LOST IN THE DARK. 20/20 ON THE CHART.

2026 Dark Adaptation Testing Guide

A Comprehensive Clinical Coding & Reimbursement Guide for Optometry and Ophthalmology Practices

1. The Clinical Paradigm Shift: Function Fails Before Structure

Most retinal diseases are identified rather late in clinical practice. Traditional diagnostic models rely heavily on structural imaging (such as OCT and fundus photography), which detects anatomical changes after permanent tissue damage has occurred. Clinicians often encounter a frustrating disconnect when symptomatic patients present with a standard Snellen acuity of 20/20 or close, and a 'normal' structural retinal scan, yet report a classic subjective complaint: "I can see fine in the exam room, but I can't drive at night." Reassuring these patients and scheduling a one-year follow-up represents a missed diagnostic opportunity, leaving early retinal dysfunction undetected.

The Science: Rod photoreceptors, responsible for low-light (scotopic) vision, are highly vulnerable to metabolic stress, oxidative damage, and nutritional deficiencies. Rod function slows down and deteriorates years before structural damage, such as macular drusen or retinal thinning, becomes visible on imaging. Measuring how rapidly the retina recovers dark sensitivity following a standardized photobleach provides the earliest indicator of functional retinal dysfunction, opening a crucial window for diagnostic and preventive intervention.

The Platform: The wearable Twilight™ Dark Adaptometer brings dark adaptometry into primary optometric and ophthalmological practices. Twilight™ is a portable, cloud-connected, FDA Class I registered wearable device (FDA Operator 10083427) that measures rod-mediated dark adaptation in 6.5 minutes or less in Rapid Protocol, requiring no darkroom and no patient pupil dilation. The test is fully audio-guided, meaning it is technician-light and operationally seamless. Under the 3LRI Protocol™, the system measures the 3LRI (the time required for scotopic sensitivity to recover by 3.0 log units). Testing data is sent to the SightGard™ cloud platform, enabling secure, HIPAA-compliant patient monitoring and longitudinal tracking.

2. The CPT Code Split: Diagnostic (92284) vs. Screening (92288)

Effective January 1, 2026, the American Medical Association (AMA) CPT® codebook split dark adaptation testing into two distinct classifications. This update differentiates procedures based on clinical intent, test protocols, and underlying device capabilities. Optometry and ophthalmology practices must understand this distinction to submit accurate claims and reduce the risk of claim denials.

CPT Code 92284 (Revised): Diagnostic dark adaptation examination (e.g., rod and cone sensitivities, rod-cone breakpoint), with interpretation and report. This code describes a comprehensive, diagnostic evaluation of photoreceptor function. It requires a clinical protocol that measures both rod and cone pathways, maps their sensitivities over time, and documents the rod-cone breakpoint (the physiological transition point where rod cells surpass cone cells in low-light sensitivity). Reimbursed as an Active (Status A) service, 92284 is widely covered by Medicare and commercial payers when medically indicated.

CPT Code 92288 (New): Screening dark adaptation measurement, with interpretation and report. This new screening code applies to rapid, single-axis measurements, specifically those reporting only a rod recovery intercept time (RIT) or 3LRI crossing alone without evaluating cone pathways or identifying the rod-cone break. Assigned a Non-Covered (Status N) status; Medicare does not reimburse CPT 92288.

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CPT Code	Clinical Description	2026 Medicare Rate	Medicare Status & RVUs
92284 (Revised)	Diagnostic dark adaptation examination (e.g., rod and cone sensitivities, rod-cone breakpoint), with interpretation and report	$33.07 (National Average)	Active (Status A) 0.99 Total RVUs (Work: 0.28, PE: 0.69, MP: 0.02)
92288 (New)	Screening dark adaptation measurement, with interpretation and report	$0.00 (Non-Reim-bursable)	Non-Covered (Status N) 0.71 Total RVUs (Work: 0.17, PE: 0.53, MP: 0.01)

3. Medical Necessity Assessments & Compliance

To meet compliance guidelines and avoid claim denials, a diagnostic dark adaptation exam must meet medical necessity criteria. CMS defines medical necessity as services that are proper and needed to diagnose or directly treat a specific medical condition. The treating clinician must order diagnostic testing on an individual, case-by-case basis. Standing or routine orders for diagnostic tests are not reimbursable and are considered non-compliant.

The Twilight™ On-Device Medical Necessity Survey: To streamline this administrative requirement, the Twilight™ headset incorporates an on-device Medical Necessity Survey at patient intake. This survey prompts the patient to identify relevant visual symptoms (such as night driving difficulties, impaired contrast, or glare issues) and risk factors (such as a family history of retinal diseases, diabetes, or chronic high-risk medication use). Collecting and documenting these symptoms in the patient's medical record establishes a clear clinical rationale for ordering the diagnostic exam, protecting the practice from audit exposures.

Advance Beneficiary Notices (ABNs): When a screening measurement (92288) is performed, or when a diagnostic exam (92284) is indicated but the patient's specific health plan does not cover it, Medicare will not reimburse the service. In these cases, the clinic must obtain a signed Advance Beneficiary Notice of Noncoverage (ABN) from the patient before performing the test. Submit the claim to Medicare attaching the -GA modifier, which permits the practice to collect the exam fee directly from the patient.

4. Supported ICD-10-CM Codes (Establishing Clinical Necessity for 92284)

Optometry and ophthalmology practices are solely responsible for selecting diagnosis codes that accurately describe the clinical presentation documented in the medical record. The following table outlines primary, evidence-backed ICD-10-CM codes that establish medical necessity and support coverage for CPT 92284:

ICD-10 Code	Short Description	Clinical Relevance for Diagnostic Exam (92284)
E50.5	Vitamin A deficiency with night blindness	Identifies a nutritional deficiency directly affecting rod photoreceptors. Dark adaptometry serves as a key functional marker for monitoring response to dietary or supplement therapy.

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H35.31xx	Nonexudative (Dry) AMD	Covers early (H35.3110 - H35.3114) and intermediate (H35.3120 - H35.3124) dry AMD. Essential for detecting early rod-mediated pigmentary and metabolic RPE dysfunction.
H35.32xx	Exudative (Wet) AMD	Covers active choroidal neovascularization (H35.3211) and inactive scars (H35.3213). Assesses remaining functional photoreceptor reserve in eyes undergoing active therapy.
H35.36x	Macular drusen (degenerative)	Covers degenerative drusen (H35.361 - H35.363). Establishes early retinal changes that alter RPE metabolic exchange and delay rod pigment regeneration.
H35.52	Pigmentary retinal dystrophy	Covers Retinitis Pigmentosa, a progressive hereditary dystrophy where rod function fails early and night blindness is a hallmark, clinically defining symptom.
H40.20Xx	Primary angle-closure glaucoma	Covers primary angle-closure glaucoma by clinical stage (moderate H40.20X2, severe H40.20X3, indeterminate H40.20X4) where elevated IOP impairs scotopic retinal pathways.
H53.6x	Night blindness (Nyctalopia)	Includes abnormal dark adaptation curve (H53.61), acquired night blindness (H53.62), and congenital night blindness (H53.63). Maps directly to patient-reported night-vision complaints.
H53.71	Glare sensitivity	Captures patients reporting severe scotopic glare or prolonged recovery times when moving from bright light to darkness.
H53.72	Impaired contrast sensitivity	Supports medical necessity in eyes with suspected sub-structural photoreceptor damage, documenting functional deficits prior to visible outer retinal degeneration.

Clinical Coding Tip: Billing Dark Adaptation (92284) for Diabetes & High-Risk Medication Monitoring

While diabetes mellitus and long-term use of high-risk retinal-toxic medications (such as hydroxychloroquine, vigabatrin, or isotretinoin, among others) cause early rod photoreceptor metabolic stress, standalone primary codes for diabetes (E10.x / E11.x) or drug-monitoring Z-codes (e.g., Z79.892) are often excluded from Medicare covered diagnosis lists for CPT 92284. When performing dark adaptometry on patients with diabetes or those undergoing high-risk drug monitoring who experience low-light visual symptoms, practices should list the underlying systemic condition or Z-code (Z79.892) as a secondary diagnosis and link the CPT 92284 claim to a primary patient-reported symptom or functional deficit code—such as H53.61 (Abnormal dark adaptation curve), H53.62 (Acquired night blindness), H53.71 (Glare sensitivity), or H53.72 (Impaired contrast sensitivity) to meet payer medical necessity criteria.

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5. Interpretation & Report (I&R) Standards

A brief notation in the patient's chart such as 'abnormal dark adaptation' or 'delayed rod recovery time' is legally and clinically insufficient to support a professional diagnostic billing claim. To secure reimbursement for the professional component of CPT 92284, document a formal, signed Interpretation and Report (I&R) in the patient's medical record. The clinical report must comprehensively address the following five diagnostic criteria:

- **Clinical Indication and Order:** Document the specific clinical rationale for performing the exam, linking the test to a documented subjective complaint (e.g., night blindness, glare, contrast loss) or an active medical condition (e.g., early or intermediate dry AMD, diabetic retinopathy).
- **Test Parameters and Reliability:** Note the date of the test and record explicit reliability metrics. Document patient cooperation, understanding of the audio-guided instructions, and confirmation of a successful light seal via the Twilight™ photodiode occlusion verification system.
- **Quantitative Findings and Curve Analysis:** Describe the specific physiological findings derived from the dark adaptation recovery curve. This includes evaluating the cone-mediated plateau, documenting the exact rod-cone break timing, recording the 3LRI crossing time (time to cross minus 3.0 log units of attenuation under The 3LRI Protocol™), and evaluating the scotopic rod-phase recovery slope.
- **Longitudinal Comparative Review:** Provide a clinical comparison against previous tests and baseline measurements. The cloud SightGard™ database enables precise, continuous tracking of functional changes over time.
- **Actionable Clinical Management Plan:** Outline specific recommendations based on the diagnostic findings. This may include counseling on night-driving safety, nutritional and dietary changes, initiating broad-spectrum antioxidant vitamins with lutein and zeaxanthin, AREDS2 supplementation in qualifying patients, tighter systemic glycemic or blood pressure control, or photobiomodulation therapy in dry AMD.

6. Economic Value & Reimbursement Matrix

While Medicare provides a consistent national benchmark for covered diagnostic services, optometry and ophthalmology practices must evaluate commercial payer contracts and regional payment policies to fully understand the impact on the practice revenue cycle. Because CPT 92284 is an inherently bilateral procedure, bill the global fee once per session, whether one or both eyes are tested.

Payer / Program	CPT 92284 (Diag.) Rate	CPT 92288 (Screen) Rate	Coverage & Billing Rules
Medicare (National Average)	$33.07	$0.00 (Non-Covered)	Medicare covers CPT 92284 for documented diagnostic indications. Federal coverage excludes screening CPT 92288.
Blue Cross Blue Shield (BCBS / Anthem)	$91.46 (Range: $80 - $104)	$91.46 (Nominal Rate)	Commercial rates reflect CMS Transparency in Coverage negotiated averages. 92288 is subject to plan-specific screening limits.
UnitedHealthcare (UHC)	$86.29 (Range: $76 - $102)	$86.29 (Nominal Rate)	Reimbursement is subject to commercial medical policy criteria. Screening coverage is highly plan-dependent.

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Aetna	$82.03 (Range: $71 - $99)	$82.03 (Nominal Rate)	Diagnostic exams require documented clinical signs. Screening measurements are typically patient-pay (ABN required).
Cigna	$121.11 (Range: $84 - $113)	$121.11 (Nominal Rate)	Commercial contracts generally pay higher allowances for 92284. Claims require a formal, signed I&R in the chart.

Note on Commercial Rates: *Nominal commercial rates for CPT 92288 shown above are sourced from CMS Transparency in Coverage files. However, because commercial payers frequently classify screening measurements as non-covered employer plan benefits, actual insurance payments for 92288 are often unpaid or rejected, whereas diagnostic CPT 92284 is widely covered and reimbursed for qualifying patients.*

Medicare Administrative Rules and Supervision

Under Medicare standards, dark adaptation testing requires only general supervision. This means the procedure is performed under the optometrist's or ophthalmologist's overall direction and control, but the clinician's physical presence is not required in the testing lane during the exam. This allows trained clinical technicians to manage patient setup and testing seamlessly, optimizing clinic flow and technician efficiency.

Multiple Procedure Payment Reduction (MPPR)

Medicare applies its MPPR policy to the technical component (TC) of several ophthalmic diagnostic procedures, including CPT 92284 (reimbursed at $19.37 for the technical component and $13.69 for the professional component). When a physician performs multiple diagnostic tests on the same patient on the same day, Medicare pays 100% of the technical component of the highest-valued procedure and reimburses subsequent technical components at 80%. MPPR does not apply to the professional component (modifier -26) services.

Practice Return on Investment (ROI)

The Twilight™ Dark Adaptometer is priced for accessibility at a standard capital unit cost of $9,799, utilizing single-use eye masks priced at $5 per mask. Standard software access is provided via a SightGard™ cloud subscription, which is priced at $150 per month for single-location practices and $600 per month for multiple-location practices. At a test volume of two tests per day on average, a practice can achieve full capital payback in under one year.

CPT & Reimbursement Disclaimer

Reimbursement information is compiled from third-party sources, including CMS, the AMA, and the commercial fee schedules published under the CMS Transparency in Coverage Final Rules. While we believe this information is accurate at the time of publication, coding guidelines, coverage policies, and payer fee schedules change frequently without notice. Optometry and ophthalmology practices are solely responsible for determining medical necessity, verifying patient-specific coverage, and submitting truthful, non-misleading codes, charges, and modifiers that accurately describe the services rendered. EVOQ Technologies does not guarantee reimbursement or prevent coverage disputes with Medicare or other payers

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Sources

This coding and reimbursement guide is grounded in official CMS fee schedules, American Medical Association (AMA) CPT coding manuals, and peer-reviewed literature.

- **AMA CPT Codebook & 2026 Code Changes:** Applied Medical Systems, '2026 CPT Code Changes: What Optometry Practices Need To Know."
- **CMS Medicare Fee Schedules & RVU Data:** PayerPrice, '2026 Medicare Fee Schedule Lookup' & MedFeeSchedule, 'CPT 92284 & CPT 92288 Medicare Reimbursement Rates (2026)'.
- **Commercial Payer Transparency Data:** CMS Transparency in Coverage negotiated rate databases for Blue Cross Blue Shield, UnitedHealthcare, Aetna, and Cigna (data provided in machine-readable format).
- **Ophthalmic Coding & Clinical Practice Manuals:** American Academy of Ophthalmology (AAO), 'AAO Coding Companion 92284' & Heru Reimbursement FAQ, OpZira 'Dark Adaptation Billing & Coding Guide'.
- **Scotopic Physiology & Clinical Literature:** 'The Unseen Epidemic: Functional Canary in the Coal Mine' book, 2026.

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