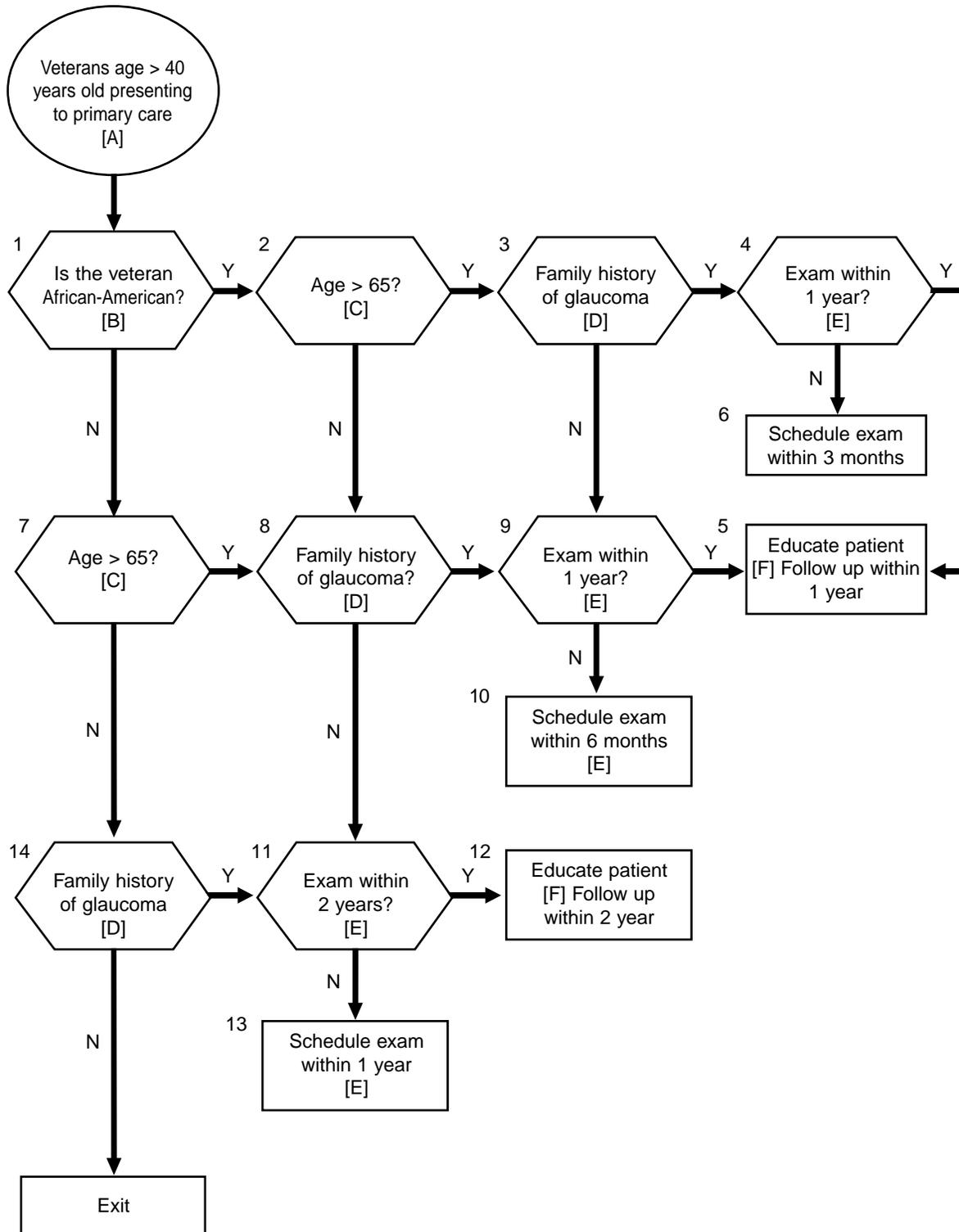


VA CLINICAL PRACTICE GUIDELINE SCREENING FOR GLAUCOMA IN THE PRIMARY CARE SETTING

Guideline Summary



VA access to full guidelines: <http://www.oqp.med.va.gov/cpg>

DoD access to full guidelines: <http://www.cs.amedd.army.mil/Qmo>

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Glaucoma is a significant public health problem in the United States, affecting at least 2 million people. It is the second leading cause in the United States and the leading cause of blindness in the African-American community.

The most common form of glaucoma is Primary Open Angle Glaucoma (POAG). The prevalence of POAG is higher in older populations, the African-American community, and in individuals with a family history for this condition.

It is estimated that half of those suffering from glaucoma in this country remain undiagnosed. Symptoms are often “silent” and the onset of the disease insidious. The structural and physiological changes wrought by this disease are irreversible; and once vision is lost, it cannot be regained. Thus, the key to successful treatment of glaucoma is early diagnosis. The most effective screening method relies on primary care providers identifying and referring their high-risk patients, or patients in an early stage of this disease, to an eye care specialist.

This clinical guideline was conceived to help the primary care provider assess the relative risk of each patient in his or her care, and appropriately refer those patients at high risk for glaucoma.

KEY POINTS

- 1. Determine the following for all veterans over 65 years of age or African-American veterans over 40 years of age:**
 - Is there a family history of glaucoma in a first degree relative (parent or sibling)?
 - Has the veteran had an eye examination by either an optometrist or ophthalmologist, and if so when?
- 2. The significant risk factors for glaucoma are:**
 - Age (over 65 years or over 40 if African-American)
 - African-American ethnicity
 - First degree relative (parent, sibling or child) with glaucoma
- 3. Veterans with a prior eye examination:**
 - 2 or 3 Risk factors present = assure eye examination within the past year and provide education for the need of annual eye examinations. If eye examination more than 1 year previous refer to section 4 below.
 - 1 Risk factor present = assure examination within the past 2 years and provide education for the need of an eye examination every 2 years. If examination more than 2 years ago refer to section 4 below.
- 4. Veterans without a prior eye examination or did not meet criteria in section 3 above:**
 - 3 Risk factors = schedule an eye examination within the next 3 months.
 - 2 Risk factors = schedule an eye examination within the next 6 months.
 - 1 Risk factors = schedule an eye examination within the next year.
- 5. Eye examinations should be performed by either an optometrist or ophthalmologist.**
- 6. Inform the veteran of the lifelong consequences of glaucoma.**

SCREEN FOR RISK OF DEVELOPING GLAUCOMA

Every Veteran 40 years of age or older should be reviewed for their risk of developing glaucoma.

Glaucoma is a neuropathy associated with:

- Optic nerve abnormalities
- Excavation of the optic disc
- Changes in the visual field
- Usually elevated intraocular pressure

Primary open angle glaucoma (POAG) is the most common presentation of glaucoma. In POAG, the chamber angle (drainage region) is physically open but “clogged” with extra-cellular debris, resulting in a backup of aqueous fluid.

Glaucoma is the second leading cause of blindness in the United States and the leading cause of blindness in the African-American community. Blindness resulting from glaucoma is seven to eight times more frequent in non-whites than in whites. Blindness from this disease affects both central and peripheral vision and is irreversible.

The goals of the intervention are to:

- Implement a focused screening program of the populations at-risk.
- Treat the condition as soon as possible to halt the progressive damage associated with this disease.

SCREENING FOR EARLY GLAUCOMA

Permanent visual loss from glaucoma can be prevented or postponed through early diagnosis and prompt treatment. The diagnosis of glaucoma is determined by:

- Measuring intraocular pressure
- Examining the optic nerve
- Assessing optic nerve function by visual field testing

The most effective method of *screening* for early glaucoma is to target and evaluate high-risk populations on a regular basis. The number of risk factors of an individual determines the risk of developing glaucoma and the frequency of screening exams. The most significant risk factors for glaucoma include:

- Age
- Race
- Family history of glaucoma

Table 1. Glaucoma Risk Factors and Severity of Risk

	Severity of Risk		
	High	Moderate	Low
Risk Factors <ul style="list-style-type: none"> • Age • Ethnicity • Family history 	All 3 risk factors	Any 2	Just 1
Frequency of Eye Exams	Annually	Annually	Every 2 years

Patients at moderate- to high-risk should be examined yearly. Patients at low-risk for glaucoma should be screened at least every two years.

ASSESSMENT AND DIAGNOSIS OF HIGH-RISK POPULATIONS

Screen Veteran African-Americans

The prevalence of POAG in the:

- General population is approximately 2 percent.
- African-American community is four to five times higher.

This higher prevalence of glaucoma in African-Americans is particularly significant among those of working-age. African-Americans, when compared with non-African-Americans, present with:

- Glaucoma at an earlier age
- Greater optic nerve damage
- Higher intraocular pressures

Referral of high-risk patients to the eye care specialist is an effective method of detecting early glaucoma.

Table 2. Prevalence of Definite or Probably POAG

Age (in years)	Caucasian	African-American
	<i>Adjusted Rate</i>	<i>Adjusted Rate</i>
40 – 49	0.92	1.60
50 – 59	0.41	4.67
60 – 69	1.76	6.59
70 – 79	3.47	10.51
80 - 89	2.16	13.80
Total	1.70	5.59

Screen Patients 65 Years of Age and Older

Age is a risk factor for POAG. Although the prevalence of this disease increases with each decade of life, the largest differential occurs between the 7th and 8th decades. The importance of age is particularly striking in the African-American community. Among this population, the prevalence of glaucoma increases from 3.14 percent in persons less than 60 years of age, to 12.2 percent in persons over 70 years.

In all studies published to date, the prevalence of glaucoma has been shown to increase with age. One possible explanation is that older individuals have had an elevated pressure longer than younger individuals and thus are more likely to have optic nerve damage. Another possibility is that older individuals are more likely to have additional factors that could affect the optic nerve.

Screen Veterans with a Family History of Glaucoma

Persons with a history of glaucoma in a first-degree relative have almost three times the risk of developing glaucoma themselves compared to the general population (age-adjusted odds ratio = 2.85). A first-degree relative is defined as a *parent, sibling, or child*. The relative-risk varies depending upon the degree of consanguinity of the family member involved. The strongest association occurs with siblings and the weakest with children.

Table 3. Association of POAG with a Family History of Glaucoma

History	Percent with POAG	Percent without POAG	Adjusted Odds Ratio
<i>Parents</i>			
Positive	5.6	4.0	2.17
Negative	94.4	96.0	
<i>Siblings</i>			
Positive	9.9	2.8	3.69
Negative	90.1	97.2	
<i>Children</i>			
Positive	1.2	0.8	1.12
Negative	98.8	99.2	
<i>Any First Degree Relative</i>			
Positive	16.1	7.2	2.85
Negative	83.9	92.8	

PATIENT EDUCATION

It is important to educate the at-risk veteran about glaucoma. The veteran should be aware of the following:

- Existing personal risk factors predisposing the development of glaucoma
- Rationale behind the need for periodic evaluations
- Need for careful and regular follow-up appointments
- Periodic review of the chronic, asymptomatic signs and symptoms of glaucoma

Educational pamphlets should be provided.

