Corcoran Consulting Group

A Division of Ardare Corporation

Reimbursement for Tests with the OCULUS Keratograph® 5M

Prepared for

OCULUS®

March 2021

Reimbursement for Tests with the OCULUS Keratograph® 5M

by

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Acknowledgement**:** *This paper was underwritten by a grant from OCULUS, Inc. as an aid to customers and other interested parties. OCULUS is not the author of, and therefore not responsible for, the content of the reimbursement and billing information provided herein.*

INTRODUCTION

This monograph describes reimbursement for tests performed with the OCULUS Keratograph® 5M, either alone or as part of another service. The Keratograph 5M is a multipurpose diagnostic instrument for evaluating the anterior segment using topography, photography, and other imaging. The instrument can perform multiple tests, depending on the patient's and provider's needs. These tests and features include:

- Corneal topography
- Keratometry
- Anterior segment photography
- Zernike and Fourier analysis of the cornea
- Contact lens fitting
- Cornea/scleral elevation
- Tear meniscus height
- Lipid layer thickness
- Meibomian gland imaging
- Tear film break-up time
- Pupillometry
- Oxi-Map

These tests supplement the ophthalmologist's or optometrist's evaluation and management of corneal and lacrimal disease, planning for anterior segment surgery, and contact lens fitting. Some features of the Keratograph 5M are particularly useful for patient education.

Much of the information is taken from official publications of the Medicare program, including the Centers for Medicare & Medicaid (CMS) and the Medicare Administrative Contractors (MAC). However, the reader is encouraged to check with the local MAC for additional information and instructions as not all guidelines are the same. In the case of other third party payers, we have used the coding concepts contained in CPT and published by the American Medical Association; diagnosis codes are from ICD-10-CM. Documentation of the medical necessity of any diagnostic test is a pre-requisite to reimbursement, so we describe the required elements in detail.

Since economic analyses are a necessary part of any capital budgeting decision, we incorporated Medicare's payment rates for the procedures as well as utilization rates.

THE INSTRUMENT

The Keratograph 5M provides the user with the ability to view, photograph and measure the anterior segment of the eye without invasive operation or direct contact with the cornea.

Figure 1 **OCULUS Keratograph 5M**

It obtains images through the use of a variety of illumination sources which are optimized for the particular function (Table 1).

Table 1 **Keratograph Tests and Illumination Sources**

Test Type	**Illumination Source**
Corneal Topography and Scleral Elevation	White-light Placido disk rings (22 separate rings)
Tear Film Analysis	Infrared annular illumination
Fluorescein Imaging	Blue diodes
Tear Film Particles	White diodes
Meibography	Infrared diodes
External Photography	White diodes

Oculus, the manufacturer of the device, notes that the instrument has a joystick with new features unlike most other instruments. They state:[1]

> "*The new joystick for the Keratograph 5M allows you to capture images and video sequences directly from the device. No need to use the mouse: your hand just stays on the joystick when you capture images or videos.*
>
> *The new joystick communicates via a smart Bluetooth interface. And it does away with the need for cumbersome power cabling. The joystick switches to sleep mode function when not in use to extend battery life.*"

CODES AND COVERAGE

Following is a discussion of various CPT codes that may apply to testing with OCULUS' Keratograph 5M.

Computerized Corneal Topography (CPT 92025)

CPT 92025 is defined as: *"Computerized corneal topography, unilateral or bilateral, with interpretation and report"*. Corneal topography (CT) is used for the diagnosis and management of corneal disease, disorders, abnormalities, or injury. It is also helpful as an adjunct to contact lens management, particularly in difficult fitting cases such as post-keratoplasty, keratoconus or corneal ectatic disease. In the context of refractive surgery, CT is a valuable test that helps the surgeon plan the procedure and monitor the results. Following other corneal surgery, such as penetrating keratoplasty, CT is valuable for postoperative management, including planning surgical enhancement, wound revision, and suture removal.

CT is helpful prior to cataract surgery with concurrent refractive surgery, such as keratotomy (*e.g.,* limbal relaxing incisions) or keratoplasty. In the case where the surgeon plans to insert a toric intraocular lens (IOL), CT helps determine the proper alignment for the lens to reduce or eliminate astigmatism. Figure 2 is illustrative. It may also be helpful in contact lens fitting. The Keratograph 5M also has the ability to measure and display scleral elevation, but that is an incidental result and supplemental to the CT, so there is no separate code for scleral elevation.

A local coverage determination (LCD) for corneal topography by CGS Administrators, LLC,[2] a Medicare Administrative Contractor (MAC) in the Midwestern US, notes:

> *"Computerized corneal topography is considered medically necessary under any of the following conditions:*

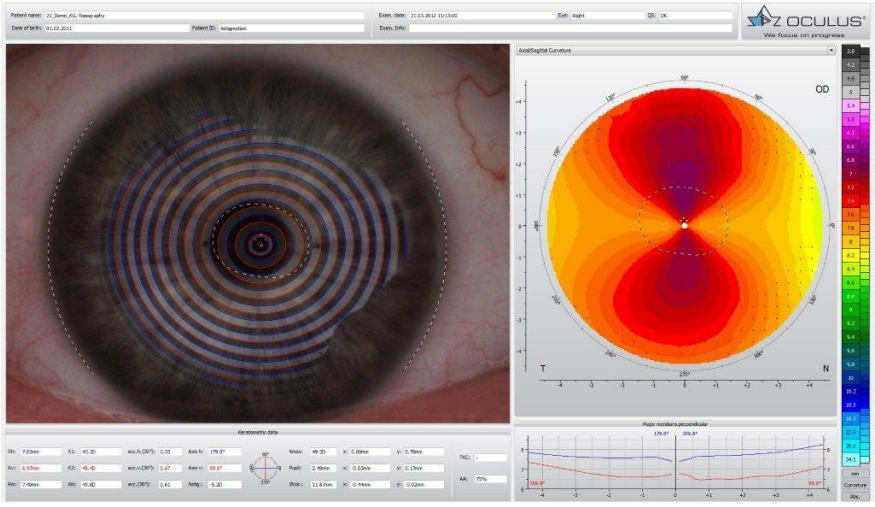
---

1 Oculus. Keratograph 5M. Link here. Accessed 10/02/20.

2 L34008. CGS Administrators, LLC. Computerized Corneal Topography. Rev. eff. 9/19/2019. Link here. Accessed 09/30/20.

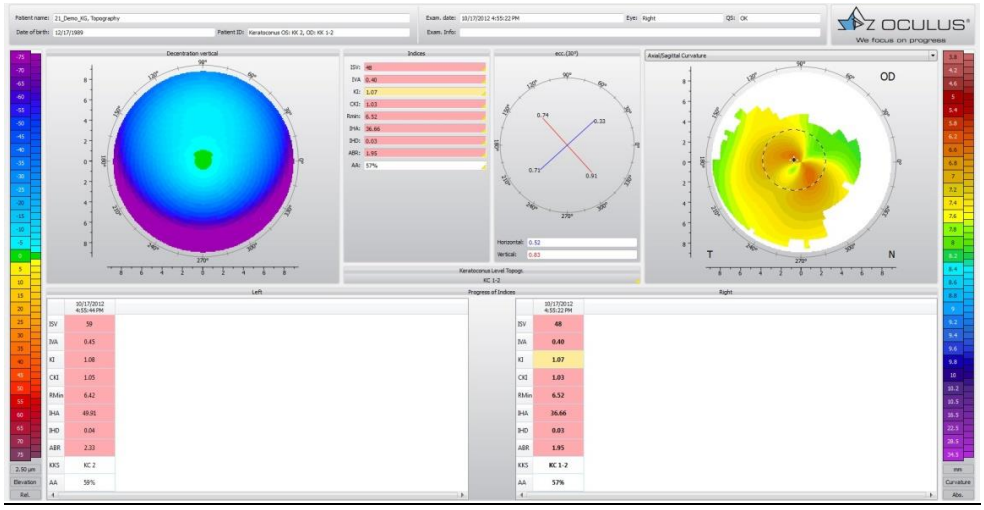
- *pre-operative evaluation of irregular astigmatism for intraocular lens power determination with cataract surgery;*
- *monocular diplopia;*
- *diagnosis of early keratoconus;*
- *post-surgical or post-traumatic astigmatism, measuring at a minimum of 3.5 diopters;*
- *suspected irregular astigmatism based on retinoscopic streak or conventional keratometry;*
- *post-penetrating keratoplasty surgery;*
- *post-surgical or post-traumatic irregular astigmatism;*
- *certain corneal dystrophies;*
- *complications of transplanted cornea;*
- *post-traumatic corneal scarring; and/or*
- *pterygium and/or corneal ectasia that cause visual impairment."*

Figure 2 **Corneal Topography Image**



Following CT, the Keratograph 5M reports indices as a suspicion-based appraisal using corneal shape (Figure 3). The indices are an integral part of the CT and not separately billable.

Figure 3 **Corneal Indices Image**



The CGS LCD also notes some limitations on coverage for CPT 92025. A list of commonly used diagnosis codes for corneal topography is shown in Table 2. CGS notes for their coverage the following:

> *"Corneal topography will only be allowed for a pre-operative cataract patient if documentation supports that the patient has irregular astigmatism. Its use for this purpose should be rare.*
>
> *Corneal topography is to be billed only when the diagnosis of monocular diplopia is thought to be caused by a corneal irregularity.*
>
> *Corneal topography is a covered service for the above indications when medically reasonable and necessary only if the results will assist in defining further treatment. It is not covered for routine follow-up testing.*
>
> *Repeat testing is only indicated if a change of vision is reported in connection with one of the above listed conditions.*
>
> *Services performed for screening purposes or in the absence of associated signs, symptoms, illness or injury as indicated above, will be denied as non-covered.*
>
> *Corneal topography will be non-covered if performed pre- or post-operatively in relation to a Medicare non-covered procedure, e.g., radial keratotomy."*

They also note that "*Repeat testing is only indicated if a change in vision occurs. Corneal topography should not be reported with or during the post-operative period for corneal procedures.*"

Table 2 **Common Diagnosis Codes for Corneal Topography** [3]

ICD-10	Description
H52.21-	Irregular astigmatism
H16.0-	Corneal ulcer
H17.-	Corneal opacities
H18.1-, H18.2-	Corneal edema
H18-83-	Recurrent erosion of cornea
H18.46-	Peripheral degeneration of cornea
H18.5-	Hereditary corneal dystrophy
H18.6-	Keratoconus
H18.71-	Corneal ectasia
H11.0-	Pterygium
Q13.4	Congenital anomalies of cornea size and shape
T86.84- *	Complications of Corneal Transplant
T85.398-	Mechanical complication of corneal graft
T85.2-	Mechanical complication due to ocular lens prosthesis
Z94.7	Corneal transplant (previous)
Z98.4-	Cataract extraction status
Z98.85	Corneal transplant (current)

* As of October 1, 2020, the ICD-10 code for complications of corneal transplant (T86.84-) changed and gained a 7th character specificity related to laterality.

External Ocular Photography (CPT 92285)

The Keratograph 5M captures images which may constitute close-up external ocular photographs (92285). There are multiple viewing options based on the particular problem being evaluated. To be reimbursed for CPT 92285, the photographs should:

- provide additional information not obtained during the exam,

[3] Listed codes are a portion of the covered diagnoses but differences in payment policies exist for many payers. The ICD-10 codes shown are not a precise crosswalk; the ending "dash" means a longer code is required and contains greater specificity than the corresponding ICD-9 code. This list is neither exhaustive nor universally acceptable. See your payer's bulletins.

- aid in diagnosis and treatment of a disease or condition, and
- assist in assessing disease progression (change over time).

Photographs taken merely to document the presence of disease or abnormality are treated as an incidental service and not accorded separate reimbursement. For example, photographs of stable disease of the eyelid, conjunctiva, or cornea do not contribute to patient care and are not additive to the eye examination.

The following LCD excerpts are representative of the few coverage policies for this service.

> "***CGS Administrators***
> *External ocular photography is covered when a special camera is used to obtain magnified photographs of lesions (e.g., the cornea, iris or lids) for the purpose of following the patient's condition. Medical quality images may be digital, Polaroid Macro 3 SLF or equivalent. … photographs for the purpose of documenting for medicolegal purposes or preauthorization (e.g., gross trauma, amount of ptosis or redundant lid tissue) are not separately reimbursable.*" [4]

CGS goes on to note:

> *"Photography may be reported only once per session, even though multiple views may be taken.*
>
> *In addition to the photograph(s), an interpretation and report specific to the photograph(s) must be contained in the patient's medical record and be available to the contractor upon request.*
>
> *External ocular photography without accompanying patient identification and date permanently affixed to the photograph will be considered not to be reasonable or necessary and will be denied."*

No national Medicare policy exists, so reimbursement for this test is at the discretion of each MAC. Table 3 is a partial list of typical covered diagnoses taken from several sources, but payers can vary widely.

[4] LCD L34393. CGS Administrators, LLC. Ocular Photography - External. Rev. eff. 10/31/2019. Link here. Accessed 10/02/20.

Table 3 **Common Diagnosis Codes for External Ocular Photography** [3]

ICD-10	Description
B00.5-	Herpes simplex with ophthalmic complications
C44.1-	Malignant neoplasm of eyelid, including canthus
C69.0-	Malignant neoplasm of conjunctiva (primary)
C69.1-	Malignant neoplasm of cornea (primary)
C69.9-	Carcinoma of eye
H16.-	Corneal ulcer
H16.1-	Superficial keratitis
H16.2-	Keratoconjunctivitis
H16.3-	Interstitial and deep keratitis
H16.4-	Corneal neovascularization
H18.5-	Hereditary corneal dystrophies
H18.6-	Keratoconus

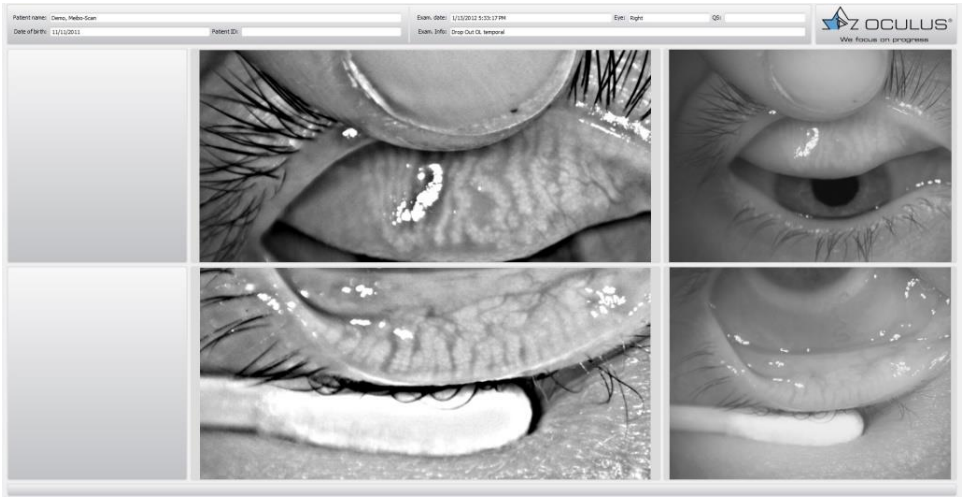
Near-Infrared Dual Imaging of Meibomian Glands (CPT Category III code 0507T)

CPT 0507T became first available for use in July 2018 and is set to expire at the end of 2023. CPT also has a parenthetical note for this code, which states, "For external ocular photography, use 92285. For tear film imaging, use 0330T." Because it is a 'unilateral or bilateral' code, it is reported one time whether one or both eyes are imaged and it also requires an interpretation and report. Category III codes frequently do not have coverage at all, but individual Medicare Administrative Contractors (MACs) decide whether to cover them – if so, at what reimbursement. There are no active coverage documents on noncovered services, so execution of a financial waiver or ABN is recommended since coverage is in doubt.

Shifting to an unlisted code such as 92499 (unlisted ophthalmological service or procedure) to engender possible coverage for this imaging is not correct. CPT notes the following in the Overview to the Category III section of the book: "*The following section contains a set of temporary codes for emerging technology, services, procedures and service paradigms. Category III codes allow data collection for these services/procedures.*" CPT also states: "*Use of unlisted codes does not offer the opportunity for the collection of specific data. If a Category III code is available, this code must be reported instead of a Category I unlisted code.*"

Figure 4 shows images taken with the Meibo-Scan function of the Keratograph 5M, which permits some anterior segment conditions to be displayed under infrared illumination for upper and lower Meibomian gland morphology.

Figure 4 **External Photograph of Meibomian Glands from Keratograph 5M**



Zernike and Fourier Analyses

For most patients, an eye exam and associated refraction will identify lower order optical aberrations[5] and these are corrected with sphere, cylinder, and prism using glasses or contact lenses. For some patients, this may not be enough. These more difficult patients complain of vague visual distortions that are nevertheless debilitating and not readily assessed by an eye exam. Typically, a refraction is likewise inconclusive. At this point, the examiner may suspect higher order aberrations,[6] such as asphericity and coma, which may cause significant problems for patients, even though they may have quite good Snellen acuity.[7,8,9] These low- and high-order optical aberrations can be displayed as a pyramid with low order at the top and higher order at the bottom (Figure 5).

The Keratograph 5M allows analysis of some higher order aberrations of the cornea to be displayed separately. There are two options with the instrument: Fourier and Zernike analyses. Fourier analysis allows the higher order aberration to be segregated and displayed. The Zernike analysis

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5 telescopeΘptics.net. Chapter 13.3 Human Eye Optical Properties. Link here. Accessed 10/02/20.

6 Wikipedia. Optical aberration. Link here. Accessed 10/02/20.

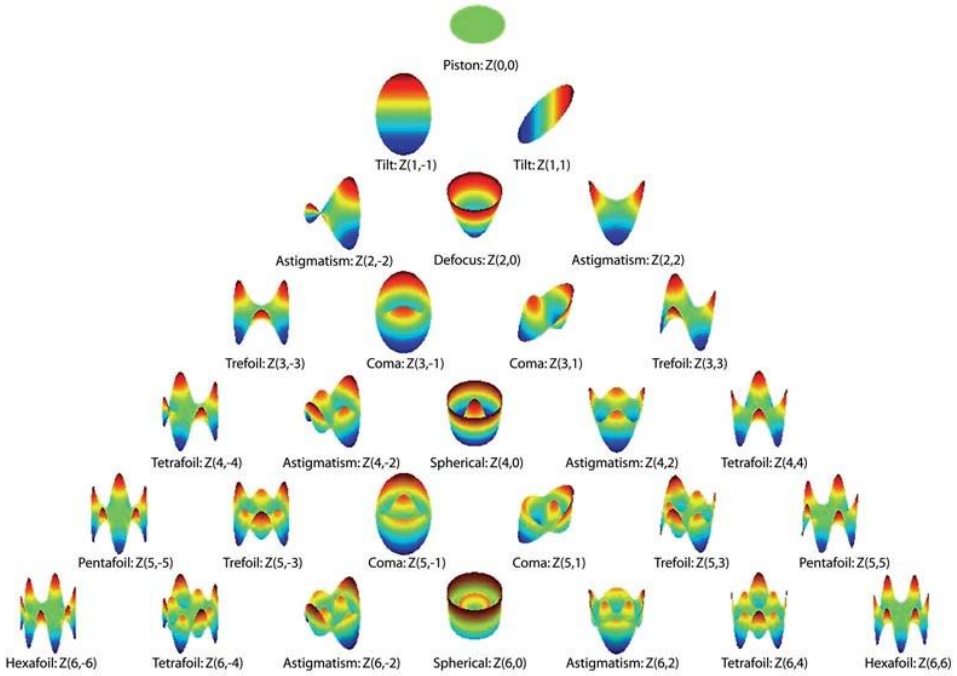
7 Applegate RA, Ballentine C*; et. al*. Visual acuity as a function of zernike mode and level of root mean square error. *Optom Vis Sci*. 2003 Feb; 80(2):97-105. Link to abstract here. Accessed 10/02/20.

8 Cheng X, Thibos, LN, Bradley A. Estimating visual quality from wavefront aberration measurements. *J Refract Surg*. 2003 Sep-Oct;19(5):S579-84. Link to abstract here. Accessed 10/02/20.

9 McLellan JS, Prieto PM, et. al. Effects of interactions among wave aberrations on optical image quality. *Vision Res*. 2006 Sep; 46(18): 3009–3016. Link here. Accessed 10/02/20.

on the instrument evaluates centration of the corneal apex; a displaced apex may induce higher order aberrations.

Figure 5 **Zernike Coefficients**



Having the ability to evaluate Zernike and/or Fourier analysis, either separate from or in conjunction with corneal topography, gives a more complete picture of corneal optics at that visit.[10,11] Figures 6 and 7 are representative displays from the instrument.

Aberrometry is refractive in nature, yet it moves beyond the familiar refraction (CPT 92015) done to prescribe glasses and contact lenses. Furthermore, it is additive with the basic refractive service. In CPT, modifier -22 is used with a code to report an unusual service that is greater than that usually required for the listed procedure.[12] Within the Medicare program, refraction is not a covered service.[13] Consequently, when corneal aberration analysis is performed, it may supplement and enhance the refraction - and a higher fee for 92015-22 is supported when there is documentation of the extra work (*e.g.*, measurement and interpretation) required to note the findings of the aberrometry.

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[10] Smolek MK, Klyce SD, Goodness-of-Prediction of zernike polynomial fitting to corneal surfaces. Journal Cataract Refr Surg Vol 31:12, 2350-2355. Link to abstract here. Accessed 10/02/20.

[11] Holladay JT, Hill WE, Steinmueller A. Corneal power measurements using Scheimpflug imaging in eyes with prior corneal refractive surgery. J Refract Surg. 2009; 25(10): 862-868. Link to abstract here. Accessed 10/02/20.

[12] Medicare Claims Processing Manual. Chapter 12, § 40.2.10 Link here. Accessed 10/02/20.

[13] Medicare Benefit Policy Manual. Chapter 16, §90. Link here. Accessed 10/02/20.

Figure 6 **Zernike Analysis Showing Coma**

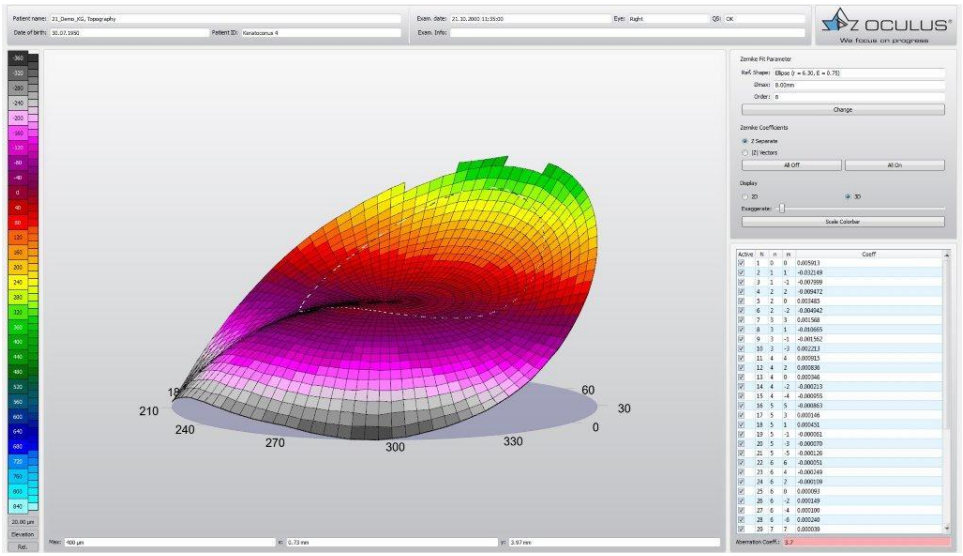
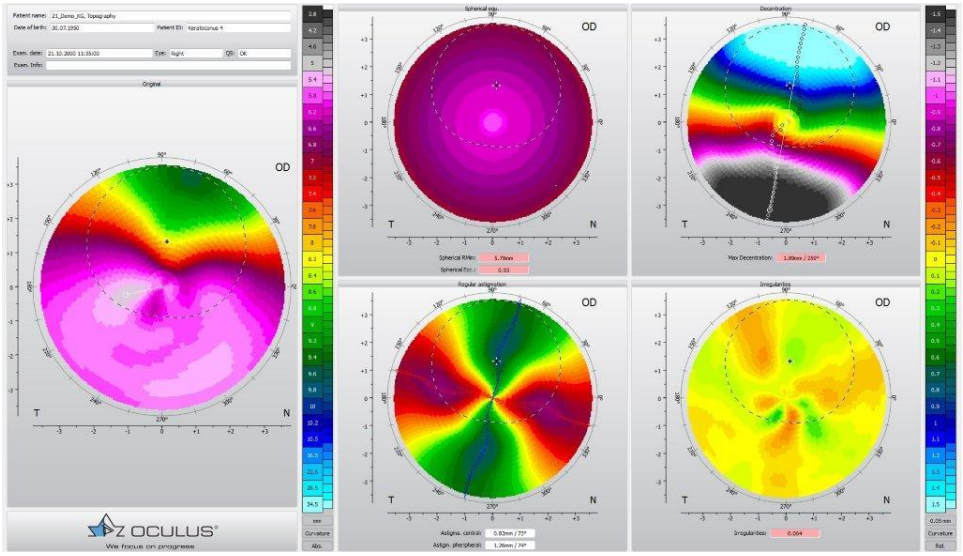


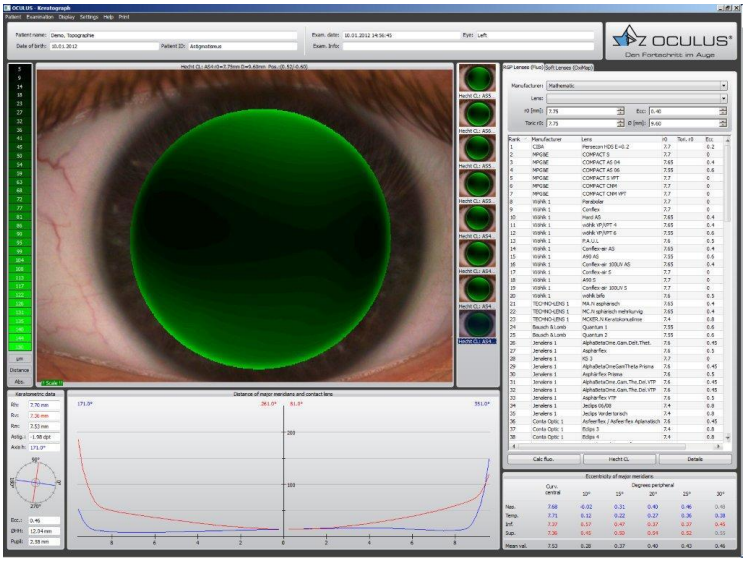
Figure 7 **Fourier Analysis from Keratograph 5M**



Contact Lens Fitting

The Keratograph 5M has a sophisticated contact lens (CL) fitting simulation built into the software. It allows the user to measure a patient and then design a CL. Once this is input, the software displays a predicted fluorescein pattern beneath the CL. As the CL parameters are adjusted, the simulated fluorescein pattern changes automatically. Figure 8 is an example of a hypothetical fluorescein pattern. Additionally, the instrument can simulate a near segment in a bifocal CL.

Figure 8 **Fluorescein Pattern**



The use of the Keratograph 5M CL fitting software for designing a CL or displaying a segment height are valuable to reduce chair time and increase efficiency, although they are incidental aspects of CL fitting and not separately billable. For an initial fit when the diagnosis is keratoconus, CPT instructs the use of 92072, *Fitting of contact lens for management of keratoconus, initial fitting*. While Medicare regards this code as bilateral, not all payers agree so it is prudent to check each payer's policy. CPT contains a range of codes to report CL fitting in other situations (92310-92317).

TF-scan

The Keratograph 5M incorporates a variety of additional tests to assess the tear film. The TF-scan contains:

- Tear meniscus height (Figure 9A)
- Tear break-up time (Figure 9B)
- Lipid layer thickness (Figure 9C)
- Tear film dynamics

The series of images created by the TF-scan, along with the physician's interpretation, may be reported using 0330T (*Tear film imaging, unilateral or bilateral, with interpretation and report*). This Category III CPT code became effective January 1, 2014 and is currently not scheduled to expire until the end of 2023. The code description says *"unilateral or bilateral"* so do not submit a claim on a "per eye" basis, nor should you submit a claim on a "per image" basis. Although no MAC currently has an active policy on noncovered services, this code has historically not been covered.

Figure 9A **Tear Meniscus Height**

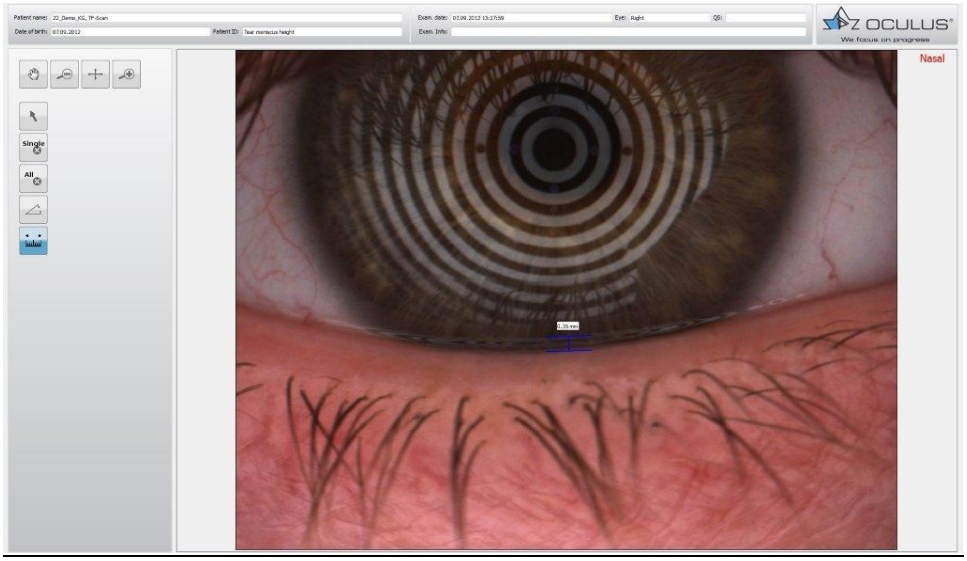


Figure 9B **Tear BUT**

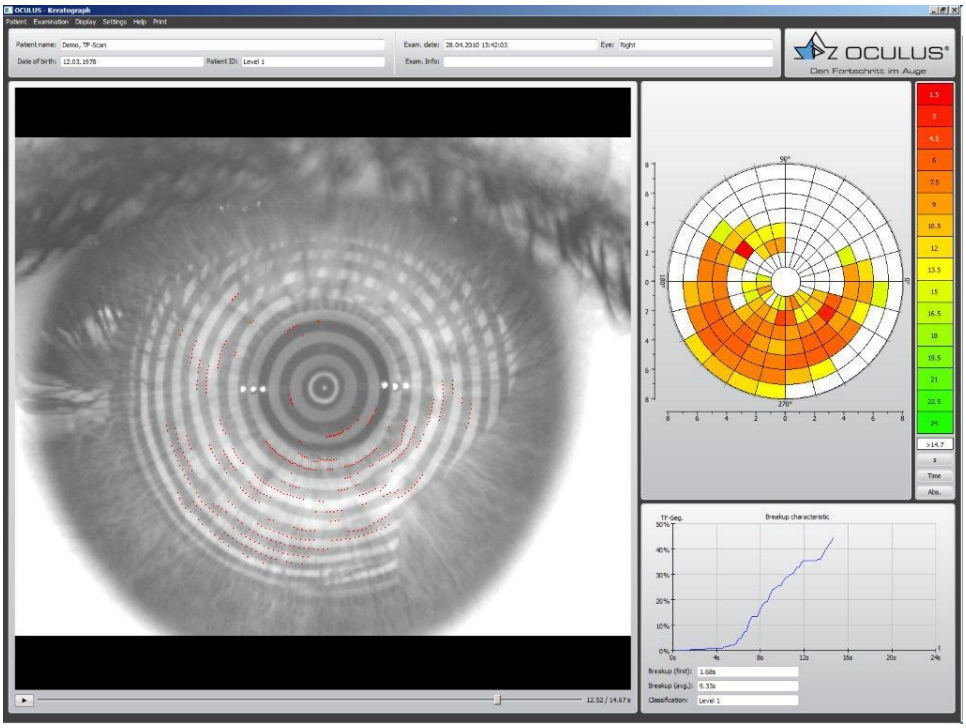
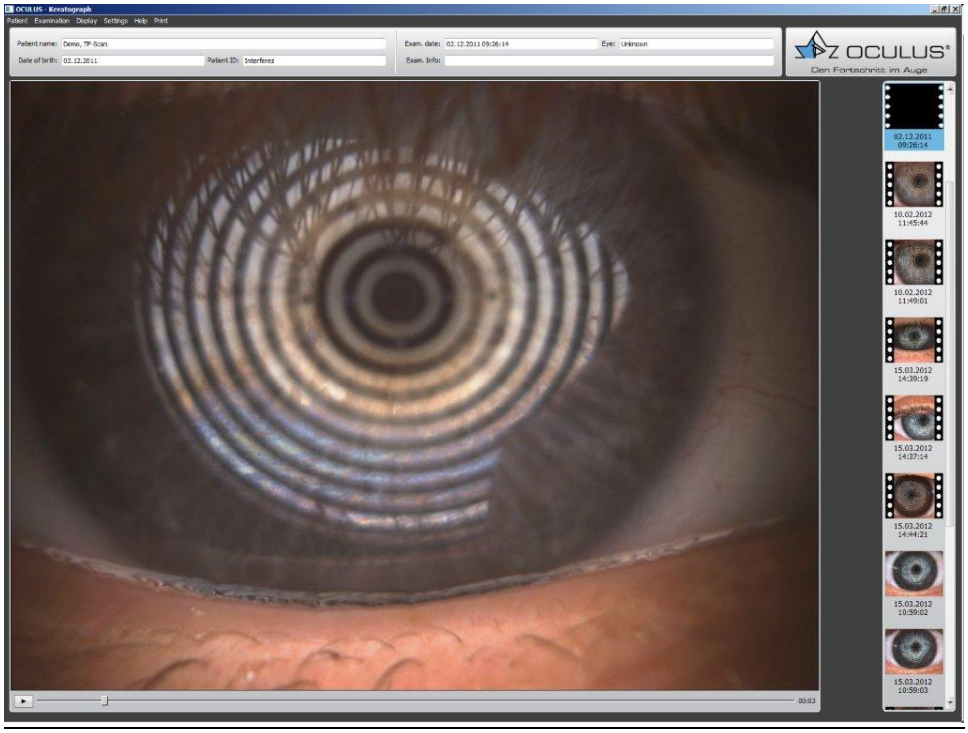


Figure 9C **Lipid Thickness**



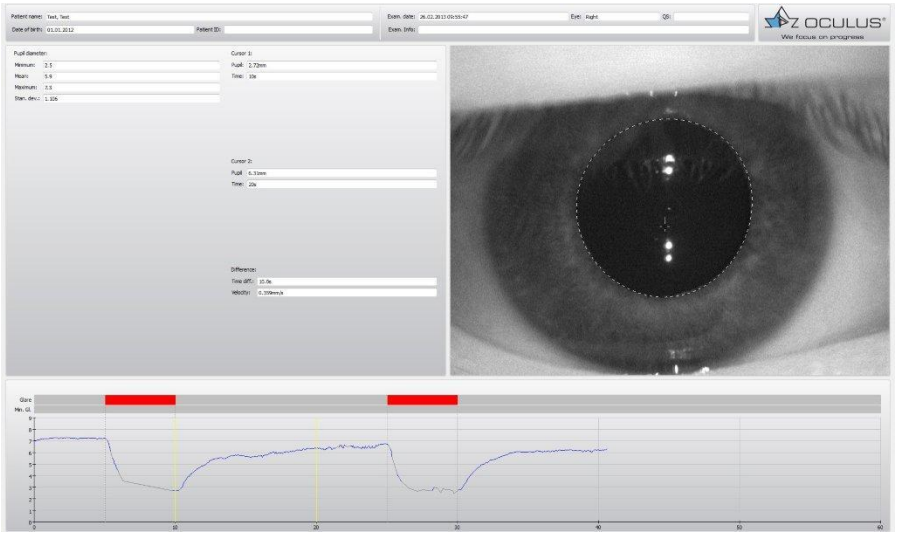
Oxi-Map

This unique feature of the Keratograph 5M computes oxygen transmissibility values for most currently available spherical soft CLs. Since standard values for oxygen transmission assume a -3.00D CL, and lens thickness varies with power, the Oxi-Map is useful to educate patients about this factor when considering daily wear or extended wear options, and is properly treated as an incidental part of CL fitting.

Pupillometry

This feature measures pupil reaction to light and glare. A graphical printout shows the size of the pupil over the test time; see the tracing at the bottom of Figure 10. Category III code 0341T (*quantitative pupillometry with interpretation and report, unilateral or bilateral*) was formerly used to report this test, but that CPT code expired at the end of 2019 and CPT now notes to use unlisted ophthalmological service CPT code 92499 to report this service. Importantly, it is unlikely to have coverage as 92499. A sample image is shown in Figure 10. It is useful as a patient education tool and may have other clinical uses as well.

Figure 10 **Pupillometry Overview Result**



DOCUMENTATION

The descriptions in CPT for CT, external ocular photography, tear film imaging, and pupillometry include the phrase *"with interpretation and report"*.[14] What exactly is meant by this phrase, and what kind of chart note is required? This question takes on added urgency since insufficient chart documentation is reason enough to require repayment of any reimbursement.

Medicare Regulations and Guidance

The Medicare guidelines for interpretation of diagnostic tests are discussed in the Medicare Claims Process Manual (MCPM) Chapter 13 §100, Interpretation of Diagnostic Tests.[15] CMS makes a distinction between a "review" of a test and an "interpretation and report".

> "*Carriers generally distinguish between an "interpretation and report" of an x-ray or an EKG procedure and a "review" of the procedure. A professional component billing based on a review of the findings of these procedures, without a complete, written report similar to that which would be prepared by a specialist in the field, does not meet the conditions for separate payment of the service. This is because the review is already included in the … E/M payment.*"

[14] Current Procedural Terminology, 2021 Professional Edition.

[15] Medicare Claims Process Manual (MCPM), Chapter 13, §100. Interpretation of Diagnostic Tests. Link here. Accessed 10/02/20.

The review of a test is not separately payable because it is part of an evaluation and management (E/M) service.

> "*For example, a notation in the medical records saying "fx-tibia" or EKG-normal would not suffice as a separately payable interpretation and report of the procedure and should be considered a review of the findings payable through the E/M code. An "interpretation and report" should address the findings, relevant clinical issues, and comparative data (when available).*"

Simple, brief notations such as "normal" or "abnormal" are construed as a review of the test rather than as an interpretation and report. As a condition of payment,[16] 42 CFR 415.120 (a) states:

> "***(a) Services to beneficiaries.*** *The carrier pays for radiology services furnished by a physician to a beneficiary on a fee schedule basis only if the services meet the conditions for fee schedule payment in § 415.102(a) and are identifiable, direct, and discrete diagnostic or therapeutic services furnished to an individual beneficiary, such as interpretation of x-ray plates, angiograms, myelograms, pyelograms, or ultrasound procedures. The carrier pays for interpretations only if there is a written report prepared for inclusion in the patient's medical record maintained by the hospital.*"

The value of an "interpretation and report" derives from the answers to important questions about the diagnostic test.

- Physician's order – *Why is the test desired?*
- Date performed – *When was it performed?*
- Technician's initials – *Who did it?*
- Reliability of the test – *Was the test of any value?*
- Patient cooperation – *Was the patient at fault?*
- Test findings – *What are the results of the test?*
- Comparison – *How do today's results differ from prior test(s)?*
- Assessment, diagnosis – *What do the results mean?*
- Impact on treatment, prognosis – *What's next?*
- Physician's signature – *Who is the physician?*

In ophthalmology, tests such as corneal topography and external ocular photography are more valuable for making decisions about treatment when there is a series. Then, the concept of "comparative data" cited above is particularly meaningful. Does the series demonstrate disease

[16] 42 CFR 415.120(a). Conditions for payment: Radiology services – Services to beneficiaries. Link here. Accessed 06/05/15.

progression? For an external ocular photograph, the "interpretation and report" might read as follows.

- Order: Photograph of suspicious conjunctival lesion adjacent to limbus OS to follow for changes in characteristics or size
- October 1, 2020
- Technician: Mary Smith, COA
- Good patient cooperation
- Conjunctival injection, elevated lesion, corneal neovascularization and edema OS
- Conjunctivitis and keratitis OS, suspicious conjunctival lesion OS
- Stop wearing CLs; fluorometholone gtts
- Signed: *I. C. Better, M.D.*

Where to write?

An interpretation can be written on its own separate page in the medical record or in the blank space on the printout of the test result. Within an electronic medical record, we often find a designated spot to record the physician's interpretation of a test as a report. If the interpretation is written as part of the office visit note, it might appear to be an element of the evaluation and management service. Better to keep it separate, or differentiate it from the rest of the eye exam by surrounding the notations with a box and a title like "CT report" or "photo report".

Timing

Ideally, the interpretation of a test follows immediately after the technical component is finished. In practice, there may be a delay, however the delay should not be lengthy or affect patient care. Since external photos require only general supervision, and corneal topography does not have a mandated supervision level,[17] the physician need not be present during the performance of the test and the interpretation might take place the next day. If a weekend intervenes, there may be two days delay. It is important to note that CMS understands that delays are a fact of life, and, in 2009, proposed regulations to require claims for reimbursement to identify on two separate lines the technical and professional components of a diagnostic test when performed on different dates of service. Transmittals 1823 and 1873 were both subsequently withdrawn, yet there is still concern about this topic.

As a practical alternative, bill the entire test upon completion after the interpretation is documented

[17] 42 CFR 410.32(b)(3)(i). Definition of general supervision. Link here. Accessed 10/02/20.

in the medical record since it is not clear what diagnosis would be used for the technical component alone.

Payment Considerations

In the Medicare Physician Fee Schedule, different payment rates are established for the professional and technical components of a diagnostic test where there is discrete reimbursement for an "interpretation and report". Respectively, modifiers 26 and TC are used to make the distinction between the professional and technical portions of the test. As a practical matter, this segregation permits a technician or medical assistant to perform the technical component, with appropriate supervision; however, only the physician can interpret test results. When modifiers TC and 26 are not appended to a CPT code, then the payer understands that reimbursement is sought for both the technical and professional components together in a single payment.

Following a test, your interpretation and report does not need to be book length, but it must answer pertinent questions about the service. A cryptic, one word note isn't an interpretation as Medicare understands that term. Diagnostic tests are a significant part of most practices, so don't underestimate the importance of a thorough "interpretation and report."

SUPERVISION

Medicare's supervision rules for many ophthalmic diagnostic tests have been stable since July 1, 2001. CPT 92285 requires *general* supervision. This means the procedure is furnished under the physician's overall direction and control, but the physician's presence in the office is not required during performance of the test. Under general supervision rules, the training of the non-physician personnel who actually perform the diagnostic test and the maintenance of the necessary equipment and supplies are the continuing responsibility of the physician.[17]

At this time, no supervision policy has been established for codes 92025, 92499, 0330T, or 0507T. In our opinion, *general* supervision is appropriate.

BILLING ISSUES

The functions of the Keratograph 5M are numerous, as are the CPT codes which describe some of them. A multitude of tests may occur on the same day, and be billed, as long as there is sufficient justification for each service, and that the services are not duplicative, bundled, or mutually exclusive. For instance, assessing different parts of the eye using different tests is justified. Some

patients may have several co-morbidities which warrant investigation using different tests such as keratoconus, and lid-related disorders

Although you may bill several tests concurrently, don't assume they will all be covered and reimbursed. Within Medicare, refraction is never covered, for example. Significantly, when a more specific code is available, it must be used. For example, imaging of the tear film should be reported with 0330T instead of 92285

CPT Codes

92015 ……...	Determination of refractive state
92025 ……	Corneal topography
92072 ……...	Fitting of contact lens for management of keratoconus, initial fitting
92285 ……...	External photography
92499 ……	Unlisted ophthalmological service or procedure
0330T ……...	Tear film imaging, unilateral or bilateral, with interpretation and report
0507T ……...	Near-infrared dual imaging (i.e., simultaneous reflective and trans-illuminated light) of meibomian glands, unilateral or bilateral, with interpretation and report

Modifiers

The following modifiers may be applicable on claims for tests performed with the OCULUS Keratograph 5M.

22 …….	Unusual service
26 …….	Professional component of a diagnostic test
52 ……..	Reduced services (unilateral measurement of bilateral test)
AQ ……..……	Services provided in a HPSA (*Medicare modifier only*)
GA ……..……	Waiver of liability statement issued as required by payer policy (signed ABN on file)

GX ……	Notice of liability issued, voluntary under payer policy (signed ABN on file)
GY ……	Item or service statutorily excluded or does not meet the definition of any Medicare benefit or, for non-Medicare insurers, is not a contract benefit
GZ ……	Medicare probably does not cover this service. No ABN on file (*Medicare modifier only*)
RT or LT ……..	Right or left eye
TC ……	Technical component of a diagnostic test

Sample Claims

Example 1

Your established patient is a 35 y/o female with keratoconus OU causing irregular astigmatism. She complains of intermittent haloes at night with a headache. You order CT OU with the Keratograph 5M to evaluate the corneal shape and to serve as a basis for comparison later. You change the contact lenses OU to improve fit and vision since the keratoconus has changed some. In addition to the exam (shown as 9xxxx), the claim will read as below.

17 REFERRING/ORDERING PROVIDER	17a.		
DK J Emdy MD	17b.	NPI	1234567890
19 ADDITIONAL CLAIM INFORMATION			
21 DIAGNOSIS OR NATURE OF ILLNESS OR INJURY ICD Ind. 0			
A. H18.613 B. H52.213 C. D.			

24. A. DATES OF SERVICE From MM DD YY	To MM DD YY	B. POS	C. EMG	D. PROCEDURES, SVCS CPT/HCPCS	MODIFIER	E. DX POINTER	F. $ CHARGES	G. UNITS	H. EPSDT	I. ID QUAL.	J. RENDERING PROVIDER I.D.
mm dd yyyy		11		9xxxx		A,B	xxx xx	1		NPI	1234567890
mm dd yyyy		11		92025		A,B	xxx xx	1		NPI	1234567890
mm dd yyyy		11		92310		A,B	xxx xx	1		NPI	1234567890
										NPI	

Example 2

You have been following a 30 y/o female patient over a number of years for suspicion of keratoconus OU; the vision has remained normal although previous topographies showed corneal abnormalities. She has noticed decreasing vision with her hydrophilic soft contact lenses and

glasses. A refraction without contact lenses shows no improvement, but a refraction over a rigid contact lens yields significant visual improvement. Today, using the Keratograph 5M, you obtain CT OU and external photographs of infiltrating blood vessels in the deep cornea OU. You diagnose stable keratoconus, irregular astigmatism, and deep vascularization of the cornea. You recommend rigid gas-permeable CL fitting in the near future. In addition to the exam (shown as 9xxxx), the claim will read as below.

17 REFERRING/ORDERING PROVIDER	17a.		
DK J Emdy MD	17b.	NPI	1234567890
19 ADDITIONAL CLAIM INFORMATION			
21 DIAGNOSIS OR NATURE OF ILLNESS OR INJURY ICD Ind. 0			
A. H18.613 B. H52.213 C. H16.443 D.			

24. A. DATES OF SERVICE From MM DD YY	To MM DD YY	B. POS	C. EMG	D. PROCEDURES, SVCS CPT/HCPCS	MODIFIER	E. DX POINTER	F. $ CHARGES	G. UNITS	H. EPSDT	I. ID QUAL.	J. RENDERING PROVIDER I.D.
mm dd yyyy		11		9xxxx		A,B,C	xxx xx	1		NPI	1234567890
mm dd yyyy		11		92025		A,B	xxx xx	1		NPI	1234567890
mm dd yyyy		11		92285		C	xxx xx	1		NPI	1234567890
										NPI	

Example 3

Your established patient, a 68 y/o male, had penetrating keratoplasty 1 year ago OD and complains of blurry vision that is not corrected with eyeglasses. You order CT OD with the Keratograph 5M. Irregular astigmatism was noted and described in the interpretation; you discuss fitting a contact lens which is planned for a future visit. In addition to the exam (shown as 9xxxx), the claim will read as below.

17 REFERRING/ORDERING PROVIDER	17a.		
DK J Emdy MD	17b.	NPI	1234567890
19 ADDITIONAL CLAIM INFORMATION			
21 DIAGNOSIS OR NATURE OF ILLNESS OR INJURY ICD Ind. 0			
A. H52.211 B. Z94.7 C. D.			

24. A. DATES OF SERVICE From MM DD YY	To MM DD YY	B. POS	C. EMG	D. PROCEDURES, SVCS CPT/HCPCS	MODIFIER	E. DX POINTER	F. $ CHARGES	G. UNITS	H. EPSDT	I. ID QUAL.	J. RENDERING PROVIDER I.D.
mm dd yyyy		11		9xxxx		A,B	xxx xx	1		NPI	1234567890
mm dd yyyy		11		92025	RT	A,B	xxx xx	1		NPI	1234567890
										NPI	

Example 4

You are seeing your established 66 y/o female patient with a long history of intermittent tearing and irritation OU. She has used both OTC and prescription drops with varying degrees of improvement, but without complete resolution of her problems. Her primary care doctor has ruled out Sjögren's syndrome. Physical examination reveals moderately inflamed conjunctiva, and mild punctate staining of both the cornea and conjunctiva OU. Schirmer's tear testing shows reduced tear volume. The remainder of the anterior and posterior segment examination is non-contributory. An ABN is executed in advance and the patient consents to tear film imaging; this Medicare beneficiary selects Option 1 indicating her wish that you file a claim. With the Keratograph 5M, you measure tear BUT, and perform tear film imaging to evaluate the amount of thinning as well as tear meniscus height confirming dry eye syndrome. You tell her she needs to continue artificial tear use and not to discontinue them. In addition to the exam (shown as 9xxxx), the claim will read as below.

17 REFERRING/ORDERING PROVIDER	17a.		
DK J Emdy MD	17b.	NPI	1234567890
19 ADDITIONAL CLAIM INFORMATION			
21 DIAGNOSIS OR NATURE OF ILLNESS OR INJURY ICD Ind. 0			
A. H04.123 B. C. D.			

24. A. DATES OF SERVICE From MM DD YY	To MM DD YY	B. POS	C. EMG	D. PROCEDURES, SVCS CPT/HCPCS	MODIFIER	E. DX POINTER	F. $ CHARGES	G. UNITS	H. EPSDT	I. ID QUAL.	J. RENDERING PROVIDER I.D.
mm dd yyyy		11		9xxxx		A	xxx xx	1		NPI	1234567890
mm dd yyyy		11		0330T	GA GY	A	xxx xx	1		NPI	1234567890
										NPI	

Note: Use modifier -GY to indicate a noncovered service and modifier -GA to indicate a signed financial waiver on file.

Example 5

You are seeing a new 72 y/o male patient with a recent history of mild blur unrelated to refraction and anomalous pupillary responses. An ABN is executed in advance and the patient consents to pupillometry; this Medicare beneficiary selects Option 1 indicating his wish that you file a claim. You perform the exam and use the Keratograph 5M solely to perform quantitative pupillometry. The images are saved and the test is properly interpreted. You diagnose ischemic optic neuropathy in the right eye and refer the patient to neuro-ophthalmology for further work-up and possible treatment. The claim will read as follows.

17 REFERRING/ORDERING PROVIDER	17a.		
DK J Emdy MD	17b.	NPI	1234567890
19 ADDITIONAL CLAIM INFORMATION 92499 – Quantitative Pupillometry			
21 DIAGNOSIS OR NATURE OF ILLNESS OR INJURY ICD Ind. 0 A. H47.011 B. C. D.			

24. A. DATES OF SERVICE From MM DD YY	To MM DD YY	B. POS	C. EMG	D. PROCEDURES, SVCS CPT/HCPCS	MODIFIER	E. DX POINTER	F. $ CHARGES	G. UNITS	H. EPSDT	I. ID QUAL.	J. RENDERING PROVIDER I.D.
mm dd yyyy		11		9xxxx		A	xxx xx	1		NPI	1234567890
mm dd yyyy		11		92499	GA GY	A	xxx xx	1		NPI	1234567890
										NPI	

Note: Use modifier -GY to indicate a noncovered service and modifier -GA to indicate a signed financial waiver on file for this unlisted code with questionable coverage.

Financial Waivers

An Advance Beneficiary Notice of Noncoverage (ABN, CMS-R-131)[18] is a written notice a health care provider gives to a Medicare beneficiary when the provider believes that Medicare will not pay for items or services. It applies to both assigned and non-assigned claims. By signing an ABN, the Medicare beneficiary acknowledges that he or she has been advised that Medicare will not pay and agrees to be responsible for payment, either personally or through another insurance plan. For an ABN to have any utility, it must be signed before providing the item or service.

The format of an ABN cannot be modified to any significant degree. You must add your name, address and telephone to the header. You may add your logo and other information if you wish. The "Items or Services," "Reason Medicare May Not Pay," and "Estimated Cost" boxes are customizable, so you can add pre-printed lists of common items and services or denial reasons. Anything you add in the boxes must be high contrast ink on a pale background. Blue or black ink on white paper is preferred. You may not make any other alterations to the form. It must be one page, single-sided, although an addendum is allowed.

The patient must *sign* and *date* the form; an unsigned or undated form is not valid. Once the patient has signed the completed form, he or she must receive a legible copy. The same guidelines apply to the copy as to the original: blue or black ink on white paper is preferred; a photocopy is fine. You keep the original in your files.

You must complete your portion of the form before asking the beneficiary to sign. Fill in the beneficiary's name and identification number (but not HIC number) at the top of the form. Complete the "Items or Services" box, describing what you propose to provide. Use simple language the beneficiary can understand. You may add CPT or HCPCS codes, but codes alone

[18] Advance Beneficiary Notice of Noncoverage. Link here. Accessed 10/02/20.

are not sufficient without a description. Complete the "Reason Medicare May Not Pay" box with the reason(s) you expect a denial. The reason(s) must be specific to the particular patient; general statements such as "medically unnecessary" are not acceptable. The "Estimated Cost" field is required.

The beneficiary must *personally* choose from Option 1, 2 or 3.

- Option 1 - *I want the items or services listed above. You may ask to be paid now, but I also want Medicare billed for an official decision on payment, which is sent to me on a Medicare Summary Notice (MSN). I understand that if Medicare doesn't pay, I am responsible for payment, but* ***I can appeal to Medicare*** *by following the directions on the MSN. If Medicare does pay, you will refund any payments I made to you, less co-pays or deductibles.*
- Option 2 - *I want the items or services listed above, but do not bill Medicare. You may ask to be paid now as I am responsible for payment, and* ***I cannot appeal if Medicare is not billed.***
- Option 3 - *I don't want the items or services listed above. I understand with this choice I am* ***not*** *responsible for payment, and* ***I cannot appeal to see if Medicare would pay.***

If the beneficiary chooses Option 1, you must file a claim and append an appropriate modifier to the reported item(s) or service(s). Option 2 applies to situations where Medicare is precluded from paying for the item or service and the beneficiary does not dispute the point; you are not required to file a claim. If the beneficiary chooses Option 3, there is no claim to file or charge to make; the service is not provided because the patient declines.

You do not need an ABN for items or services that are statutorily (*i.e.*, by law) non-covered by Medicare. Statutorily non-covered services in an eye care practice include refractions and cosmetic procedures such as refractive surgery. Instructions, published on September 5, 2008,[19] allow the use of an ABN *voluntarily* for items excluded from Medicare coverage. At your discretion, you may choose to notify a beneficiary that these services are never covered using the ABN. Written notification is strongly recommended to avoid confrontations with beneficiaries about payment.

In CMS Transmittal R1921CP,[20] effective April 1, 2010, two modifiers were updated to distinguish between *voluntary* and *required* use of liability notices.

- Modifier GA is now defined as "Waiver of Liability Statement Issued as Required by Payer Policy". It applies when you believe Medicare will consider a service not medically

[19] CMS. *MLN Matters* (MM6136). Revised Form CMS-R-131 Advance Beneficiary Notice of Noncoverage. Link here. Accessed 02/17/20.

[20] CMS. Transmittal R1921CP. Billing for Services Related to Voluntary Uses of Advanced Beneficiary Notices of Noncoverage (ABNs). February 19, 2010. Link here. Accessed 02/17/20.

necessary in a particular situation. Ask the patient to sign an ABN and submit your claim with modifier GA, allowing the payer to decide if the service is covered.

- Modifier GX is defined as "Notice of Liability Issued, Voluntary Under Payer Policy". It applies when a service is always noncovered; it addresses the fact that most beneficiaries will elect Option 1 in the hope that Medicare might pay, despite your assurances to the contrary. Therefore, if the patient selects Option 1, append modifiers GX and GY to that claim to obtain a denial.
- Modifier GY is defined as "Item or service statutorily excluded or does not meet the definition of any Medicare benefit".

Note that Medicare Advantage plans (Medicare Part C) are prohibited from using the regular Medicare ABN form but may still require prior financial notice. In many cases, they are required to provide a coverage or non-coverage determination in advance. Check plan websites for appropriate instructions.

For non-Medicare beneficiaries, some of the principles outlined above are just as applicable. While the concept of waiver of liability may not be present, or at least not as vigorously, it is still prudent to ensure that patients appreciate the distinction between covered and non-covered services and accept financial responsibility for the latter.

Prohibited Code Combinations

In 1996, the Centers for Medicare and Medicaid Services (CMS) developed the National Correct Coding Initiative (NCCI)[21] to control improper coding leading to inappropriate payments in Part B claims.[22] NCCI consists of a series of edits to analyze codes reported on claims for reimbursement. They ensure the most comprehensive groups of codes are billed rather than the component parts; this is the concept informally known as "bundles". Additionally, the edits check for mutually exclusive code pairs – procedures that are medically incompatible – so just one of the pair may be reimbursed. New edits are published quarterly by the National Technical Information Service (NTIS). Some carriers have also published local policies with additional limitations. Of note, you may not use an ABN to circumvent the NCCI edits.

Current NCCI edits for 92025, 92285, 0330T and 0507T are shown below. Non-covered or unlisted codes such as 92015 and 92499 have no bundles. A bundle means that just one service will be reimbursed when both are performed on the same day.

[21] CMS. National Correct Coding Initiative Edits. Link here. Accessed 10/02/20

[22] Medicare Claims Processing Manual, Chapter 23, §20.9. Link here. Accessed 10/02/20.

Table 4 **NCCI Edits**

Primary Code	Do Not Bill These Codes With Primary Code	Do Not Bill Primary Code With These Codes
92025	65760 65765 65767 65771 99211	65710 65730 65750 65755 65756 65770
92285	99211	15820 15821 15822 15823
0330T	99211	none
0507T	99211	none

NCCI edits in effect as of October 1, 2020.

Health Professional Shortage Area (HPSA)

Medicare pays a quarterly 10% premium to physicians who provide services in a Health Professional Shortage Area (HPSA). This premium is pertinent only to professional services, and does not apply to the technical component (TC) of diagnostic tests. Separating the professional and technical components on the claim this is not necessary. The MAC will automatically calculate bonus payments on the professional component only.

Effective January 1, 2005, changes to the HPSA bonus included an *automatic* bonus payment in many locations. The HPSA automated file is updated on an annual basis. Individual Medicare contractors provide quarterly updates on their websites for changes to HPSA designations.

Previously, modifier QB, for services provided in rural HPSAs, and modifier QU, for services provided in urban HPSAs, were required on all eligible services. Modifier AQ replaced these modifiers on January 1, 2006; the distinction between rural and urban HPSAs no longer exists. Modifier AQ may be required on eligible services provided in newly designated areas not posted on the automatic listing. No modifier is required for locations posted for automatic bonus payments.[23]

As an illustration, if the CT in the first Sample Claim, above, had been performed in a HPSA not receiving automatic bonus payments, then the claim would read as follows.

[23] CMS. Policy HPSA/PSA Physician Bonuses. Link here. Accessed 10/02/20.

17 REFERRING/ORDERING PROVIDER	17a.		
DK J Emdy MD	17b.	NPI	1234567890
19 ADDITIONAL CLAIM INFORMATION			
21 DIAGNOSIS OR NATURE OF ILLNESS OR INJURY ICD Ind. 0			
A. H18.613 B. H52.213 C. D.			

24. A. DATES OF SERVICE From MM DD YY	To MM DD YY	B. POS	C. EMG	D. PROCEDURES, SVCS CPT/HCPCS	MODIFIER	E. DX POINTER	F. $ CHARGES	G. UNITS	H. EPSDT	I. ID QUAL.	J. RENDERING PROVIDER I.D.
mm dd yyyy		11		9xxxx	AQ	A,B	xxx xx	1		NPI	1234567890
mm dd yyyy		11		92025	AQ	A,B	xxx xx	1		NPI	1234567890
mm dd yyyy		11		92310	AQ	A,B	xxx xx	1		NPI	1234567890
										NPI	

Purchased Diagnostic Tests / Anti-Markup Rule

If you order and bill for a test and either the technical component or the professional interpretation is performed by another physician, you may be prohibited from marking up the test (*i.e.*, receiving payment from Medicare in excess of the amount you paid to the entity who performed the technical component or professional interpretation) unless the physician who performs the test "shares a practice" with you.[24] However, if the performing physician meets the Medicare criteria for "sharing a practice" with you, the prohibition would not apply for that diagnostic test. The prohibition against marking up the test is referred to as the Medicare Anti-Markup Rule and was formerly known as the Purchased Diagnostic Test Rule.

If the Medicare Anti-Markup Rule applies because the performing physician is not deemed to share a practice with the billing physician, the payment to the billing physician (less the applicable deductibles and coinsurance paid by the beneficiary or on behalf of the beneficiary) for the technical component or the professional component of the diagnostic test may not exceed the lowest of the following amounts:

- The performing supplier's net charge to the billing physician or other supplier;
- The billing physician or other supplier's actual charge; or
- The fee schedule amount for the test that would be allowed if the performing supplier billed directly.

For further information about the Medicare Anti-Markup Rule and the "sharing a practice" criteria, please refer to CMS instructions.[25]

[24] CMS Medicare Learning Network. MLN Matters MM6371, effective 07/06/09. Link here. Accessed 01/08/18.
[25] Medicare Claims Processing Manual, Chapter 1, Section 30.2.9. Link here. Accessed 11/05/18.

PAYMENT RATES

National Medicare payment rates in 2021 for 92285 and 92025 are shown in Table 5, including the technical component (TC), the professional component (PC) and the global total. Note that actual payment amounts vary geographically according to local wage indices. Other payers set their own rates, which may vary considerably from Medicare amounts.

Table 5 **Medicare Fee Schedule** [26]

Code	Description		PAR Allowable $	Non-PAR Allowable $	Limiting Charge for Non-PAR $
92025	Corneal Topography	Global	37.34	35.47	40.79
		TC	17.80	16.91	19.44
		PC	19.54	18.56	21.35
92285	External Photography	Global	23.38	22.21	25.54
		TC	20.24	19.23	22.11
		PC	3.14	2.98	3.43

2021 National Medicare Physician Fee Schedule

Most third party payers describe 0330T and 0507T as "*experimental or investigational*" and not covered. These codes have no assigned values under Medicare, nor does the unspecified code 92499; refraction (92015) is never covered by Medicare.

Additionally, Medicare policies on Category III codes generally state, *"The creation of a CPT Category III code by the AMA 'neither implies nor endorses clinical efficacy, safety or the applicability to clinical practice.'"*[27]

Multiple Procedure Payment Reduction

In 2013, Medicare implemented a payment reduction when multiple tests are performed on a patient at the same encounter. This is known as the Multiple Procedure Payment Reduction (MPPR). This payment policy reduces the technical component of the second and any subsequent diagnostic tests by 20% when more than one eligible diagnostic test is performed at one encounter

[26] Participating physicians (PAR) agree to accept Medicare allowed amounts on all covered services as their maximum payment from all sources. This is known as "accepting assignment". Non-participating physicians (Non-PAR) may accept assignment on a case-by-case basis, but are also limited in the amount they may charge the patient if they do not accept assignment. For additional discussion, see information published by CMS for patients. Link here.

[27] Wisconsin Physicians Service. LCD L35490. Category III Codes. Rev. eff. 07/01/20. Link here. Accessed 10/02/20.

on the same day by the same physician or group. Payments for the professional components are unaffected. The list of ophthalmic tests[28] includes ultrasound, imaging, and visual fields. Tests not on the list are not subject to the MPPR reduction. Importantly, for the Keratograph 5M, only 92285 and 92025 are on this list.

MPPR Example

A patient returns for her 6 month keratoconus check; the corneal topography was ordered at last visit for performance today. During the exam today, it is noted during the examination that there are also some conjunctival lesions not noted before. External photography is ordered. Both tests are properly interpreted. The claim is filed. In 2021, Medicare payment for these two tests would be as follows.

Test	Professional	Technical	Total
92285 External Photography	$3.14	$20.24 (No reduction)	$23.38
92025 Corneal Topography	$19.54	$17.80 less $3.56 (20%) = $14.24	$33.78

2021 National Medicare Physician Fee Schedule

Note: The payment reduction is taken on the lower-valued of the two technical (TC) portions – in this case, only the TC of the corneal topography is reduced even though the global allowed amount for corneal topography is higher. Providers do not need to place the codes in descending TC order nor do they need to separate the TC and professional components on separate claim lines; MACs do the proper calculations automatically.

UTILIZATION

Commercial utilization rates are not readily available, but CMS publishes utilization data for Medicare. The most current data available comes from Medicare fee-for-service claims adjudicated in 2018.

In the Medicare program, 92025 was paid about 200,000 times, or only 1 time per 100 exams performed by ophthalmologists. Claims for 92025 among optometrists were only 0.3 times per 100 exams.

[28] The Medicare Physician Fee Schedule multiple procedure indicator (7) identifies applicable codes.

In the Medicare program, 92285 was paid about 262,000 times or roughly 1.3 times per 100 exams performed by ophthalmologists. Claims for 92285 among optometrists were 1.3 times per 100 exams.

Claims data for 0330T and 0507T is unavailable, and 92499 would be inaccurate as it is not specific. There is no utilization data for 92015 since it is never covered.

If your utilization rate significantly exceeds expected norms, you will likely garner unwanted attention from Medicare and other payers. Careful attention to documentation of tests and their interpretations, and the reasons they were performed are your best defense against reproach in the event of postpayment review.

CONCLUSION

The OCULUS Keratograph 5M provides ophthalmologists and optometrists with a versatile tool to perform a wide variety of tests to assess the cornea and external eye. Discrete reimbursement for medically necessary testing is available for external ocular photography, and corneal topography. By virtue of having their own Category III CPT codes, tear film imaging and meibomian glad imaging via infrared light are distinct from an eye exam and other services, although coverage is not generally available for these new diagnostic tests. Wavefront analysis of optical aberrations is part of refraction and not covered by Medicare and most health plans. Keratometry and fluorescein pattern analysis for CLs is an incidental part of CL fitting and not separately billed. Where a test is not covered, a financial waiver form, such as an ABN, is necessary to ensure that the patient accepts financial responsibility.

This discussion is meant to assist the reader to better understand the rules and regulations regarding reimbursement for these services; however, the responsibility for appropriate usage, adequate documentation and proper coding are always the physician's.

Reimbursement Tips

- When the patient's condition(s) require(s) more than one test, bill for each service performed.
- Some conditions warrant repeat testing to assess progressive disease or worsening of the condition. Clearly document the rationale for repeat services.
- Use the NPI for the physician who orders and interprets diagnostic tests requiring general supervision.
- Place copies of digital photographs in the medical record or make a note in the chart where the electronic files are stored. Keep backup copies (*e.g.*, on a CD-ROM) of the digital files.
- Notify the patient in writing, prior to testing, of financial responsibility if the test(s) is performed for screening, prophylaxis, routine, or any other situation where coverage is in doubt. Document acceptance on a financial waiver form such as an ABN.
- Medicare Advantage plans (Medicare Part C) are prohibited from using the regular Medicare ABN form but may still require prior financial notice. In many cases, they are required to provide a coverage or non-coverage determination in advance.
- Claims for 92499 require a description in the "Box 19" comments field.