



Hillrom™

EARLY DETECTION OF DIABETIC RETINOPATHY

In Primary Care Settings



A new model for preserving vision
in patients living with diabetes

ABSTRACT

A care delivery model leveraging teleretinal imaging in primary care settings can provide early detection of diabetic retinopathy (DR) in patients with diabetes, helping to:

- Prevent vision loss and blindness in those patients
- Improve diabetic retinal exam compliance and associated HEDIS® quality measures
- Free eye care specialists to spend more time with the patients who require advanced care or surgery
- Reduce healthcare costs

In the United States, diabetes has become an epidemic—80% of patients living with the disease will eventually develop diabetic retinopathy.¹

According to Dr. Edward Chaum, M.D., Ph.D., Margy Ann and J. Donald M. Gass Chair, and Professor of Ophthalmology at the Vanderbilt Eye Institute,

“...diabetic retinopathy continues to be a major cause of blindness in the U.S. today.”

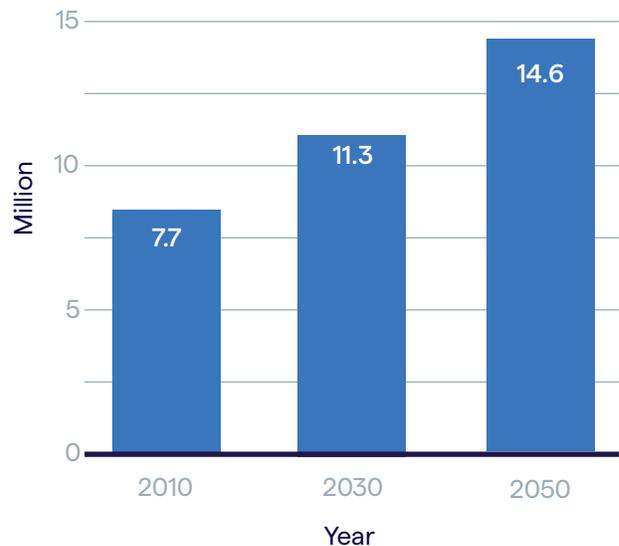
Early intervention and prevention are key. Retinopathy is often asymptomatic and many patients are not aware of their condition until it is advanced. Early detection in primary care settings can help identify vision-threatening diabetic retinopathy early enough to prevent vision loss.²

PROJECTIONS FOR DIABETIC RETINOPATHY IN U.S.⁴

Year	White	Black	Hispanic	Other
2010	5,251,907	826,102	1,194,231	412,997
2030	6,384,275	1,191,481	2,939,136	835,113
2050	6,374,626	1,547,724	5,254,328	1,382,786

From 2010 to 2050, the number of Americans with diabetic retinopathy is expected to nearly double, from 7.7 million to 14.6 million. In general, minority populations are more likely to develop diabetic retinopathy than whites in the United States (Lanting et al., 2005; Spanakis and Golden, 2013; Varma et al., 2016).

Accumulative U.S. Diabetic Retinopathy Growth



#1

Cause among working-age adults, diabetic retinopathy is the leading cause of blindness, despite the availability of effective treatments.⁵

14 MILLION

By the year 2050, the projected number of patients who will be living with diabetic retinopathy.⁴

29 MILLION

Number of Americans who have diabetes, with 1.7 million new cases per year.³

95 PERCENT

Early detection and treatment can reduce cases of vision loss or blindness by up to 95%,² making early diagnosis critical before diabetic retinopathy becomes advanced.

FEATURED EXPERT

DR. EDWARD CHAUM, M.D., PH.D.

Margy Ann and J. Donald M. Gass Chair
Professor of Ophthalmology
Vanderbilt Eye Institute

Edward Chaum, M.D., Ph.D., is the inaugural Margy Ann and J. Donald M. Gass Chair, Professor of Ophthalmology and Visual Sciences at the Vanderbilt Eye Institute in Nashville, Tennessee. He is a retina surgeon and clinician scientist whose work over the past two decades has focused on translating engineering concepts into new clinical care paradigms to improve ocular health. Dr. Chaum serves as consulting Chief Medical Officer for the RetinaVue care delivery model.



THE CURRENT PROTOCOL

Primary care physicians typically refer patients with diabetes to an eye care specialist for an annual retinal exam.

Continuing with this care delivery model, however, is problematic. Half of those referred to specialists don't follow through.⁶ The patient may not comprehend the importance of the exam. When patients are asymptomatic, they don't notice there is a problem, so there is no sense of urgency. There are also geographic and socioeconomic challenges that prevent many patients from complying with referrals.

As a result, annual retinal exam compliance is low. 80% of people with diabetes will eventually develop retinopathy,¹ and may need surgical intervention or injections to treat DR. It is important to catch the disease early, because in later stages treatment options are more costly, more invasive, and less effective in preserving vision.

Ophthalmologists struggle to keep up with the demand. Diabetes is an epidemic, and by 2025, more than 10 million Americans will be living with diabetic retinopathy.⁴ Yet, the number of ophthalmologists is shrinking, and by 2025, only 16,510 ophthalmologists will be available to treat patients with severe eye disease. That's 27% less than required, according to U.S. Department of Health and Human Services.⁷

Management of patients diagnosed with diabetes in the U.S. is costly, \$176 billion in direct medical costs with one-third paid by private insurance and two-thirds by government healthcare services.⁸

"Unfortunately, many cases of diabetic retinopathy are advanced by the time I see them. Advanced DR can lead to diabetic macular edema, proliferative DR, and severe visual impairment and blindness. However, if identified early, the disease process can be slowed and patients can often be successfully managed together with close observation and good control of blood glucose, blood pressure and lipids." - Dr. Chaum



CHANGING THE PARADIGM

The current care delivery model is clearly inadequate, as statistics indicate. A paradigm shift is necessary in order to increase patient compliance with annual retinal examinations, and to decrease the number of people suffering from vision loss and blindness as a result of undiagnosed diabetic retinopathy.

While care delivery models that use teleretinal imaging technology are not new and have been successful worldwide,⁹ there have been significant barriers to widespread adoption in U.S. primary healthcare settings. In the past, retinal cameras were large, expensive and required patient dilation. And, teleretinal software platforms and nationwide diagnostic services were rare.

“It is very difficult for primary care physicians to perform an adequate retinal examination through an undilated pupil with a direct ophthalmoscope. Routine teleretinal assessments and early identification of DR in the primary care setting will lead to both improved patient outcomes and reduced overall healthcare costs.” — Dr. Chaum

In 2015, the Welch Allyn® RetinaVue® care delivery model was introduced, designed specifically for primary healthcare settings. It includes three main components:

1. Tabletop or handheld retinal cameras to obtain high-quality retinal images. Image capture takes less than five minutes and generally does not require dilation for about 85% of patients. Providers can choose the simple and affordable RetinaVue 700 Imager, the world’s most advanced handheld retinal camera.
2. HIPAA-compliant, FDA-cleared, RetinaVue Network software transmits encrypted retinal images to your preferred eye specialist and manages population health data by clinic and patient. The software plan (priced per camera, per month) includes fully integrated, bi-directional interfaces with EMRs to streamline documentation.
3. Ophthalmologists and retina specialists at RetinaVue, P.C., interpret the retinal images and prepare a comprehensive diagnostic report and referral care plan, generally within one business day—complete with ICD codes, signature and license number. Professional medical services offered by RetinaVue, P.C., are priced on a per exam basis. Alternatively, you can use your preferred eye specialist.

“The RetinaVue care delivery model is a patient-centered solution that can identify patients with diabetic retinopathy in the primary care office. The images captured using the RetinaVue Imager clearly show the optic nerve and the macula, where the most important pathology is typically located. Using this care delivery model, a primary care provider can identify patients at high risk for visual loss. The convenience and affordability of the care delivery model permits timely identification and intervention earlier in the disease course, ultimately resulting in better long-term patient outcomes, and better patient management by the primary healthcare provider.” — Dr. Chaum



EVERYONE BENEFITS

A care delivery model that expands access to diabetic retinal exams in primary healthcare settings creates an opportunity where everyone benefits.

For the Patient

- Offering diabetic retinal exams during routine primary care office visits is a very convenient and affordable way to ensure patients with diabetes get an annual retinal exam.
- The exam is comfortable, generally takes less than five minutes and is noninvasive.
- Early detection is critical to identify DR before it becomes advanced.²
- Up to 95% of vision loss cases can be prevented with early detection and treatment of DR.²

For the Primary Care Provider

- Easily added to standard patient flow.
- Adds a valuable service to their standard of care.
- Accurate documentation of chronic conditions helps inform care planning, care delivery, appropriate coverage and quality performance.¹⁰
- Achieve up to 90% documented compliance in 12 months while improving quality-measure scores (e.g., HEDIS®, NCQA®, STAR, and CMS Quality Payment Program) and associated financial incentives.

For the Eye Specialist

Allows ophthalmologists to focus on delivering higher-value services and/or sight-saving procedures to patients who need expert care.

“There is agreement among primary care physicians, endocrinologists, ophthalmologists and optometrists that checking patients with diabetes for diabetic retinopathy is both clinically important and cost-effective. While many patients follow up with eye care specialists, half of diabetic patients do not receive annual exams. Therefore, routine exams and early detection of DR is important for all diabetes patients. Visual outcomes for patients with DR is always going to be better if DR is identified early and medical intervention and treatment strategies are instituted earlier in the disease process.” — Dr. Chaum





RESOURCES

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