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Focus on Diabetes® Pocket Guide

Guide to Clinical Eye Care for Patients with or at Risk for Diabetes

The American Diabetes Association® has summarized key clinical recommendations for health care professionals on eye health management for those with or at risk for diabetes.

Annual dilated and comprehensive eye exams play a crucial role in the early detection, intervention, and prevention of eye disease and vision loss caused by diabetes. Early detection, timely treatment, and appropriate follow-up care can reduce a person's risk for severe vision loss from diabetes-related eye disease by 95 percent[1].

For those living with, or at risk for diabetes, an eye exam offers a simple and noninvasive way to detect and treat problems early to help prevent or delay eye disease and vision loss caused by diabetes. Diabetes-related eye disease is diagnosed and monitored through:

- Dilated and comprehensive eye exams, which allow professionals to closely examine the retina
- Retinal photography and other imaging such as optical coherence tomography, which uses light waves to take pictures that show the retina's distinctive layers to detect macular edema, assess glaucoma, and monitor other eye conditions

TYPES OF DIABETES-RELATED EYE DISEASE

DIABETES-RELATED RETINAL DISEASE (DRD)

Many people with diabetes may have DRD without symptoms. DRD is classified as nonproliferative or proliferative. Nonproliferative diabetes-related retinopathy (NDPR) is further classified as mild, moderate, or severe. As diabetes weakens the blood vessels in the retina, microaneurysms form and may leak fluid into the retina. This leakage may result in swelling of the macula. Over time, blood vessels may swell and become blocked.

Proliferative diabetes-related retinopathy (PDR) is the advanced form of the disease. At this stage, poor circulation restricts oxygen to the retina. As new, more fragile blood vessels start to grow, they can leak blood into the vitreous. This process can cloud or block vision and cause scarring that can lead to retinal detachment and permanent vision loss.

KEY MESSAGES

Optimizing diabetes management to attain personalized targets is key to avoiding serious eye problems.

Management of glycemia, blood pressure, and lipid levels can reduce the risk or slow the progression of DRD. Prevention is always best, but if damage happens, it can be treated.

DIABETES-RELATED MACULAR EDEMA (DME)

DME can occur with NPDR. It is caused by fluid leaking from capillaries into the macula, where focusing occurs. As the macula swells with fluid, vision blurs and can be lost entirely.

KEY MESSAGES

Although NPDR usually does not need treatment, DME must be treated.

Effective treatment options such as eye injections, laser treatment, corticosteroid therapy, and surgery can stop or reverse vision loss.

CATARACTS

Cataracts cloud the eye's clear lens, which can block sight. People with diabetes are at greater risk for cataracts and are often diagnosed younger and with faster progression.

KEY MESSAGES

People with mild cataracts may find sunglasses and anti-glare lenses in their prescription glasses helpful. Those with severe cataracts may require surgery to replace the clouded lens with an artificial one.

GLAUCOMA

Glaucoma is more common in people with diabetes. As pressure builds in the eye, blood vessels that travel to the retina and optic nerve are pinched, and vision is gradually lost.

KEY MESSAGES

Treatment options include medications and surgery.

RISK FACTORS

When combined with chronic high blood glucose, many other factors can increase the risk of diabetes-related eye disease, including:

- Hypertension
- Diabetes duration
- Inadequate diabetes management
- Tobacco use
- Dyslipidemia
- Kidney disease
- Pregnancy in women with type 1 or type 2 diabetes
- Belonging to a high-risk group (Hispanic or Latino, Black or African American, American Indian, Alaska Native, or Asian)

SYMPTOMS

Approximately 20 percent of people with newly diagnosed type 2 diabetes already have some form of diabetes-related eye disease.[2,3] By the time symptoms arise, substantial damage already may have occurred. It is important to know the symptoms, which may include:

- Blurred or distorted vision
- Difficulty reading
- The appearance of spots or "floaters"
- A shadow across the field of vision
- Difficulty with color perception

Patients should be referred to an eye doctor promptly if they experience any of these symptoms.

DRD TREATMENT CONSIDERATIONS

The main motivation for DRD screening is to prevent vision loss. The availability of effective therapies and the fact that even patients with PDR or DME may remain asymptomatic provide strong support for routine screening.

Significant progress has been made in treatments that can slow or reverse damage to eyesight and prevent blindness in most people. Common treatments include:

- Anti-vascular endothelial growth factor (VEGF) injections for clinically significant DME
- Laser photocoagulation or anti-VEGF injections for PDR and, in some cases, severe NPDR

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DRD CONSIDERATIONS FOR PREGNANCY[4]

- Pregnancy is associated with a rapid progression of DRD.
- Women with preexisting type 1 or type 2 diabetes who are planning pregnancy or who are pregnant should be counseled on the risk of development and/or progression of DRD.
- Women who develop gestational diabetes do not require eye exams during pregnancy and do not appear to be at increased risk of developing DRD during pregnancy.
- Eye exams should occur before pregnancy or in the first trimester in patients with preexisting type 1 or type 2 diabetes, and patients should be monitored every trimester and for one year postpartum as indicated by the degree of retinopathy.

EYE EXAM RECOMMENDATIONS

Dilated and comprehensive eye exams should be performed using validated approaches and methodologies. Programs that use retinal photography (with remote reading or use of a validated assessment tool) to improve access to diabetic retinopathy screening can be appropriate screening strategies. Such programs need to provide pathways for timely referral for a comprehensive eye examination when indicated.[4]

Population	Recommendation
Adults with **type 1** diabetes	Initial dilated and comprehensive eye exam by an ophthalmologist or optometrist within 5 years after the onset of diabetes[4]
Type 2 diabetes	Initial dilated and comprehensive eye exam by an ophthalmologist or optometrist at the time of the diabetes diagnosis[4]
Youth with **type 1** diabetes	Initial dilated and comprehensive eye examination once youth have had type 1 diabetes for 3–5 years, provided they are aged ≥ 11 years or puberty has started, whichever is earlier[5]

- If an eye care professional has not found evidence of DRD during one or more annual eye exams and glycemia is well controlled, screening every one to two years may be considered.[4]
- If any level of DRD is present, subsequent eye exams should be repeated at least annually by an ophthalmologist or optometrist. If DRD is progressing or sight-threatening, exams will be required more frequently.[4]
- Clinicians should promptly refer patients with any level of DME, severe NPDR, or any PDR to an ophthalmologist who is knowledgeable and experienced in the management and treatment of DRD.[4]
- Eye exam results should be documented and made available to the referring health care professional.[4]

[1]National Eye Institute. Available from https://www.nei.nih.gov/sites/default/files/2019-06/diabetes-prevent-vision-loss.pdf. Accessed 10 August 2022
[2]Klein R, Klein BE, Moss SE, Davis MD, DeMets DL. Arch Ophthalmol 1984;102:527–532
[3]Chatziralli I, Sergentanis TN, Crosby-Nwaobi R, et al. Invest Ophthalmol Vis Sci 2017;58:BIO99–BIO105
[4]American Diabetes Association Professional Practice Committee. Diabetes Care 2022;45(Suppl. 1):S185–S194
[5]American Diabetes Association Professional Practice Committee. Diabetes Care 2022;45(Suppl. 1):S208–S231
[6]Piatt GA, Anderson RM, Brooks MM, et al. Diabetes Educ 2010;36:301–309
[7]Gardner TW, Cooper BA, Huvard M, Reynolds SA, Shah AR, Wu RA. A Practical Guide to Diabetes-Related Eye Care. Arlington, Va., American Diabetes Association, 2022

INTERDISCIPLINARY COMMUNICATION

Evidence shows team-based care can improve a patient's blood glucose, blood pressure, and cholesterol levels.[6] All health care team members should be aware of each patient's medical status and individual therapeutic targets. **Collaboration among primary care professionals, optometrists, and ophthalmologists is necessary for early identification and treatment of diabetes-related eye disease.**

PRIMARY CARE PROVIDERS SHOULD FIND OUT[7]:

- If the patient has diabetes-related eye disease
- If the patient has been referred to an eye care specialist
- When the patient's next eye care appointment is

EYE CARE PROFESSIONALS SHOULD FIND OUT[7]:

- If the patient has diabetes
- The patient's diabetes treatment plan
- The patient's individualized glycemic targets
- Whether there have been any recent changes to the patient's treatment plan or glycemic control
- Relevant laboratory test results
- Whether the patient has any comorbidities or complications

Receiving regular dilated and comprehensive eye exams is an effective way to protect vision from serious diabetes complications. All members of the care team can emphasize the importance of dilated and comprehensive eye exams at the recommended intervals.

To help your patients learn more about eye health and find an eye care professional, visit eyehealth.diabetes.org.

TO HELP YOUR PATIENTS LEARN MORE ABOUT EYE HEALTH AND FIND AN EYE CARE PROVIDER, VISIT **EYEHEALTH.DIABETES.ORG.**

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