

**Eye Health Council of Ontario**  
**Guidelines for the Care of Patients with Glaucoma**

**TABLE OF CONTENTS**

1. Background.....	2
2. Principles of Interprofessional Collaboration.....	2
3. Regulations and Recommendations.....	3
3a. Glaucoma Suspects.....	4
3b. Patients with Primary Open Angle Glaucoma.....	5
3c. Glaucoma Progression.....	6
3d. Shared Management.....	7
3e. Secondary Glaucoma.....	8
3f. Angle Closure Glaucoma.....	9
4. Conclusions.....	10

## **1. BACKGROUND**

This document was developed in order to better define models of care for glaucoma suspects and patients with glaucoma in Ontario, given the change in the scope of optometric practice as outlined in Ontario Regulations 111/11 and 112/11, made under the Optometry Act (1994).

There is great variability in the severity and presentation of patients with glaucoma, making it difficult to articulate general guidelines for care applicable to all possible clinical presentations. The ultimate goal of the Guidelines is to increase accessibility and to improve the quality of care provided to these patients.

This Guideline referred to the Canadian Ophthalmological Society Evidence-based Clinical Practice Guidelines for the Management of Glaucoma in the Adult Eye (*Can J Ophthalmol.* 2009;44 (suppl 1):S1-S54) for general principles and definitions, and the College of Optometrist of Ontario's "Standards of Practice – Glaucoma" and "The Designated Drugs and Standards of Practice Regulation". The Guideline is not intended to restrict scopes of practice or serve as a standard of medical care. Standards of medical care are specific to all the facts or circumstances in an individualized case, and can be subject to change as scientific knowledge and technology advance and as practice patterns evolve.

## **2. PRINCIPLES OF INTERPROFESSIONAL COLLABORATION**

The Eye Health Council of Ontario endorses the Key Principles for interprofessional collaboration as outlined by the "Model of Interprofessional Collaboration in the Care of Glaucoma Patients and Glaucoma Suspects" (Section 3, COS, June 2011).

The key principles are:

- Patient-centred approach
- Timely access to appropriate eye care professional
- Ongoing commitment to high-quality standards of care
- Evidence-based approach to care
- Collegial relationships
- Effective, clear and timely communication
- Optimal utilization of professional competencies and finite resources
- Duplication of tests and services kept to a minimum

### 3. REGULATIONS and RECOMMENDATIONS

Recommendations are presented in context with current optometry regulations in Ontario. These are recommendations only and need to be adapted to the individual circumstances of the clinical presentation, availability of eye care professionals, and resources.

A typical examination for a patient with glaucoma or a glaucoma suspect would include gonioscopy, intraocular pressure (IOP), central corneal thickness, threshold visual fields, and assessment and documentation of the optic nerve and nerve fibre layer. The current “standard” for measuring IOP is Goldmann applanation tonometry.

The following table defines the stages of glaucoma.

#### STAGING OF THE GLAUCOMA SUSPECT AND PATIENTS WITH GLAUCOMA<sup>#</sup>

<b><i>Suspect</i></b>	1 or 2 of the following: <ul style="list-style-type: none"> <li>• IOP &gt; 21 mm Hg</li> <li>• suspicious disc or cup to disc (C/D) asymmetry of &gt; 0.2</li> <li>• suspicious 24-2 (or similar) VF defect</li> </ul>
<b><i>Early Glaucoma</i></b>	Early glaucomatous disc features (e.g. C/D* < 0.65) and/or mild VF defect not within 10 degrees of fixation (e.g. MD better than -6 dB on HVF 24-2)
<b><i>Moderate Glaucoma</i></b>	Moderate glaucomatous disc features (e.g. vertical C/D* 0.7–0.85) and/or moderate visual field defect not within 10 degrees of fixation (e.g. MD from -6 to -12 dB on HVF 24-2)
<b><i>Advanced Glaucoma</i></b>	Advanced glaucomatous disc features (e.g. C/D* > 0.9) and/or VF defect within 10 degrees of fixation** (e.g. MD worse than -12 dB on HVF 24-2)

HVF=Humphrey Visual Field Analyzer; MD=mean deviation

\*Refers to vertical C/D ratio in an average size nerve. If the nerve is small, then a smaller C/D ratio may still be significant; conversely, a large nerve may have a large vertical C/D ratio and still be within normal limits.

\*\*Also consider baseline 10-2 VF (or similar)

<sup>#</sup> **Source:** Adapted from the Canadian Ophthalmological Society evidence-based clinical practice guidelines for the management of glaucoma in the adult eye. *Can J Ophthalmol.* 2009;44 (suppl 1):S1-S54.

### 3a. *Glaucoma Suspects*

**Optometry Regulation:** The Regulation does not address patients considered glaucoma suspects.

#### i. Low Risk Glaucoma Suspects

Glaucoma suspects of low risk may be managed by either an optometrist or ophthalmologist. Low risk glaucoma suspects have one of the following:

- IOP > 21 mm Hg
- suspicious disc or cup to disc (C/D) asymmetry of > 0.2
- suspicious 24-2 (or similar) VF defect  
(*Can J Ophthalmol.* 2009;44 (suppl 1):S1-S54)

However the level of suspicion given these abnormal parameters is low enough that the health care professional has determined that it is unlikely the patient will develop glaucoma.

Low risk glaucoma suspects may include:

- Young adult patient with family history but no significant ocular findings
- Ocular hypertensive with pressures in the low- to mid-20s but no other significant ocular findings
- Patients with an anomalous or suspicious disc but no other significant ocular findings

After completion of the initial assessment and the establishment of baseline clinical data, the frequency of follow-up examinations will be left to the discretion of the attending eye care professional, although it is suggested that the patient should be followed at least every 2 years. At each follow-up visit, stability should be assessed (*i.e.* are the IOP, optic disc and visual field stable?). In cases where a change in optic disc or visual field is suspected, a confirmatory exam should be performed. If change is confirmed, then the patient should be managed as a patient with early glaucoma.

#### ii. High Risk Glaucoma Suspects

Glaucoma suspects of high risk may be managed by either an optometrist or ophthalmologist, and should be assessed at least annually. High risk glaucoma suspects have one or more of the following but the variation from the normal is much greater than that seen in low risk suspects:

- IOP > 21 mm Hg
- suspicious disc or cup to disc (C/D) asymmetry of > 0.2
- suspicious 24-2 (or similar) VF defect  
(*Can J Ophthalmol.* 2009;44 (suppl 1):S1-S54)

High risk glaucoma suspects may include:

- IOP in the high 20s and a positive primary family history of glaucoma, but no other significant ocular findings

- Suspicious cupping, thin central corneal thickness, IOP in the low 20s but no other significant ocular findings

A high risk glaucoma suspect requires more frequent evaluations and/or testing following the establishment of baseline clinical data. Patients should be made aware of their risk factors for developing glaucoma, and the rationale to initiate ocular hypotensive therapy should be discussed.

### **3b. *Patients with Primary Open Angle Glaucoma***

#### **Optometry Regulation:**

*Optometrists "... may only treat a patient with glaucoma where the patient has primary open-angle glaucoma the treatment of which is not complicated by either a concurrent medical condition or a potentially interacting pharmacological treatment."*

*In addition, "It is a standard of practice of the profession that a member may only treat a patient having open-angle glaucoma, the treatment of which is complicated by either a concurrent medical condition or a potentially interacting pharmacological treatment, in collaboration with a physician with whom the member has established a co-management model of care for that patient and who is,*

*(a) certified by the Royal College of Physicians and Surgeons of Canada as a specialist in ophthalmology; or*

*(b) formally recognized in writing by the College of Physicians and Surgeons of Ontario as a specialist in ophthalmology."*

#### **i. Patients with Early POAG**

Patients with early POAG may be diagnosed and managed by either an optometrist or ophthalmologist. Careful baseline data should be established. Follow-up examinations should be at least every 6 months over the following 18 months in order to begin establishing the rate of progression. In general, stable patients should have an IOP assessment at least every 6 months, with visual field and objective optic nerve head assessment at least annually, depending on the clinical presentation.

#### **ii. Patients with Moderate POAG**

Patients with moderate POAG may be diagnosed and managed by either an optometrist or ophthalmologist. However, optometrists are encouraged to refer the patient to an ophthalmologist immediately should they have any unresolved concerns over the patient's status. Alternatively, they may consider initiating treatment and referring the patient within a reasonable period of time (for

example, 6 months) for consideration of future shared management. Following the establishment of sound baseline data, patients with a stable clinical presentation should have an IOP assessment at least every 6 months, with visual field and objective optic nerve head assessment at least annually, depending upon the clinical presentation. Should a patient with moderate POAG being managed by an optometrist demonstrate disease progression despite optimal medical therapy, the patient should be referred to an ophthalmologist.

### **iii. Patient with Advanced POAG**

Patients with advanced POAG are at significant risk of going blind and should be treated by the most experienced eye care professional available. In light of the frequent need for surgical intervention, an ophthalmologist with expertise in the surgical management of this disease should be responsible for the care of these patients. Should all treatment options be exhausted, a quiet end-stage eye may be more appropriately followed in a shared management arrangement.

IOP, visual fields and objective optic nerve assessment should occur at least every 3 to 6 months until the patient is considered stable. Patients with severe disease are at high risk of visual disability and blindness and should generally be treated more aggressively and followed at more frequent intervals than those with earlier disease.

The clinical management of these patients should focus on ensuring stability of the IOP, visual field and optic nerve, adherence to treatment, and tolerance to medications.

### **3c. Glaucoma Progression**

Detecting, and ideally preventing, progression is key to the management of glaucoma.

The following are clinical scenarios of unstable glaucoma patients, taken from the COS Guidelines:

- i. **IOP criterion:** If a patient on glaucoma treatment is not meeting target IOP despite changes being made in their medical management.
- ii. **Visual field criterion:** If a patient on glaucoma treatment demonstrates repeatable, clinically significant and greater than expected change in the visual field, despite changes being made to their target IOP and medical management.
- iii. **Optic nerve criterion:** If a patient on glaucoma treatment demonstrates repeatable, clinically significant and greater than expected change in the appearance of the RNFL or the optic nerve (for example, disc haemorrhage), despite changes being made to their target IOP and medical management.

The COS Glaucoma Guidelines recommend that a correlation between structural and functional changes be sought in suspected progression, even though it is more common for a change to be detected with one or the other independently. At all times, the variability of test results, both for structural and functional assessments, should be kept in mind, along with the existence of both false positive and false negative results.

### **3d. Shared Management**

The **Optometry Regulation** requires an optometrist to share management with an ophthalmologist for:

- (a) POAG complicated by a concurrent medical condition, or
- (b) POAG complicated by a potentially interacting pharmacological treatment.

In such circumstances there must be clear and documented communication outlining the expectations with respect to disease management, frequency of visits to each eye care professional and criteria for fast-track referral. It is important that the patient understands which clinician is the primary point of contact. This will normally be the optometrist, unless agreed upon by the optometrist and ophthalmologist and communicated to the patient. Repetition of tests should be minimized wherever possible.

Concurrent medical or ocular conditions of note may include but are not limited to:

- If a beta blocker is to be considered: these agents may be contraindicated if there is a history of congestive heart failure, bradycardia, heart block, asthma, chronic obstructive pulmonary disease or poorly controlled diabetes.
- If a prostaglandin is to be considered: these agents may be contraindicated if there is intraocular inflammatory disease or a history of cystoid macular edema (CME).
- If a cholinergic is to be considered: these agents may be contraindicated if there is intraocular inflammatory disease, retinal lattice degeneration, retinal tears or retinal detachment.

Potentially interacting pharmacological treatments of note may include:

- If a cholinergic is to be considered: these agents may interact with MAO inhibitors.

Note: the above bullets are not intended to be a comprehensive list in any way

Recommendations for Shared Management:

- The results of all tests should be communicated between optometrist and ophthalmologist
  - This could be as simple as stating: fields stable, no change in RNFL or ONH, IOP 14/15
- All changes in management should be communicated between optometrist and ophthalmologist
  - This could include changes in treatment, frequency of visits, and frequency of testing
- All changes in advice to the patient should be communicated between optometrist and ophthalmologist
  - This could include timing of medications, and use of punctal occlusion
- Any changes in disease status or complications should be communicated between optometrist and ophthalmologist
  - This could include disease progression, allergic reactions, significant side effects, and development of concurrent disease which may complicate test results (e.g. AMD, cataract)

**3e. Secondary Glaucoma**

**Optometry Regulation:**

*“It is a standard of practice of the profession that a member (optometrist) shall immediately refer a patient having a form of glaucoma other than primary open angle glaucoma to a physician or to a hospital.”*

**Recommendation:**

Under these circumstances, following the initial referral there should be communication between the ophthalmologist and optometrist with respect to the diagnosis and ongoing management of the patient. The ophthalmologist may assume care of the patient, may recommend active shared management, or may offer to see the patient on an as needed (consultant) basis, specifying that the optometrist continues to provide primary care.

For example, a patient presents with pigment dispersion syndrome, suspicious cupping with a C/D ratio of 0.7, a repeatable nasal step defect, and IOPs of 25mmHg. The optometrist diagnoses the secondary glaucoma, and immediately arranges a referral to an ophthalmologist. The diagnosis is confirmed and a management strategy is developed. At that time, the ophthalmologist may elect to continue caring for the patient, may recommend a shared care paradigm, or may return the patient to the optometrist for continued care while remaining available on an as needed basis. A second possibility involves the optometrist calling the ophthalmologist, and the two agreeing upon an initial therapeutic approach until the ophthalmologist is able to review the patient.

### 3f. *Angle Closure Glaucoma*

#### **Optometry Regulation:**

*“(1) Subject to subsections (2) and (3), it is a standard of practice of the profession that a member (optometrist) shall immediately refer a patient having a form of glaucoma other than primary open angle glaucoma to a physician or to a hospital.*

*(2) It is a standard of practice of the profession that a member may initiate treatment for a patient having angle-closure glaucoma only in an emergency and where no physician is available to treat the patient.*

*(3) It is a standard of practice of the profession that a member shall immediately refer any patient being treated in accordance with subsection (2) to a physician or hospital once the emergency no longer exists or once a physician becomes available, whichever comes first.*

*(4) In this section, “hospital” means a hospital within the meaning of the Public Hospitals Act.”*

#### **Recommendation:**

**i. Angle Closure Suspect and Narrow Angles<sup>1</sup>:** An optometrist may monitor narrow angles in patients at risk of eventually developing Angle Closure and/or Angle Closure Glaucoma. The optometrist should refer the patient to an ophthalmologist for consideration of prophylactic iridotomies should there be a risk of the angle becoming occludable.

**ii. Primary Angle Closure:** The optometrist should refer the patient to an ophthalmologist.

**iii. Primary Angle Closure Glaucoma:** The optometrist should refer the patient to an ophthalmologist.

**iv. Acute Angle Closure:** An attack of Angle Closure Glaucoma is an ocular emergency. A timely referral to a physician or hospital must be made. When it is in the patient’s best interest, optometrists should

---

<sup>1</sup> Definitions provided in: Angle Closure and Angle Closure Glaucoma. WGA Consensus Series 3. Eds: R.N. Weinreb & D.S. Friedman. Kugler Publications. 2006

Narrow Angles: Open but can close under appropriate circumstances; unable to view posterior trabecular meshwork (270<sup>0</sup>); IOP not elevated.

Primary Angle Closure Suspect: Narrow angles, verified by gonioscopy; no peripheral anterior synechiae; IOP not elevated; no evidence of disease (disc or field).

Primary Angle Closure: Shallow anterior chamber angle in presence of iridotrabecular contact, verified by gonioscopy; peripheral anterior synechiae; elevated IOP; no evidence of disc or field damage.

Primary Angle Closure Glaucoma: Shallow anterior chamber angle in presence of iridotrabecular contact, verified by gonioscopy; peripheral anterior synechiae; elevated IOP; evidence of disc and/or field damage.

initiate emergency treatment for these patients within their clinical practices using appropriate therapy.<sup>2</sup>

For an optometrist and ophthalmologist to share the management of patients with Angle Closure and Angle Closure Glaucoma, following treatment by the ophthalmologist, there needs to be clear and documented communication outlining the expectations with respect to disease management, frequency of visits to each eye care professional and criteria for fast-track referral. It is important that the patient understands which clinician is the primary point of contact. This will normally be the optometrist, unless agreed upon by the optometrist and ophthalmologist and communicated to the patient. Repetition of tests should be minimized wherever possible.

#### **4. CONCLUSIONS**

The legal landscape of glaucoma care in Ontario has changed significantly with the recently expanded scope of practice for optometrists. The glaucoma suspect and patients with primary open angle glaucoma may be independently managed by optometrists. In addition, the amount of shared management between optometrists and ophthalmologists will increase. A patient-centred strategy, with particular attention to the patient's needs, coupled with frequent and clear communication between patient and practitioner, and between optometrist and ophthalmologist will result in optimum outcomes for patients.

The goal of these Guidelines is to propose a practical, patient-centered approach to the new regulations introduced for optometry. The aim is to maximize the accessibility, quality and safety of care for the patient within the Ontario health care environment, providing them with state of the art glaucoma care. At the same time, the recommendations in this document are meant to minimize duplication of effort and to utilize the available resources appropriately, with a view of achieving a cost-effective model of care for these patients.

---

<sup>2</sup> Optometric Practice Reference. College of Optometrists of Ontario.