

## OPHTHALMOLOGY WAIVERS

CONDITION: GLAUCOMA, OCULAR HYPERTENSION & OCULAR  
HYPOTENSION (LOW Intraocular Pressure)

Revised June 2003

(ICD9 365/365.04 and 36512/36030)

**AEROMEDICAL CONCERNS:** Glaucoma is typically asymptomatic, but early signs may include a slow progressive loss of contrast sensitivity and loss of central or peripheral visual fields. Patients with Acute Angle Closure Glaucoma may present with night vision problems such as halos and flares around lights or with a sudden painful, red eye with an edematous cornea, fixed, mid-dilated pupil, and markedly decreased visual acuity. Low intraocular pressure (IOP) may be present after some significant pathology such as retinal detachment, chronic uveitis, or status post corneal refractive surgery or glaucoma filtering surgery. Determination of the underlying condition is more critical than the presence of low pressure.

### **WAIVER:**

#### **Initial Applicants (All Classes) and Rated Aviation Personnel (All Classes):**

Both glaucoma and ocular hypertension (IOP of 22.0 mm Hg or higher) or a persistent difference of 4 or more mm Hg tension between the two eyes when confirmed by applanation tonometry, are disqualifying and require exception to policy or waiver.

Waivers may be granted if visual field loss is minimal and IOP is controlled at normal levels without miotic drugs.

Miotic drugs are incompatible with night operations due to the inability of the pupil to dilate to admit sufficient light.

No waiver is required for low IOP (IOP of 7.0 mm Hg or lower).

**INFORMATION REQUIRED: The first step in assessment of either high IOP or low IOP is confirmation that the measurement is correct. An optometrist or ophthalmologist should confirm the IOP with applanation tonometry.**

#### **Elevated IOP:**

- Ophthalmology consultation is required anytime there is one or more documented IOPs > or equal to 22 mmHg; there is an IOP difference between the eyes of 4 mmHg or greater; there is a optic nerve cup-to-disc ratio > 0.5 or an asymmetrical cup-to-disc ratio between the eyes with a difference of > 0.2; or a visual field deficit is suspected; and when there is a recent change of visual acuity, ocular trauma, uveitis, or iritis.

- Document the patient's blood pressure and heart rate response to medications in prone and standing (after 2 minutes) positions, BID for two days.
- IOPs must be documented from a Goldman's applanation tonometer, not from a non-contact tonometer "puff test" or Tono-pen, and must be obtained in the AM and PM for two days.
- Dilated fundus examination (to include comment on the cup-to-disc ratio)
- Legible drawings of bilateral optic discs (noting mathematical estimates of the cup-to-disc ratio, and optic disc asymmetry, notching, or any other abnormality)
- Humphrey visual field test battery (30-2 or 24-2),
- Slit lamp examination,
- Gonioscopy
- Bilateral color photographs of the optic disks.

**Low IOP:**

- If a low IOP of 7 mm Hg or less is confirmed by Goldman applanation tonometry done by an optometrist or ophthalmologist, then an ophthalmology consult is required to rule out underlying pathology or refractive surgery.

**FOLLOW-UP:** The IOP should be measured and the patient evaluated every 6 months by an ophthalmologist or optometrist for those aviators labeled with ocular hypertension or glaucoma suspect. Aircrew members with proven glaucoma should be evaluated quarterly at least for the first year of treatment unless the consultant ophthalmologist specifies less frequent assessment.

No follow-up is required for ocular hypotension (low IOP). Persistent ocular hypotension on future FDME/FDHS will be listed as Information Only if the initial evaluation is normal.

**TREATMENT:** The decision to treat aircrew members with ocular hypertension with IOPs between 22-27 will be decided on a case-by-case basis after all risk factors are considered by the ophthalmologist. Those with ocular hypertension with IOPs greater than or equal to 28 mmHg should be treated regardless of other concomitant risk factors. Aircrew members with definitive glaucomatous optic atrophy and characteristic visual field changes require treatment. For open angle glaucoma and ocular hypertension, the first choice agents are topical beta-adrenergic blockers such as timolol (Timoptic), levobunolol (Betagan), or betaxolol (Betoptic). Other acceptable treatments include brimonidine (Alphagan), latanaprost (Xalatan), Dipivefrin (Propine) and the carbonic anhydrase inhibitor dorzolamide (Trusopt) provided there are no aeromedically significant side effects. Side effects may be minimized by pinching off the lacrimal duct on administration in order to limit systemic absorption. Other options for treatment include argon laser trabeculoplasty (ALT) or selective laser trabeculoplasty (SLT). Waiver can be considered for successful surgical treatment of closed angle glaucoma.

**DISCUSSION:** As stated above, not all cases of ocular hypertension (IOP of 22 or higher) require treatment. Approximately 4% of the population has IOP greater than 21, yet many of these individuals never develop glaucomatous optic neuropathy with characteristic visual field loss. Conversely, some individuals do indeed develop frank glaucoma despite never having any IOP measurement greater than 21. Thus elevated intraocular pressure is only one, albeit probably the most important, risk factor for the development of glaucoma. Other risk factors for glaucoma include age greater than 40, black race, positive family history of glaucoma, myopia, enlarged cup to disc ratio, and diabetes. The recently released data from the Ocular Hypertension Treatment Study concluded that topical anti-glaucoma medications delay the onset of primary open angle glaucoma (POAG) in those patients with elevated intraocular pressure. But, it was also the conclusion of this study that not all patients with elevated IOP require treatment, and the decision to treat is based on an individual's combined risk factors. Even in those cases of definite primary open angle glaucoma, the progression of visual field loss can be delayed or halted in most cases with available therapeutic ocular medications. ALT or SLT laser treatment may be an effective option in ocular hypertension/preglaucoma patients and may obviate or delay the need for ocular glaucoma medications for up to a decade or more in some cases. In aircrew members with narrow anterior chamber angles, prophylactic laser peripheral iridotomy may be necessary to decrease the risk of acute angle closure glaucoma.

**REFERENCE:**

Glaucoma at: <http://www.nlm.nih.gov/medlineplus/glaucoma.html>