post-operative acuity</th>
<th>Available correction</th>
<th>Best correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>≥ 6/18</td>
<td>&gt;80%</td>
<td>&gt;90%</td>
</tr>
<tr>
<td>Borderline</td>
<td>&lt; 6/18 – 6/60</td>
<td>&lt;15%</td>
<td>&lt;5%</td>
</tr>
<tr>
<td>Poor</td>
<td>&lt; 6/60</td>
<td>&lt;5%</td>
<td>&lt;5%</td>
</tr>
</tbody>
</table>
Additional guidelines:

- Operations with IOL 90% or more (depending on local facilities)
- Surgical complications less than 10%
  - Capsula rupture less than 5%
  - Vitreous loss less than 5%
- Trends over time improving or static within recommended limits.
Important aspects:

- Assess outcome at discharge and 4+ weeks
- Motivate all patients to come for review (incentives like spectacles, post-op drugs, no queue, may help)
- Use for age–related cataract only
- Assess cause of poor outcome
- Use manual or computer system for standardized analysis
- Is outcome representative for all operated patients if not all operated persons return for follow-up?
Purpose of monitoring cataract outcome:

- Encourage eye surgeons to monitor their own results over time
- Identify causes of poor outcome
  - Selection
  - Surgery
  - Spectacles
  - Sequelae
- Address causes to improve future outcome
Monitoring of cataract outcome should **NOT** be used to compare surgeons and institutions

- Differences in indications for surgery
- Differences in target population
- Differences in facilities (microscope)
- Differences in surgical skills
- Competition may lead to false reporting
- Refusal to operate at risk patients
- Less operations done by residents
## Cataract Surgery Record

### A. Patient Information
- **Name:**
- **Address (optional):**
- **Sex:** Male (1) Female (2)
- **Age:** 
- **Serial No.:**
- **Hosp. Reg. No.:**

### B. Pre-Operative Examination
- **Visual Acuity:**
  - Presenting VA:
  - ‘Best’ or pinhole VA:
- **Lens Examination:**
  - Clear lens (1)
  - Opacity, not ready for operation (2)
  - Operable cataract (3)
  - Inoperable cataract (4)
  - Aphakia (5)
  - Pseudophakia (6)
  - Cannot examine (7)

- **Other ocular pathology in the eye to be operated, likely to affect outcome:**
  - Corneal scar (1)
  - Old iritis (2)
  - Retinal disease (DM, AMD, etc) (3)
  - Glaucoma (4)
  - Other (5)

### C. Surgery
- **Date of operation:**
- **Place of operation:**
  - Base hospital (1)
  - Other hospital (2)
- **Type of surgery:**
  - ICCE (1)
  - ECCE (2)
  - Manual Phaco (3)
- **Operative complications in operated eye:**
  - None (1)
  - Capsule rupture without irir loss (2)
  - Vitreous loss (3)
  - Zonular dehiscence (4)
- **Optional:**
  - Section: (1)
  - IOL power: 
  - Suture: no suture (1)
  - Linear (1)
  - Capsulotomy: (1)
  - No. of sutures: (3)

- **Follow-up visits:**
  - Pre-existing VA:
  - ‘Best’ VA:
  - Select. Surg. Spac. Sequel:
  - Optional: post-op refraction:
### Cataract Surgery Record

**A. PATIENT**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Hospital Registration No:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address (optional):</td>
<td>Serial No:</td>
</tr>
<tr>
<td>Sex: Male ☐ (1) Female ☐ (2)</td>
<td>Age: ☐ ☐ years</td>
</tr>
</tbody>
</table>

**Patient name:** write name

**Address:** write full address (optional)

**Hosp. Reg.:** write hospital registration number

**Serial No.:** do NOT write

**Sex:** mark “Male” or “Female”

**Age:** write age (20-99)
**B. PRE-OPERATIVE EXAMINATION**

### Presenting VA:
- with available correction (use key)

### ‘Best’ VA:
- with best correction / pinhole (key)

### Lens examination:
- mark one option

### Other pathology:
- mark one option

**Category of Visual Acuity (Snellen 6 m)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Right eye</th>
<th>Left eye</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6/6</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>6/9</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>6/12</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>6/18</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>6/24</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>6/36</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>6/60</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3/60</td>
<td></td>
</tr>
</tbody>
</table>

**CLINICAL DATA:**

- **Eye to be operated:**
  - Right: □ (1)
  - Left: □ (2)

- **Refraction:**
  - Targeted post-op. spherical equiv.:
    - sp: □

- **Biometry:**
  - K1: □
  - K2: □
  - Axial length: □
Manual phaco: mini ‘nuc’
Hospital/camp: write name
Surgeon: write name
Complications: mark only one
<table>
<thead>
<tr>
<th>Follow-up visits</th>
<th>Presenting VA</th>
<th>‘Best’ VA</th>
<th>Select.</th>
<th>Surg.</th>
<th>Specs</th>
<th>Sequel</th>
</tr>
</thead>
<tbody>
<tr>
<td>At discharge, ___ days post-op.</td>
<td></td>
<td></td>
<td>○ (1)</td>
<td>○ (2)</td>
<td>○ (3)</td>
<td></td>
</tr>
<tr>
<td>1-3 wk po:</td>
<td></td>
<td></td>
<td>○ (1)</td>
<td>○ (2)</td>
<td>○ (3)</td>
<td>○ (4)</td>
</tr>
<tr>
<td>4-11 wk po:</td>
<td></td>
<td></td>
<td>○ (1)</td>
<td>○ (2)</td>
<td>○ (3)</td>
<td>○ (4)</td>
</tr>
<tr>
<td>12+ wk po:</td>
<td></td>
<td></td>
<td>○ (1)</td>
<td>○ (2)</td>
<td>○ (3)</td>
<td>○ (4)</td>
</tr>
</tbody>
</table>

Optional: post-op refraction:

If presenting VA <6/60: mark one main cause

1<sup>st</sup> visit: 1-3 weeks post-op.

2<sup>nd</sup> visit: 4-11 weeks post-op.

3<sup>rd</sup> visit: 12 or more weeks post-op.
To be completed at discharge

To be completed at follow-up visits