



# Recommendations of Glaucoma Current Care Guideline in Finland

## Which factors increase the risk of glaucoma?

Risk factors	Risk	Evidence
Age	Doubles every 10 years	(A)
Intraocular pressure 22–29 mmHg > 30–35 mmHg	10–13-fold 40-fold	(A)
Exfoliation with increased IOP	5–10-fold	(B)
Disc hemorrhage	12-fold	(B)
Diabetes	2–3-fold	(B)
Myopia	2–4-fold	(C)
Family history	3-fold	(C)
Decreased perfusion pressure together with age	3-fold	(C)
Black ethnicity		(C)

## Which examinations are required for the diagnosis of glaucoma?

When prescribing examinations consider:

- patient's age
- severity of glaucoma
- other ocular and systemic diseases

Due to lack of evidence, systematic screening is not recommended.

Very good	IOP	+	Gonioscopy	+	VF	+	ONH <sup>1</sup>	+	RNFL <sup>1</sup>
Good	IOP	+	Gonioscopy	+	VF	+	ONH <sup>1</sup> or RNFL <sup>1</sup>		
Sufficient	IOP	+	Gonioscopy	+	VF				
Insufficient	IOP								

<sup>1</sup>If automated imaging technology is used, conventional imaging is also necessary.

## Diagnosis of glaucoma (the “2 out of 3” rule)

Abnormal	Normal	Diagnosis	Comment	Procedure
Nerve fiber layer Optic nerve head Visual field		Glaucoma	Clear diagnosis	Initiate (consider initiating) therapy
Nerve fiber layer Visual field	Optic nerve head	Glaucoma	Small disc?	
Nerve fiber layer Optic nerve head	Visual field	Preperimetric glaucoma	10° -field may be abnormal	
Optic nerve head Visual field	Nerve fiber layer	Other diagnosis than glaucoma? E.g. neurologic disease	If the imaging quality of nerve fibers is high, uncommon in glaucoma	
Nerve fiber layer	Optic nerve head Visual field	Preperimetric glaucoma?	Wait and see if there is progression. 10° visual field may be abnormal.	Follow up without therapy (unless IOP ≥30 mmHg)
Optic nerve head	Nerve fiber layer Visual field	Suspicion of glaucoma	Large disc, or disc anomaly? Wait and see.	
Visual field	Nerve fiber layer Optic nerve head	Suspicion of glaucoma	Retest visual field. Other cause for field defect?	

## What is the goal of glaucoma treatment?

The goal of treatment is to prevent glaucoma-induced visual disability.

### The goal of lowering IOP

- The target IOP level is the level where damage does not develop or already existing damage does not progress.
- Progression may be slow, however, and it may take 3–5 years to find a safe IOP level for an individual.
- Target IOP must be updated during check-ups by monitoring the progression of structural and visual field abnormalities (Table 7).

If treatment is initiated, the IOP should be lowered by *at least* 25 % of the untreated level:

Intraocular pressure (mmHg)	
Untreated	Target <i>at least</i> -25 %
12	9
14	11
16	12
18	14
20	15
22	17
24	18
> 26	20

The target IOP level should be lower, especially if the patient has, e.g.

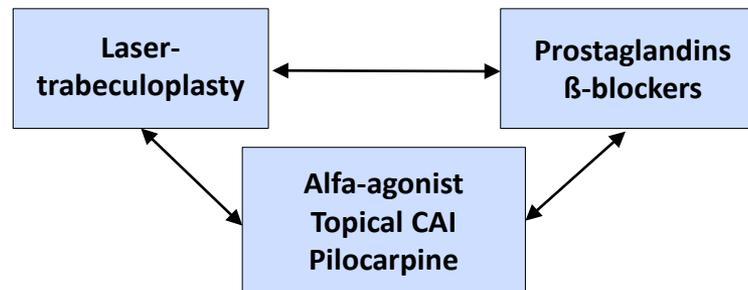
- Far advanced glaucoma
- Aggressive glaucoma
- Several risk factors
- Long life expectancy

## Which treatment plan should be followed?

### Before initiating treatment, consider the following factors

- Patient's age and life expectancy
- Severity of glaucoma (both eyes)
- Rate of progression: How rapidly the changes have progressed
- At which IOP level abnormalities have appeared and/or progressed
- Risk factors
- Patient's other (eye) diseases, medications, allergies and the possibility of pregnancy

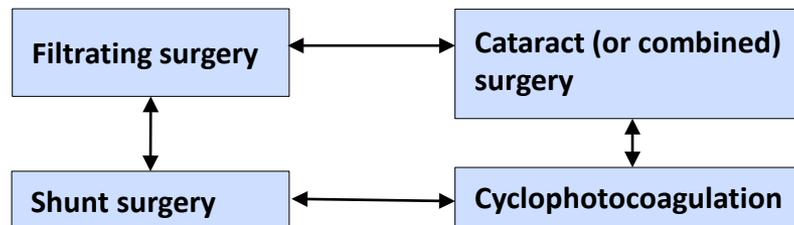
### Decision to initiate treatment



Ophthalmologist chooses initial therapy

- No response to medication: change drug, consider combination
- Only one drug per group, e.g. one alpha-agonists, prostaglandin at a time
- Consider carefully whether to add a 3<sup>rd</sup> bottle to treatment
- Consider the need for glaucoma and cataract surgery

### Insufficient response, treatment unsuitable, and/or progression despite lowered IOP



Surgeon chooses the type of surgery

## Follow up of stable glaucoma patients: Which examinations should be prescribed and how often?

- Glaucoma is considered to be stable when follow up reveals no progression, or the rate of progression is very low considering life expectancy.
- When prescribing follow up tests, the patient's age, stage of glaucoma, and other eye and systemic diseases need to be taken into account.
- The patient is given a written treatment plan that includes the goals for treatment.
- In addition, the side effects of both treatment and monitoring are analysed, including their impact on compliance.

### Measurements of intraocular pressure (IOP)

- Frequency of measurement is determined individually:  
in glaucoma typically twice a year, in ocular hypertension every 1–2 years
- Monitored with the same device (e.g. applanation or rebound tonometer).
- The untreated IOP level, and the IOP level under which disease has progressed, as well as target pressures should to be recorded.

### Clinical examination

- Gonioscopy at the time of diagnosis and repeatedly during follow up.
- Fundus examination.

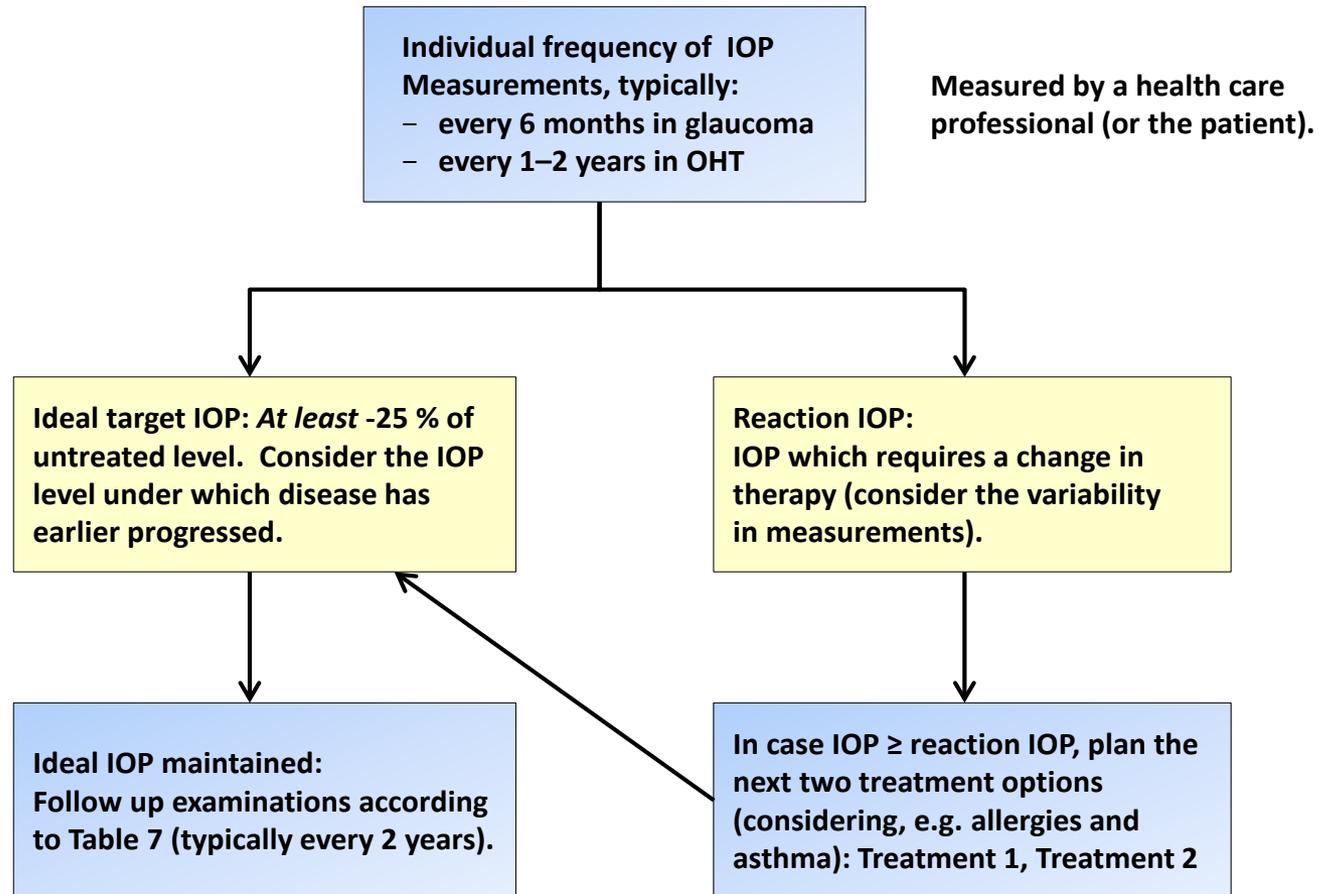
### Imaging and visual field examination (always the same method)

	1 <sup>st</sup> follow-up year	2 <sup>nd</sup> year	3 <sup>rd</sup> follow-up year	4 <sup>th</sup> year etc.
Very good	ONH <sup>1</sup> + RNFL <sup>1</sup> + VF	X <sup>2</sup>	ONH <sup>1</sup> + RNFL <sup>1</sup> + VF	X <sup>2</sup>
Good	ONH <sup>1</sup> or RNFL <sup>1</sup> + VF	X <sup>2</sup>	ONH <sup>1</sup> or RNFL <sup>1</sup> + VF	X <sup>2</sup>
Satisfactory	VF	VF	VF	VF
Insufficient	IOP monitoring only			

<sup>1</sup> If automated imaging technology is used, conventional imaging is also necessary.

X<sup>2</sup> On suspicion of progression, consider the need for extra tests in collaboration with the patient.

## Frame work to create a two-year treatment and monitoring plan in stable glaucoma



## How to treat and follow up high-risk glaucoma patients

### Typical characteristics of high-risk glaucoma patients

- Rapidly progressing glaucomatous changes independent of the IOP level.
- The IOP is 30–35 mmHg and the patient has definitive optic disc, RNFL and visual field abnormalities.
- Strong family history:
  - Several relatives have glaucoma,
  - Glaucoma appears at young age,
  - Glaucoma-induced visual disability,
  - Several risk factors (in addition to the above), e.g. exfoliation.

### Guideline on how to treat and follow up high-risk glaucoma patients

- Aggressive lowering of the intraocular pressure:
  - In patients with a high pressure level<sup>1</sup> at least <20 mmHg
- At lower pressure levels, *at least* 30 % IOP-lowering.
- One drug (or laser treatment alone) is usually not enough.
- Very easily surgical treatment
- Frequent follow up
  - Depending on IOP (monthly/weekly/daily) until the pressure is low enough and/or progression has stopped.

<sup>1</sup> Remember to check gonioscopy to rule out closed-angle glaucoma.