# Guidelines for Paediatric Cataract Surgery

Nepal Ophthalmic Society and Sagarmatha Choudhary Eye Hospital jointly conducted a National Paediatric Cataract Surgery Workshop at Lahan on 3rd/4th March 2015.
17 ophthalmologists from 10 eye hospitals participated.

The approach to paediatric cataract surgery is slightly different among various eye hospitals depending on the location, experience and post-operative follow-up rates.
However, the following was worked out during the workshop to serve as a guideline to all eye hospitals in Nepal.

A **treatment plan** has to include specific regional circumstances and needs such as:

- Poor follow-up and compliance with spectacle wear and occlusion therapy
- Poor general health and malnutrition of children to be operated
- Lower cataract surgical rate in girls than in boys
- Good compliance with local anaesthesia in older children

## Pre-operative assessment:

- Visual Acuity (PL, LEA, Snellen, CSM etc.) according to age, always try to quantify
- IOP (hand-held airpuff, rebound, applanation, impression)
- Retinoscopy / Brückner Test (paediatrician refer to ophthalmologist if lack of fundal glow)
- Slitlamp to find out structural anomalies
- Strabismus, Nystagmus (prognosis?), refer to paediatrician for any other associated symptoms
- Dilated fundus examination, if not possible B-Scan ultrasound, opinion from VR surgeon
- Biometry: hand-held keratometer, A-Scan axial length, IOL calculation with second or third generation IOL formula (SRK/T, Hoffer Q, Haigis), possibly use of immersion technique under GA, "IOL Master", if available, in co-operative children
- Evidence of severe general health problems (malnutrition, TORCH). Consult paediatrician if in doubt and postpone surgery

- Always consult paediatrician before surgery if child <1 year or if any syndromic children
- Family history. Other siblings with cataract?
- Consider no surgery in unilateral cataract with very poor prognosis (Persistant Fetal Vasculature, additional corneal or retinal pathology, „soft eyes“, very young child)

**Informed consent**:
Written consent is required from the parents / guardians after having been informed about the risks and benefits of the surgery.

- Explain Prognosis
- Need for permanent (bifocal) spectacles
- Need for frequent eye drops during the first days
- Signs of complications, pain, red eye, recurring opacity
- Explain that continuous post-operative care is essential for long-term success
- Schedule for follow-up visits
- Consider standardized educational Video for parents and guardians
- Record permanent contact details of parents / guardian (mail address, mobile phone, e-mail) in database for follow-up purpose
- Provide parents / guardian with hospital contact details (phone of paediatric department, email)

## Surgery:

- Paediatric cataract surgery is different from cataract surgery on adults and more difficult. Therefore it requires a very experienced surgeon, trained in paediatric surgery.
- If child co-operates well, consider surgery in local anaesthesia.
- GA to be done by anaesthesiologist who decides on type of GA.
- Calculate desired refraction
  - in bilateral cataract: under-correction in children <1 year 20%, <3 years 10%, <6 years 5%, others near emmetropia
  - unilateral cataract: emmetropia
- Plan for IOL implantation in all children older than 6 months; use long-term reliable IOL model and material, affordable for the parents

  **Surgical steps:**
  - Sclero-corneal tunnel for control of astigmatism
  - Anterior capsule
    - stain with Trypan Blue
    - Continuous Curvilinear Capsulorhexis (CCC) with Utrata forceps, 23G pliers/forceps or capsule opening with vitreous cutter
  - Posterior capsule opening in all children
    - CCC with Utrata forceps or 23G pliers/forceps or opening with vitreous cutter
  - Anterior vitrectomy in all children
    - use only sharp cutter to avoid retinal traction (late retinal detachment)
  - IOL if possible „in the bag“ or „optic capture/buttonhole“ i.e. haptic in sulcus and optic behind posterior capsule
  - Intracameral cefuroxime (optional)

- Make sure that eye is „watertight“ at the end of surgery, as sclera and cornea are very soft in children and „self-sealing“ incisions tend to leak.
  Prefer absorbable suture material, as permanent sutures will not be removed and may cause infection and vascularisation.
- In bilateral dense cataract and uncertainty of follow-up plan for bilateral surgery (two separate surgeries) during one hospital stay whenever possible (2-3 days after surgery of the first eye).

## Postoperative care:

**a. Immediate Post-Op**

- Daily examination (torch, direct ophthalmoscope, Slit Lamp, funduscopy)
- Keep pupil dilated
- Frequent steroid/antibiotic eye drops (1/2 hourly)

**b. Before discharge**

If follow-up is not guaranteed:

- Provide good quality spectacles to take home and if necessary low vision aids for school kids
- Provide spherical equivalent with overcorrection in children <3 years,
  and bifocal glasses to children >3-4 years
- Provide enough eye drops to take home to complete treatment over 6 weeks.
- “Strong“ words regarding follow-up to parents / guardian**:**
  minimum recommended follow-up periods: 6 weeks, 3 months, 6 months, then yearly
- Encourage for surgery of other eye and siblings if needed
- Electronic record keeping (computer data base) for follow-up reminders, quality control, and scientific purpose
- Data base should record all data from the eye examinations, surgery and the contact data of parents or guardians

## Recommendations to increase Follow-Up:

- Use a specially trained Counsellor
- If child is from far away, consider follow-up close to its home by other eye hospital, Outreach centre, private ophthalmologist etc.
- Incentives (reimbursement of travel costs, free treatment and spectacles)
- No waiting at the hospital at follow-up
- Use of SMS, Email, phone and mail to send follow-up reminders
- Create interactive Smartphone-App with questionnaire to get information about how your patients are doing
- Educate and inform health care workers and teachers about paediatric cataract and the need for follow-up.
- Information videos about childhood cataract and make them widely available (Homepage, YouTube, screens at the hospital, in the waiting areas).