

## VISION ACADEMY VIEWPOINT

The Vision Academy is a partnership between Bayer and ophthalmic specialists, established with the aim of addressing key clinical challenges in the field of retinal diseases: [www.visionacademy.org](http://www.visionacademy.org).

# Coordinated Care in Diabetic Eye Disease Management

## Background

Diabetic retinopathy (DR) is the most common complication of diabetes and the leading cause of blindness in working-age patients in most developed countries.<sup>1,2</sup>

The presence of DR is associated with more severe systemic micro- and macrovascular complications of diabetes. An increased awareness and understanding of these relationships can help promote timely referral and discussion between ophthalmologists and the other healthcare professionals involved in the management of these comorbidities.<sup>3-10</sup> In addition, prompt referral of diabetic patients for DR screening may allow ophthalmologists to treat earlier to help preserve vision.<sup>11</sup>

To examine the associations between DR and the common complications of diabetes mellitus, and how these could potentially affect clinical practice, a literature search was performed to:

- Identify any links between DR and the micro- and macrovascular complications of diabetes
- Investigate whether patients with DR are at increased risk of other complications of diabetes
- Explore the clinical significance of associations between DR and complications of diabetes

Developed on behalf of the  
Vision Academy in November 2019.  
Date of review: August 2025





Full consensus



Variations in opinion

## Viewpoint

1. **A coordinated and collaborative approach to patient management with all healthcare professionals involved in diabetes care is necessary to optimize clinical outcomes<sup>11</sup>** 
2. **Physicians should be familiar with the common associations between DR and other micro- and macrovascular complications of diabetes to identify patients who are at increased risk of progressive eye disease or of the presence or development of other diabetic complications<sup>11</sup>** 
  - DR increases the likelihood of having or developing **nephropathy**. Conversely, the presence of progressive nephropathy identifies a person at risk of progressive eye disease
  - DR is a significant independent predictor of progression to **micro- or macroalbuminuria**, although it is unclear whether albuminuria predicts development of DR. DR is also linked to declining glomerular filtration rate, with the severity of DR being predictive of the rate of estimated glomerular filtration rate decline
  - DR is associated with **diabetic peripheral neuropathy** and **cardiac autonomic neuropathy** (CAN). Individuals with diabetes who have CAN are at increased risk of mortality compared to those without
  - DR is a strong predictor of **stroke**, and even in mild to moderate forms, DR is an independent risk factor
  - DR is associated with **subclinical atherosclerosis**; the presence of DR is independently associated with increased carotid intima-media thickness and carotid plaques in patients with type 2 diabetes
  - DR is an independent risk factor for **cardiovascular disease**; in patients with type 2 diabetes, DR is associated with an increased risk of coronary heart disease-related events/deaths
  - DR is associated with **peripheral arterial disease** and patients with proliferative DR are more likely to have an abnormal ankle-brachial pressure index than patients with non-proliferative DR
  - DR is associated with **soft tissue complications**; it is an independent risk factor for foot ulceration and a key risk factor for lower extremity amputation

Vision Academy Viewpoints are intended to raise awareness of a clinical challenge within ophthalmology and provide an expert opinion to engage in further discussion.

They can be downloaded from <https://www.visionacademy.org/resource-zone/resources/all>

The Vision Academy is sponsored by Bayer. This document was prepared on behalf of the Vision Academy by Ian Pearce, Marc Evans, Monica Lövestam-Adrian, and David Wong.

Always refer to local treatment guidelines and relevant prescribing information.

The views represented in this document do not necessarily reflect those of Bayer.

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## References

1. Yau JWY, Rogers SL, Kawasaki R *et al.* Global prevalence and major risk factors of diabetic retinopathy. *Diabetes Care* 2012; 35 (3): 556–564.
2. Jee D, Lee WK and Kang S. Prevalence and risk factors for diabetic retinopathy: the Korea National Health and Nutrition Examination Survey 2008–2011. *Invest Ophthalmol Vis Sci* 2013; 54 (10): 6827–6833.
3. Scanlon PH, Aldington SJ and Stratton IM. Delay in diabetic retinopathy screening increases the rate of detection of referable diabetic retinopathy. *Diabet Med* 2014; 31 (4): 439–442.
4. Alonso N, Traveset A, Rubinat E *et al.* Type 2 diabetes-associated carotid plaque burden is increased in patients with retinopathy compared to those without retinopathy. *Cardiovasc Diabetol* 2015; 14: 33.
5. Gerstein HC, Ambrosius WT, Danis R *et al.* Diabetic retinopathy, its progression, and incident cardiovascular events in the ACCORD trial. *Diabetes Care* 2013; 36 (5): 1266–1271.
6. Zhu X-R, Zhang Y-P, Bai L *et al.* Prediction of risk of diabetic retinopathy for all-cause mortality, stroke and heart failure: Evidence from epidemiological observational studies. *Medicine (Baltimore)* 2017; 96 (3): e5894.
7. El-Asrar AMA, Al-Rubeaan KA, Al-Amro SA *et al.* Retinopathy as a predictor of other diabetic complications. *Int Ophthalmol* 2001; 24 (1): 1–11.
8. Villar G, García Y, Goicolea I *et al.* Determinants of development of microalbuminuria in normotensive patients with type 1 and type 2 diabetes. *Diabetes Metab* 1999; 25 (3): 246–254.
9. Huang C-C, Lee J-J, Lin T-K *et al.* Diabetic retinopathy is strongly predictive of cardiovascular autonomic neuropathy in type 2 diabetes. *J Diabetes Res* 2016; 2016: 6090749.
10. Rossing P, Hougaard P and Parving H-H. Risk factors for development of incipient and overt diabetic nephropathy in type 1 diabetic patients: a 10-year prospective observational study. *Diabetes Care* 2002; 25 (5): 859–864.
11. Pearce I, Simó R, Lövestam-Adrian M *et al.* Association between diabetic eye disease and other complications of diabetes: Implications for care. A systematic review. *Diabetes Obes Metab* 2019; 21 (3): 467–478.

### 3. Healthcare professionals involved in the management of diabetes should encourage regular DR screening of patients with diabetes to allow ophthalmologists to treat earlier and help preserve vision<sup>11</sup>



Given the widespread use of DR screening programs that can be performed outside an ophthalmology office, and the overall cost-effectiveness of DR screening, the presence and severity of DR can facilitate the identification of patients at increased risk of micro- and macrovascular complications, and those at risk of progressive eye disease. Identifying at-risk patients can enable earlier detection, referral, and intervention with the aim of reducing morbidity and mortality among patients with diabetes.

### Further considerations

There are significant regional differences concerning DR screening. The identification of patients with DR and a greater understanding of the wider relevance of DR may provide an opportunity to identify patients who are at greater risk of the presence or development of other diabetic complications, potentially reducing morbidity and mortality among patients with diabetes. Risk-assessment models that incorporate DR presence as an input factor, rather than as an outcome, may be a powerful tool for identifying individuals at high risk of potentially life-threatening complications of diabetes.



Full consensus



Variations in opinion