

## STANDARD TREATMENT WORKFLOW (STW)

# Glaucoma

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The infographic is titled "Standard Treatment Workflow (STW) for GLAUCOMA (ICD-10-H40.9)". It is published by the Department of Health Research, Ministry of Health and Family Welfare, Government of India, in July 2020. The infographic is organized into several sections:

- KEY POINTS:** Four key points are listed in boxes:
  - Glaucoma can be asymptomatic
  - Can lead to irreversible vision loss if not treated in time
  - Everybody ≥ 40 years age to be screened
  - Everybody with a family history of Glaucoma to be screened
- SCREENING CRITERIA:** This section is divided into two columns:
  - HISTORY TAKING:**
    - Unilateral intermittent headache, blurring of vision, eye pain, coloured haloes
    - Previously diagnosed /glaucoma suspect
    - Treatment history - medical/surgical/laser and compliance with medication/follow up
  - SIGNS:**
    - Abnormalities of optic nerve head (Cup to disc ratio > 0.7; asymmetry > 0.2)
    - IOP\* >20mmHg
    - Evidence of ocular co-morbidities that could lead to secondary glaucoma
    - Torch light examination : on shadow test - shallow anterior chamber and Iris changes (Iris atrophy and sphincter pupil atrophy)
    - Visual field defects
    - Evidence of previous surgery or laser
    - Evidence of intermittent angle closure glaucoma
    - \*if normal but associated with other features think of normal-tension glaucoma
- HISTORY:**
  - Highest baseline IOP before any treatment
  - Systemic Hypertension, Cardiovascular diseases, Transient ischaemic attacks, DM
- EXAMINATION:**
  - Vision
  - Refraction
  - Ophthalmic examination including pupillary reflexes



**Standard Treatment Workflow (STW)**  
**GLAUCOMA**  
**ICD-10-H40.9**

**KEY POINTS**

Glaucoma can be asymptomatic

Can lead to irreversible vision loss if not treated in time

Everybody ≥ 40 years age to be screened

Everybody with a family history of Glaucoma to be screened

**SCREENING CRITERIA**

**HISTORY TAKING**

- Unilateral intermittent headache, blurring of vision, eye pain, coloured haloes
- Previously diagnosed glaucoma suspect
- Treatment history - medical/surgical/laser and compliance with medication/follow up

**SIGNS**


- Abnormalities of optic nerve head (Cup to disc ratio > 0.7; asymmetry > 0.2)
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**HISTORY**

- Highest baseline IOP before any treatment
- Systemic Hypertension, Cardiovascular diseases, Transient ischemic attacks, DM
- Systemic and ocular medications used
- Any OTC medication especially steroid for allergy
- Any ocular trauma

**EXAMINATION**

- Vision
- Refraction
- Ophthalmic examination including pupillary reflexes
- IOP
- Fundus examination
- Anterior chamber depth with direct ophthalmoscope/slit lamp biomicroscope with 90D



**DEFINITIVE DIAGNOSIS**

**ESSENTIAL**

Slit lamp bio microscopy, AC Depth, gonioscopy, Pupillary reflex, Estimation of IOP (3 measurements), Visual field assessment

**DESIRABLE**

Diurnal variation, Central Corneal thickness

**OPTIONAL**

UBM, OCT, HRT, GCC for RNFL thickness

**EXAMINATION IN OPD**

Cupping >0.7, Asymmetry >0.2, Notch

Shallow AC

**TONOMETRY (repeat twice) + Gonioscopy**

IOP 14-18 mmHg

IOP >20 mmHg

Open angles  
POAG Suspect

Narrow angles  
PACS/PAC

Narrow angles + PAS  
PACG

Open Angles  
POAG

BE Yag PI

Perimetry + baseline IOP (preferably morning and evening) to determine 'Target' IOP

**SUGGESTED MANAGEMENT PROTOCOL BASED ON IOP**

<25 mmHg	25-30 mmHg	> 30mmHg
First line drug-Prostaglandins/β-Blocker (look for 15% IOP)	First line drug-Prostaglandins/β Blocker	Prostaglandins + β-Blocker+ Tab Diamox 250mg TDS only x3 days
Review 2 weeks/ switch to another drug if nonresponder	Review 10 days+another drug if required	Review 10 days add brimonidine if required
Review after every 4 mths if 'target' IOP achieved	Review after every 3 mths if 'target' IOP achieved	Review after every 3 mths if 'target' IOP achieved

**Fitness for Surgery**

- General health stable
- BP ≤ 150/90mm Hg
- Blood sugar (mg/dl) FBS < 140, PPBS < 180 / RBS < 200

**MANAGEMENT**

**PHC**

- Evaluate for open angle (deep AC), narrow angle (shallow AC) with torchlight
- Detailed history and examinations
- Refraction for BCVA
- Preliminary diagnosis
- Referral to Ophthalmologist as soon as possible if IOP > 21, shallow anterior chamber or cup-disc ratio > 0.7
- Counselling regarding spacing and phasing of glaucoma medication and reporting of side effects if any
- Counsel that surgery is not a cure but a means to lower IOP to stabilize the disease. The follow up is mandatory and will remain, regardless
- Counsel that stabilization of disease is available with regular treatment and follow up

**DISTRICT HOSPITAL**

- Refraction for BCVA
- Detailed work up including, Slit lamp examination & AC Depth, IOP, Optic nerve head examn
- Gonioscopy, fields and Diagnose, classify, advice as per Flow chart, point to point guided referral
- Surgical intervention such as Yag PI and Trabeculectomy
- Counselling regarding spacing and phasing of glaucoma medication and reporting of side effects if any.
- Counsel that surgery is not a cure but a means to lower IOP to stabilize the disease. The follow up is mandatory and will remain, regardless
- Counsel that stabilization of disease is available with regular treatment and follow up

**Intervention:** Consult flowchart, pre-op topical broad spectrum antibiotics, QID for 1-3 days

**Aim of Glaucoma Management**

- Achieve target IOP with minimal fluctuation (Refer NPCB Guidelines)
- Iridotomy in all primary angle closure patients
- Trabeculectomy or referral to higher center if target IOP not achievable

**Special instruction for glaucoma medication:**

- Punctal Occlusion'
- Not to squeeze eyes after instillation
- 1 drop in conjunctival sac

**TERTIARY CARE**

- Detailed work up as above
- Optional investigations such UBM, OCT, HRT, GCC for RNFL thickness when necessary
- Surgical intervention, YAG PI, Trabeculectomy, any other advanced procedure such as tube shunts.
- Ensure Postoperative Follow up and compliance including collaboration with district hospital ophthalmologists
- Counselling regarding spacing and phasing of glaucoma medication and reporting of side effects if any.
- Counsel that surgery is not a cure but a means to lower IOP to stabilize the disease. The follow up is mandatory and will remain, regardless
- Counsel that stabilization of disease is available with regular treatment and follow up

RED FLAG SIGNS FOR URGENT REFERRAL

- Acute angle closure attack\*
- IOP\* > 30
- Loss of pupillary reflex with visual impairment.
- Single eyed patient with glaucoma

\* initiate initial therapy for acute attack of angle closure glaucoma oral diamox, iv mannitol and pilocarpine 2 percent tds if confirmed narrow angle before yag PI

**INDICATIONS FOR SURGERY**

- IOP above target despite maximal tolerated medical therapy
- Inability to review regularly
- Unable to afford medications
- Progression of the disease on maximal tolerated medical therapy
- Non compliance

**QUALITY ASSESSMENT**

- Patient identifier, Age/ Gender
- Compliance with Follow up schedule and medications

**ABBREVIATIONS**

**AC:** Anterior chamber

**GCC:** Ganglion cell complex

**HRT:** Heidelberg retina tomograph

**OCT:** Optical coherence tomography

**NPCB:** National Programme for Control of Blindness

**PI:** Peripheral iridectomy

**POAG:** Primary open angle glaucoma

**RNFL:** Retinal nerve fiber layer

**UBM:** High-frequency ultrasound biomicroscopy

**KEEP A HIGH THRESHOLD FOR INVASIVE PROCEDURES**

This STW has been prepared by national experts of India with feasibility considerations for various levels of healthcare system in the country. These broad guidelines are advisory, and are based on expert opinions and available scientific evidence. There may be variations in the management of an individual patient based on his/her specific condition, as decided by the treating physician. There will be no indemnity for direct or indirect consequences. Kindly visit the website of DHR for more information: ([stw.icmr.org.in](http://stw.icmr.org.in)) for more information.

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