Corcoran Consulting Group

A Division of Ardare Corporation

Reimbursement for Tests with the OCULUS Pentacam®, Pentacam HR®, and Pentacam AXL®

Prepared for

OCULUS®

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Reimbursement for Tests with the OCULUS Pentacam, Pentacam HR, and Pentacam AXL

by

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Notice: *All fee schedule amounts noted in this document are the national Medicare allowed amounts. Actual fee schedule amounts and payments vary by locality.*

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INTRODUCTION

OCULUS' Pentacam®, Pentacam HR®, and Pentacam AXL® are multipurpose diagnostic instruments[1] for evaluating the anterior segment using tomography.[2] Tomography provides a three dimensional digital picture of the anterior segment from a variety of vantage points. The Pentacam AXL adds another functionality: optical coherence biometry (OCB) for measurement of axial length of the eye.

This monograph describes reimbursement for tests performed with the Pentacam, Pentacam HR, and Pentacam AXL, either alone or as part of another service. They include:

- Optical tomography of the anterior segment (SCODI-A)
- Anterior segment photography
- Corneal topography
- Corneal pachymetry
- Optical coherence biometry and intraocular lens (IOL) calculation, including optimization of IOL constants over time (AXL only)
- Planning for phakic IOL
- Lens densitometry
- Zernike and wavefront analysis of the cornea
- Contact lens fitting

These tests are useful in evaluation and management of disease, planning for anterior segment surgery, and contact lens fitting.

Much of the information is taken from official publications of the Medicare program, including the Centers for Medicare and Medicaid (CMS) and the Medicare Administrative Contractors (MAC). However, the reader is encouraged to check with the local MAC for additional information and instructions. 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 and ICD-9-CM. Documentation of the medical necessity of the procedure is always a prerequisite 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.

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1 OCULUS instruments. Link here. Accessed 11/16/20.

2 University of Leeds, Faculty of Engineering. *What is Tomography?* Link here. Accessed 11/16/20.

THE INSTRUMENTS

OCULUS' Pentacam, Pentacam HR, and Pentacam AXL provide 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. They rapidly image the anterior segment of the eye with a rotating Scheimpflug camera[3] taking a large series of digital pictures, each one from a different vantage point. Using the Scheimpflug images created by changing the typical perpendicular alignment between lens plane and film plane to increase the depth of field, the anatomical structures of the anterior segment including the cornea, anterior chamber, iris and lens can be visualized in great detail. Pentacam's software analyzes and evaluates all of the acquired data to create a three dimensional tomogram[4] of the anterior segment. Depending on the needs of the examiner and the model, Pentacam allows the user to selectively attend to one or more parts of the eye. Tomographic digital images contain precise quantitative focus point data in x, y, and z axes which permits measurement of chords and curves within the eye. All Pentacam models use a digital CCD camera and a blue LED light source of 475 nm wavelength.

Figure 1 **OCULUS Pentacam**

Figure 2 **Oculus Pentacam HR** (shown w/o Table or Computer)

[3] Wikipedia. Scheimpflug Principle. Link here. Accessed 11/16/20.

[4] Wikipedia. Tomography. Line here. Accessed 11/16/20.

The Pentacam HR has brighter, optimized optics and can produce images of higher resolution than the standard Pentacam; the measurement accuracy is improved to 0.1 D. The Pentacam HR model comes with some additional software modules standard. Some of these new modules can be purchased separately for the standard Pentacam.

- Refractive Package
- Cataract Package (but does not include the ability to upgrade to perform biometry)
- Holladay Report and Holliday EKR65 Detail Report
- PNS and 3D Cataract Analysis
- Corneal optical densitometry

Both the Pentacam and Pentacam HR models have a separate optional upgrade known as the "CSP Report". This report looks at the cornea/sclera out to 16-18 mm and is used most often for scleral contact lens fitting.

The Pentacam HR itself has additional software options: an "IOL Calculator" similar to the software found on the AXL model, and a "3D pIOL Simulation and Aging Prediction" – although it would not have the ability to perform biometry, as that is exclusively in the Pentacam AXL model.

Figure 3 **OCULUS Pentacam AXL**

The Pentacam AXL utilizes optical coherence technology in addition to tomography as noted above. Optical coherence biometry (OCB) is an alternative to A-scan ultrasound prior to cataract- or lens-based surgery.[5] It uses partially coherent light to determine the axial length of the eye. Using the axial length, the instrument has the ability to run IOL calculations as well. The measurements are transferred automatically to the IOL calculation software to prevent transcription errors. This model aligns the Scheimpflug and optical coherence measurements with a single centering function; the device provides "graphical instructions and [activates] the device automatically once the optimal measuring position has been reached".[6]

The AXL model can measure axial lengths from 14 to 40 mm and corneal curvatures from 9 to 99 diopters at an accuracy of 0.1 D. Because the instrument also images the conjunctival blood vessels and iris structures, it may facilitate proper toric IOL axis positioning. Additionally, this model contains software to prompt users to enter the post-refractive data for optimization of IOL constants.

A number of IOL calculation formulas are available in the software, including:

- SRK/T
- Holladay 1
- Hoffer Q
- Haigis
- PotvinShammasHill (for post-myopic LASIK corneas)
- PotvinHill (for post-RK corneas)
- Double-K formulas (Hoffer Q, Holladay 1, SRK/T)
- Meridional analysis based on Total Cornea Refraktiv Power (TCRP, for toric IOLs)
- Barrett Universal II (Spherical IOLs)
- Barrett Toric Estimated Posterior Corneal Astigmatism
- Barrett Toric Measured Posterior Corneal Astigmatism
- Barrett True K (Post Refractive Spherical IOLs)
- Olsen Ray Tracing (Spherical IOLs, Toric IOLs, Post Refractive IOLs, and Post Refractive Toric IOLs)

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[5] Carl Zeiss Meditec Ag. US Patent, Device for swept-source optical coherence domain reflectometry. 2014. Link here. Accessed 11/04/20.

[6] OCULUS. Pentacam AXL. Link here. Accessed 11/03/20.

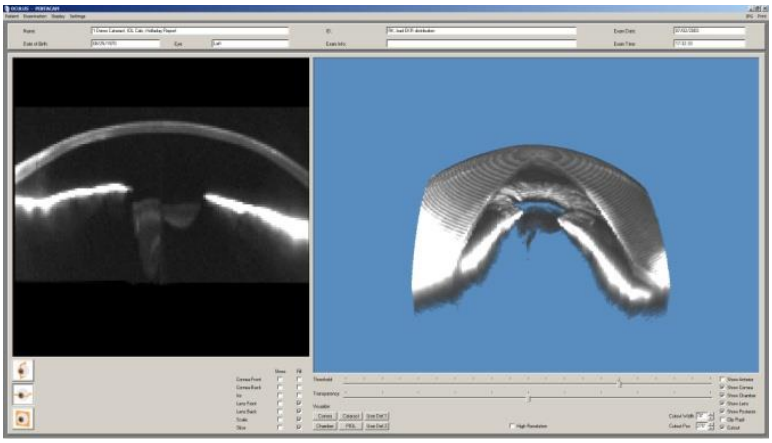
CODES AND COVERAGE

There are a variety of CPT codes that apply to diagnostic testing performed with the Pentacam, Pentacam HR, and Pentacam AXL.

SCODI-A (CPT 92132)

CPT 92132 describes *"Scanning computerized ophthalmic diagnostic imaging, anterior segment, with interpretation and report, unilateral or bilateral."* Computerized optical tomography fits this definition. Figure 4 is illustrative.

Figure 4 **Sample Pentacam Tomogram**



Some MACs have established policies for this diagnostic test, but not all of them. The following excerpt from the Wisconsin Physicians Services LCD is representative of coverage policies for SCODI-A.[7]

> *Anterior Segment Disorders:*
>
> *SCODI may be used to examine the structures in the anterior segment structures of the eye. However, it is still seen as experimental/investigational except in the following:*
>
> 1. *Narrow angle, suspected narrow angle, and mixed narrow and open angle glaucoma*
> 2. *Determining the proper intraocular lens for a patient who has had prior refractive surgery and now requires cataract extraction*

[7] Wisconsin Physicians Services. LCD L34760. Scanning Computerized Ophthalmic Diagnostic Imaging (SCODI). Rev. eff. date 11/01/19. Link here. Accessed 11/04/2020.

3. *Iris tumor*
4. *Presence of corneal edema or opacity that precludes visualization or study of the anterior chamber*
5. *Calculation of lens power for cataract patients who have undergone prior refractive surgery. Payment will only be made for the cataract codes as long as additional documentation is available in the patient record of their prior refractive procedure. Payment will not be made in addition to A-scan or IOL master.*

Due to the limitations in Local Coverage Article (LCA)[8] that accompanies this particular LCD, there is a short list of "Group 1" covered diagnoses that apply to 92132. They are shown in Table 1.

Table 1 **Possible Diagnosis codes for 92132**[9]

ICD-10	Description
C69.9-	Malignant neoplasm of eyeball
C69.1-	Malignant neoplasm of cornea
D31.9-	Benign neoplasm of eyeball
D31.1-	Benign neoplasm of cornea
H21.1-	Degenerations of iris and ciliary body
H21.3-	Cysts of iris, ciliary body and anterior chamber
H21.4- to H21.5-	Adhesions and disruptions of iris and ciliary body
H21.8-	Other disorders of iris and ciliary body
H40.03-	Anatomical narrow angle
H40.2-	Primary angle-closure glaucoma
H17.-	Corneal scars and opacities
H18.2-	Corneal edema
H18.7-	Other corneal deformities
H27.0-	Disorders of lens
T85.3-	Complication of corneal graft
T85.2-	Complication of IOL
T85.3-	Complication of ocular prosthesis

[8] Wisconsin Physicians Services. LCA # L56916. Billing and Coding: Scanning Computerized Ophthalmic Diagnostic Imaging (SCODI). Rev. eff. date 10/29/20. Link here. Accessed 11/04/2020.

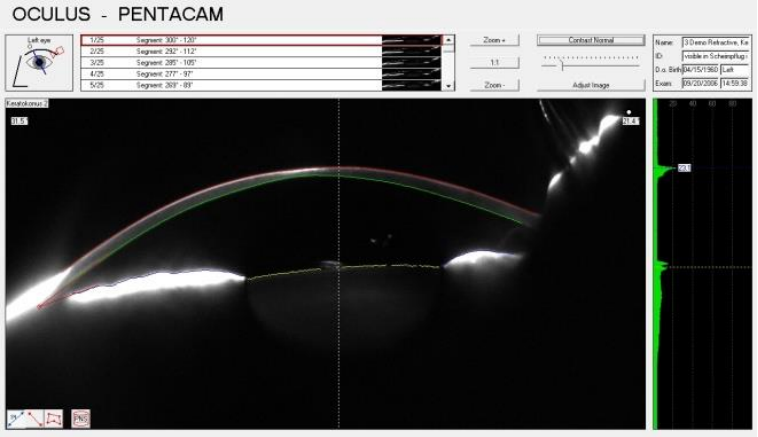
[9] Listed codes are representative of covered diagnoses for 92132, but differences in payment policies exist for many payers. This list is neither exhaustive nor universally accepted. See your local coverage and payer bulletins. The ending "dash" means a longer code is required which contains greater specificity. Some policies may not use all the codes in a particular range as listed.

External Ocular Photography (CPT 92285)

A solitary Scheimpflug image constitutes a close-up external ocular photograph (92285) in contrast to a 3D tomograph. Figure 5 shows a static image illustrative of this application of the Pentacam. The key points that warrant coverage include:

- the (static) photograph provides additional information not obtained during the exam
- the photograph aids in diagnosis and treatment of a disease or condition
- the photograph is taken to assist in assessing disease progression

Figure 5 **Scheimpflug Image of Keratoconus**[10]



Photographs taken merely to document the presence of disease or abnormality are treated as an incidental service and are not accorded separate reimbursement. For example, photographs of old corneal scars do not contribute to patient care. The following LCD excerpt is representative of coverage policies for external ocular photography.

> ***CGS Administrators***[11]
> *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 of digital, Polaroid Macro 3 SLR or equivalent … photographs for the purpose of documenting for medical legal purposes or preauthorization (e.g., gross trauma, amount of ptosis or redundant lid tissue) are not separately reimbursable.*

[10] Ambrosio Jr., R. Screening for ectasia using Pentacam. European Society of Cataract and Refractive Surgery. Eurotimes Supplement Feb 2007, p 9. Link here. Accessed 11/04/20.

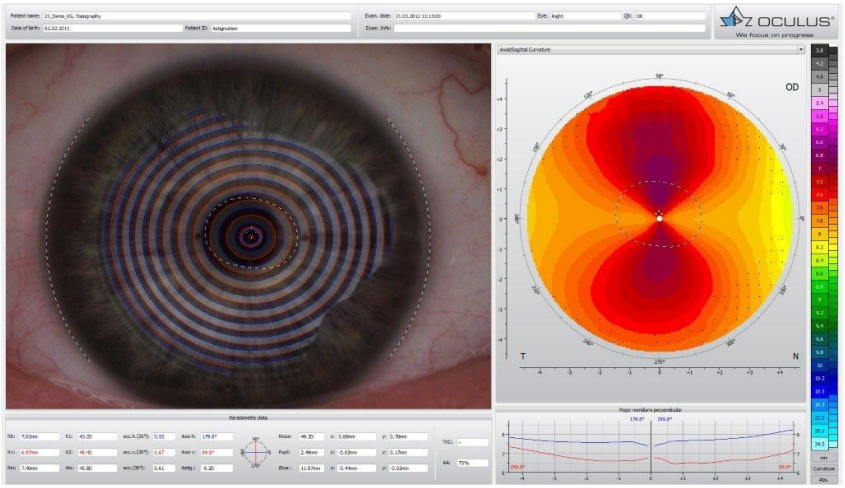
[11] LCD # L34393. CGS Administrators, LLC. Ocular Photography - External. Rev. eff. 10/31/2019. Link here. Accessed 11/04/20.

No national Medicare policy exists, so reimbursement for external ocular photography is at the discretion of each MAC. Table 2 is a list of typical covered diagnoses taken from several sources.

Table 2 **Possible Diagnosis codes for 92285** [9]

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

Figure 6 **Corneal Topography Image**



Corneal Topography (CPT 92025)

CPT 92025 describes *"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 helpful as an adjunct to contact lens fitting, particularly in difficult cases such as keratoconus. In the refractive surgery setting, CT helps the surgeon plan the procedure as well as 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. Table 3 provides a list of possible covered diagnoses for 92025.

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 6 is illustrative. A sample LCD for CT by CGS Administrators, LLC[12] states:

> *"Computerized corneal topography is considered medically necessary under any of the following conditions:*
>
> - *diagnosis of early keratoconus;*
> - *post-surgical or post-traumatic astigmatism, measuring at a minimum of 3.5 diopters;*
> - *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."*

The same LCD includes some limitations on coverage for CT. *"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".*

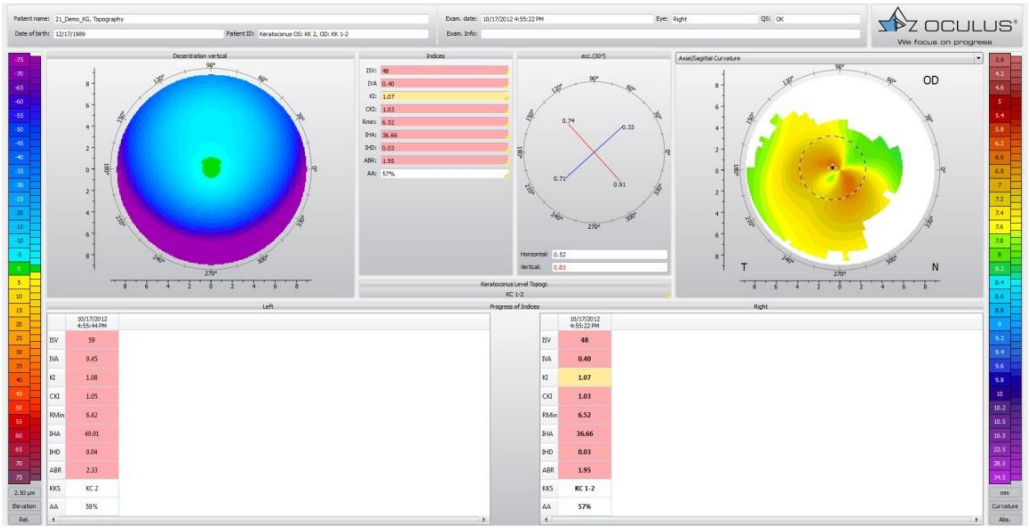
[12] L34008. CGS Administrators, LLC. Computerized Corneal Topography. Rev. eff. 9/19/2019. Link here. Accessed 11/05/20.

Table 3 **Possible Diagnosis codes for 92025** [9]

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
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)

Following CT, the Pentacam and Pentacam AXL report indices as a suspicion-based appraisal using corneal shape (Figure 7). The indices are an integral part of the CT and not separately billable.

Figure 7 **Corneal Indices Image**



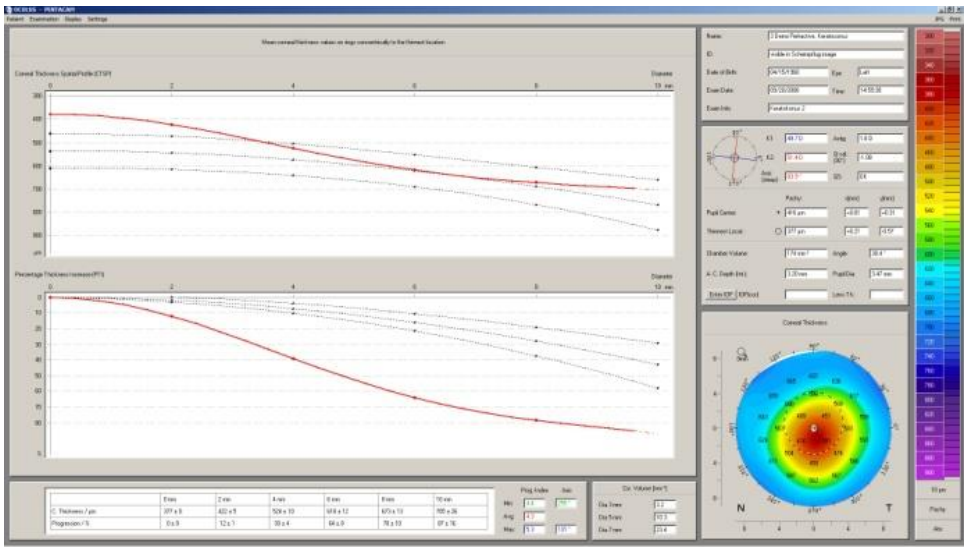
Remember that both the Pentacam and Pentacam HR models have an optional upgrade known as the "CSP Report" which looks at the cornea/sclera out to 16-18 mm and is used most often for scleral contact lens fitting. As such, it can be considered an incidental service to both corneal topography and/or the contact lens fitting.

Optical Corneal Pachymetry (92499)

CPT contains just one code for corneal pachymetry: 76514 (*Ophthalmic ultrasound, echography, diagnostic; corneal pachymetry, unilateral or bilateral, determination of corneal thickness*).[13] The Pentacam does not use ultrasound to measure corneal thickness so 76514 is not accurate to report use of the Pentacam. The only appropriate CPT code to describe corneal pachymetry when using the Pentacam is 92499 (*Unlisted ophthalmological service or procedure*). Typically, an explanatory note, such as "optical corneal pachymetry", is added to the CMS-1500 claim form in box 19 to clarify what the unlisted code represents; refer to the carrier instructions for electronic claims for the equivalent of box 19 which may be NTE (claim note) segment of loop 2300 or NTE (line note) segment in loop 2400.[14]

Figure 8 is a sample of the Pentacam printout for corneal pachymetry. It shows the thickness across the entire cornea, not just the central value.

Figure 8 **Corneal Pachymetry**



[13] Wikipedia. Corneal pachymetry. Link here. Accessed 11/16/20.

[14] CGS Medicare. CMS 1500 Claim Form/American National Standards Institute (ANSI) Crosswalk for Paper/Electronic Claims. Link here. Accessed 11/05/20

Pachymetry may be ordered when a diseased cornea is edematous or ectatic. It is commonly used prior to corneal refractive surgery to evaluate the candidacy of patients and help plan the procedure. In addition, the Ocular Hypertension Treatment Study (OHTS) showed that corneal thickness influences intraocular pressure measurement and is a factor in the evaluation and management of glaucoma.[15] Payers often limit the frequency of pachymetry for glaucoma-related diagnoses. Table 4 is a list of typical covered diagnoses taken from several sources.

Table 4 **Possible Diagnosis codes for Corneal Pachymetry** [9]

ICD-10	Description
H40.0-	Glaucoma Suspect
H40.1-	Open-Angle Glaucoma(s)
H40.2-	Angle-closure glaucoma(s)
H40.3-	Glaucoma secondary to trauma
H40.4-	Glaucoma associated with eye inflammation
H40.5-	Glaucoma secondary to other eye disorders
H40.6-	Glaucoma secondary to drugs, other specified glaucoma
H40.8-	Other glaucoma, unspecified glaucoma
H40.89	Phacolytic glaucoma, Other specified glaucoma
H42	Glaucoma in diseases classified elsewhere
H17.-, H18.0- to H18.5-	Corneal scars, opacities, and degenerations
T85.398-	Mechanical complication of prosthetic corneal graft

Following corneal topography and/or corneal pachymetry in cases of keratoconus[16] and ectasia, the Pentacam incorporates the Belin-Ambrosio display to give a suspicion-based appraisal using both height data from the corneal surfaces and corneal thickness. This added functionality is considered an incidental service and not separately billable.

Optical Coherence Biometry (CPT 92136)

CPT 92136 describes "*Optical biometry by partial coherence interferometry with intraocular lens calculation."* Optical coherence biometry (OCB) is an alternative to A-scan ultrasound prior to cataract surgery. It uses partially coherent light to determine the axial length of the eye, and these numbers when combined with corneal curvature are used

[15] Brandt, JD, Beiser, JA, Kass, MA, et al. Central corneal thickness in the ocular hypertension treatment study (OHTS), Ophthalmology Vol 108, Issue 10, October 2001, p 1779-1788 Link here. Accessed 11/05/20.

[16] Wikipedia. Keratoconus. Link here. Accessed 11/16/20.

to determine IOL power before cataract surgery with IOL implantation. As such, it is a duplicative diagnostic service and would not be billed in addition to A-scan biometry (CPT 76519). Longstanding National Coverage Determination (NCD) §10.1 notes that only a single measurement of axial length is generally allowed before cataract surgery.[17]

> *"…In most cases, a comprehensive eye examination (ocular history and ocular examination) and a single scan to determine the appropriate pseudophakic power of the IOL are sufficient…"*

National Government Services, Inc. (NGS) LCD for Optical Biometry for Intraocular Lens Power Calculation states:[18]

> *"Prior to cataract surgery on the second, contralateral eye, allowance for the power calculation can be made. However, allowance for the technical component of the A-scan or OCB CPT code cannot be made since this bilateral procedure was performed and reimbursed at the time of the first surgery.*
>
> *The technical component of the scan will generally provide valid information for twelve months. A repeat scan in less than twelve months would not be covered without documentation of significant change in vision (unless required because a second unaffiliated surgeon performed the second cataract extraction.) … If ophthalmic biometry is performed and later the surgery is canceled, it is reasonable to allow a repeat scan if significant time, e.g., greater than one (1) year, has elapsed when surgery is rescheduled.*
>
> *Ophthalmic biometry for lens power calculation should not be performed unless a decision to remove the cataract has been made by the patient and surgeon."*

CGS Administrators has the same language as above.[19]

Ocular coherence biometry with IOL calculation may be billed using a *global code* (92136) without modifiers or with modifiers RT or LT as appropriate. The payment methodology incorporates a novel definition of the global service that is unusual within Medicare. Reimbursement for 92136 is for the *bilateral* performance of the technical component and *unilateral* performance of the interpretation or professional component. If the physician

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[17] CMS. NCD 10.1. Use of Visual Tests Prior to and General Anesthesia during Cataract Surgery. Eff. Date 8/31/1992. Link here. Accessed 11/05/20.

[18] National Government Services, Inc. LCD L33621. Ophthalmic Biometry for Intraocular Lens Power Calculation. Rev. eff. 9/19/2019. Link here. Accessed 11/05/20.

[19] CGS Administrators, LLC. LCD L34181. Ophthalmic Biometry for Intraocular Lens Power Calculation. Rev. eff. 12/05/2019. Link here. Accessed 11/05/20.

subsequently interprets the measurement of the second eye for contralateral cataract surgery, only the professional service for the second eye is reimbursed at that time.

For example: A 68 y/o male is examined and cataract surgery is planned OD. Both eyes are measured using OCB and the proper power is selected for the right eye only. The claim will read as follows.

92136-RT	OCB w/ IOL calculation, right eye

Alternately, some payers ask for a breakdown as follows. This is financially equivalent to the global service (92136) without the modifiers.

92136-TC	OCB, technical component
92136-26RT	OCB interpretation, right eye

Two months later, this patient is re-examined and scheduled for cataract surgery OS. The earlier biometry measurement in the chart is used to calculate the proper power for the IOL for his left eye. The claim will read as follows.

92136-26LT	OCB w/ IOL calculation, left eye

Note that some Medicare contractors have instructed providers to submit claims for this test without modifiers RT or LT. Check your MAC's policy. For some non-Medicare payers, the global fee is paid once on each eye, prior to each surgery; however, policies vary. Table 5 is a partial list of typical covered diagnoses taken from several sources.

Table 5 **Possible Diagnosis codes for Optical Coherence Biometry** [9]

ICD-10	Description
H26.-	Nonsenile cataract unspecified
H25.9	Senile cataract, unspecified
H25.89	Pseudoexfoliation of lens capsule
H25.03-	Anterior subcapsular polar senile cataract
H25.04-	Posterior subcapsular polar senile cataract
H25.01-	Cortical senile cataract
H25.1-	Senile nuclear sclerosis
H25.-	Total, mature, hypermature cataracts
E10.3-, E11.3-, E13.3-	Diabetic cataracts
H27.0-	Aphakia and dislocation of lens
Q12.-	Congenital cataract and congenital aphakia
T85.2-	Mechanical complication due to ocular lens prosthesis

Anterior Chamber Depth, Horizontal Corneal White-to-White, and Keratometry

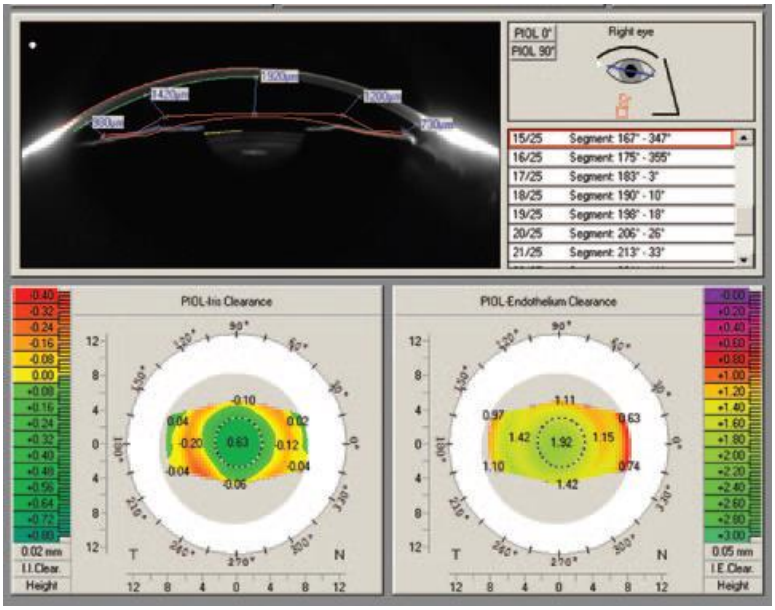
Prior to cataract surgery, calculation of an appropriate IOL power relies on gathering biometric data about the eye that may include axial length, keratometry, anterior chamber depth, and horizontal corneal white-to-white diameter.[20] The non-AXL models of the Pentacam can provide all of these measurements except axial length. However, these measures are properly considered to be incidental components of A-scan biometry (CPT 76519) or optical coherence biometry (CPT 92136) and no separate code should be reported or charge should be made. The Pentacam AXL does all of the above and includes axial length via optical coherence biometry. There is a discussion of optical coherence biometry in an earlier section.

Phakic IOL Simulation

After imaging the anterior chamber, the Pentacam can simulate the location of a phakic IOL (pIOL) as it might appear in the anterior chamber.

Any charge for this test would be considered an element of cosmetic refractive surgery and usually not covered by insurance. Figure 9 compares the predicted position (top half) with the actual post-operative position (bottom).

Figure 9 **Phakic IOL Simulation, Pentacam**

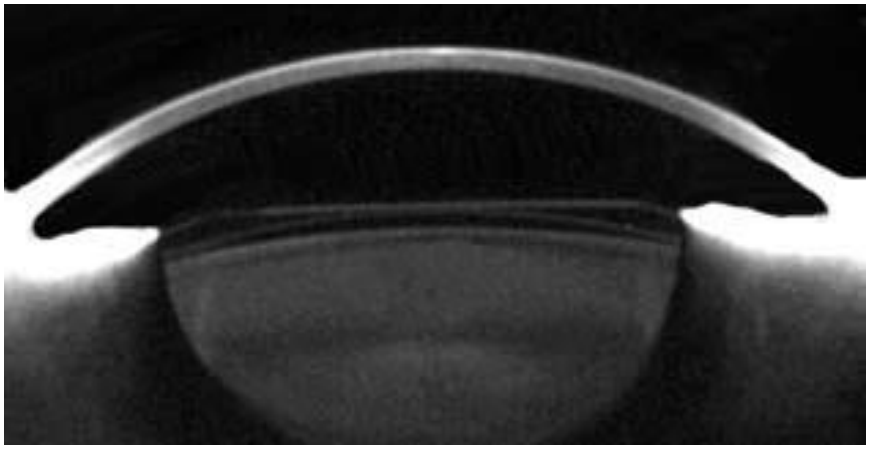


[20] Rufer F, Anke S, Erb,C. White-to-white corneal diameter: normal values in healthy humans obtained with the Orbscan II topography system. *Cornea*. 2005 Apr;24(3):259-61. Link to abstract here. Accessed 11/18/20.

Densitometry

For patients with cataract, the Pentacam can objectively grade the density and locations of lens opacities. No specific CPT code exists to describe this test; we consider it an incidental component of an eye exam and no separate charge should be made. Figure 10 is illustrative.

Figure 10 **Lens Densitometry**



Corneal Wavefront Analysis

The Pentacam can evaluate the entire corneal wavefront and provide a Zernike analysis based on ray tracing; Figure 10 is representative. Having the ability to evaluate topography and Zernike imaging (higher order aberrations) together gives a complete picture of corneal surface.[21,22]

For most patients, an eye exam and associated refraction will identify lower order optical aberrations.[23] These are corrected with sphere, cylinder, and prism using glasses or contact lenses. However, 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,[24] such as asphericity and coma, which may cause significant problems for patients, even though they may have quite good Snellen

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21 Smolek MK, Klyce SD. Goodness-of-prediction of Zernike polynomial fitting to corneal surfaces. *Journal Cataract Refr Surg.* Vol 31:12, 2350-2355. Published December 2005. Link here (see page 99 of the pdf). Accessed 11/05/20.

22 Holladay JT, Hill WE, Steinmueller A. Corneal power measurements using Scheimpflug imaging in eyes with prior corneal refractive surgery. *J Refract Surg*. 2009 Oct;25(10):862-8. Link to abstract here. Accessed 11/05/20.

23 telescope optics.net. Section 13.3 Human Eye Optical Properties. Link here. Accessed 11/18/20.

24 Wikipedia. Zernike model of aberrations. Link here. Accessed 11/18/20.

acuity.[25,26,27] 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; see Figure 12 for an example.

Figure 11 **Corneal Wavefront**

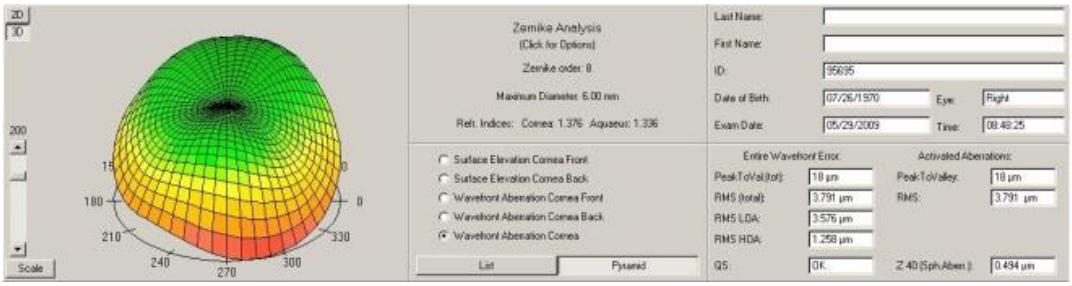
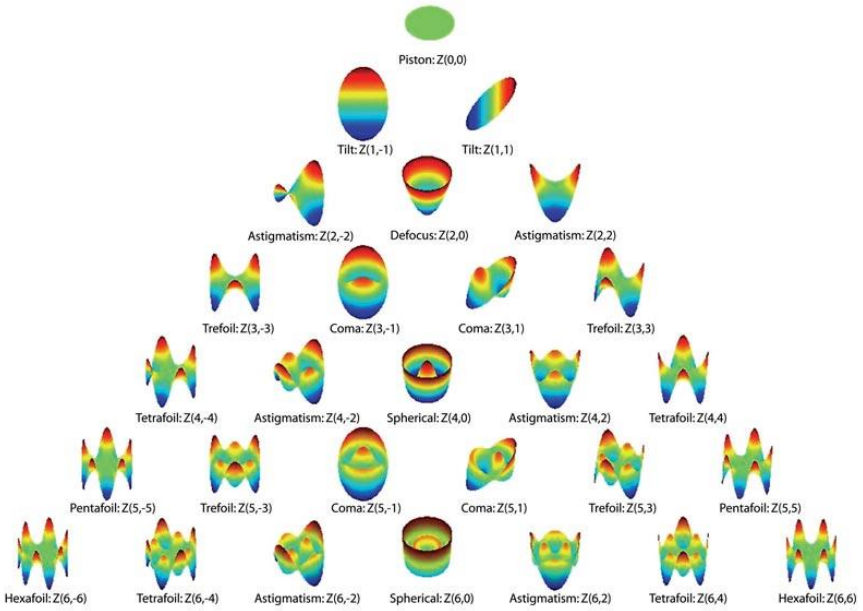


Figure 12 **Zernike Coefficients**



Aberrometry is refractive in nature, although it moves far beyond the familiar sphere, cylinder and axis in traditional refraction (CPT 92015) done to prescribe glasses and contact lenses. It is additive with the basic refractive service. In CPT, modifier -22 is used

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25 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 11/05/20.

26 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 11/05/20.

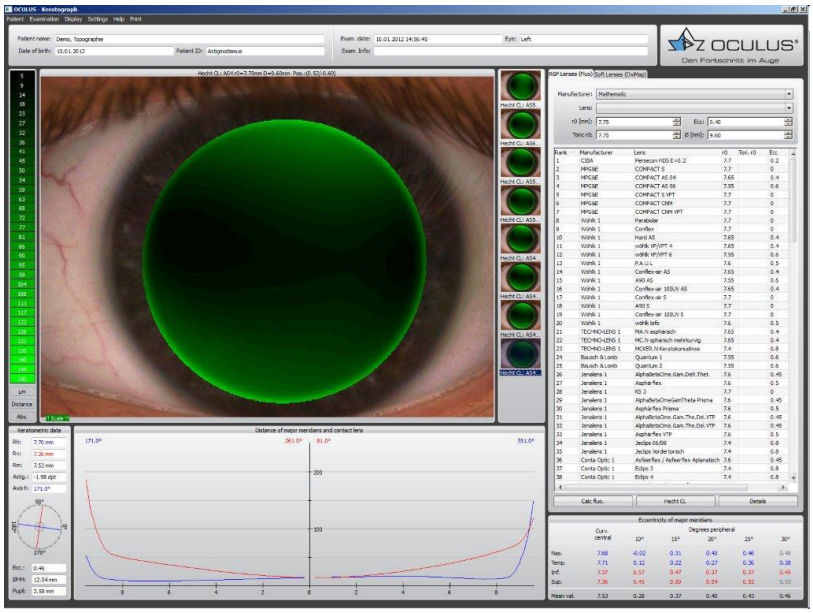
27 McLellan JS, Prieto PM, et. al. Effects of interactions among wave aberrations on optical image quality. *Vision Res*. 2006 Sep; 46(18): 3009–3016. Link here. Accessed 11/05/20.

with a code to report an unusual service that is greater than that usually required for the listed procedure.[28,29] Within the Medicare program, refraction is not a covered service.[30] Consequently, when corneal wavefront analysis is performed with the Pentacam, the beneficiary is financially responsible for this diagnostic test. It supplements and enhances the refraction and a higher fee for 92015-22 is merited. An enhanced note in the chart would also be required to support the higher allowable.

Contact Lens Fitting

The Pentacam 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 13 is an example of a hypothetical fluorescein pattern.

Figure 13 **Fluorescein Pattern**



The use of the Pentacam CL fitting software for pre-designing a lens or displaying a segment height are valuable to reduce chair time and increase efficiency, although is an incidental aspects of CL design and fitting, not separately billable. CPT contains a range

[28] American Medical Association Current Procedural Terminology, 2020. See Modifier section.

[29] Medicare Claims Processing Manual. Chapter 12, § 20.4.6. Link here. Accessed 11/05/20.

[30] Medicare Benefit Policy Manual. Chapter 16, §90. Link here. Accessed 11/05/20.

of codes to report CL fitting (92310-92317). The optional "CSP Report" for the Pentacam and Pentacam HR models is incidental and not accorded separate reimbursement.

For an initial CL fit when the diagnosis is keratoconus, use CPT 92072, *Fitting of contact lens for management of keratoconus, initial fitting*. Medicare considers this a bilateral code, but not all payers might agree.

DOCUMENTATION

The description in CPT for corneal topography and external ocular photography include the phrase *"with interpretation and report"*.[31] 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.[32] 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.*"

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).*"

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[31] Current Procedural Terminology, 2020 Edition.

[32] Medicare Claims Process Manual (MCPM), Chapter 13, §100. Interpretation of Diagnostic Tests. Link here. Accessed 11/05/20.

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

- External photography to monitor inferior conjunctival lesion, OS

[33] 42 CFR 415.120(a). Conditions for payment: Radiology services – Services to beneficiaries. Link here. Accessed 11/05/20.

- January 15, 2020
- Technician: Mary Smith, COA
- Test reliable, good image
- Good patient cooperation
- Inferior conjunctival lesion, recent increase in size to 10 mm, appears flat
- Conjunctival nevus, uncertain behavior. Monitor for continued growth or other changing characteristics
- Stop wearing CLs; re-check 3 months
- *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,[34] 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.

[34] 42 CFR 410.32(b)(3)(i). Definition of general supervision. Link here. Accessed 11/05/20.

As a practical alternative, bill the entire test upon completion after the interpretation is documented 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. 92132 and 92285 require *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.[35]

At this time, no supervision policy has been established for 92025, 92136, or miscellaneous ophthalmic procedures (92499). In our opinion, *general* supervision is appropriate.

[35] CFR 410.32 (b)(3)(i). Definition of general supervision. Link here. Accessed 11/05/20.

BILLING ISSUES

The functions of the Pentacam are numerous, as are the CPT codes which describe 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, as occurs when corneal topography is performed at the same time as SCODI-A. Additionally, patients may have several co-morbidities which warrant investigation using different tests such as: cataract, narrow angles and corneal ectasia. Billing of tests need not mean that they are all covered; within Medicare, refraction is never covered. Obvious duplication occurs when the same digital image of the eye is billed twice. For example, we do not advocate billing external photography and SCODI-A concurrently because the individual digital slices are collectively the tomogram.

CPT Codes

92015-22……..	Low and high order refraction
92025 ……..	Corneal topography
92132 ……..	SCODI-A
92136 ……..…	Optical coherence biometry
92285 ……..	External ocular photography
92499 ……..	Optical corneal pachymetry

Modifiers

The following modifiers may be applicable on claims for tests performed with the Pentacam.

22 …….	Unusual service
26 ……..	Professional component of a diagnostic test
AQ ……..……	Services provided in a HPSA (*Medicare modifier only; replaces QB and QU*)
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, a 75 y/o female who is moderately hyperopic, complains of intermittent haloes at night with a headache. Records show a history of shallow anterior chamber angles OU and a laser peripheral iridotomy OD 7 years ago. On examination, you find +3 nuclear cataracts OU and densitometry with the Pentacam shows significant lens thickening. IOPs are 30 mm Hg OD and 28 mm Hg OS. The angles are nearly occluded OU in three quadrants. You order scanning computerized ophthalmic diagnostic imaging of the anterior segment (SCODI-A) with the Pentacam. You discuss cataract surgery as a treatment option to deepen the AC. In addition to the exam (shown as 9xxxx), the claim will read as follows.

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. | H40.033 B. | H25.13 C. D.			

24. A. DATES OF SERVICE				B.	C	D. PROCEDURES, SVCS	E.	F.	G.	H.	I.	J.
m	d	y										
				11		9xxxx	A,B	$$	1		NPI	1234567890
m	d	y										
				11		92132	A	$$	1		NPI	1234567890

Example 2

You are referred a 30 y/o female patient with suspicion of keratoconus OU. A refraction without contact lenses shows no improvement, but a refraction over a rigid contact lens yields significant visual improvement. Using the Pentacam, you obtain corneal thickness measurements and corneal topography OU. Also, you obtain external photographs of

abnormal blood vessels in the deep cornea extending toward the thin area – you will monitor for progression. You diagnose stable keratoconus OU and irregular astigmatism. In addition to the exam (shown as 9xxxx), the claim will read as follows.

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	B.	C	D. PROCEDURES, SVCS	E.	F.	G.	H.	I.	J.
m d y	11		9xxxx	A,B,C	$$	1		NPI	1234567890
m d y	11		92499	A	$$	1		NPI	1234567890
m d y	11		92025	A,B	$$	1		NPI	1234567890
m d y	11		92285	C	$$	1		NPI	1234567890

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 corneal topography OD with the Pentacam. Irregular astigmatism was noted. 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	B.	C	D. PROCEDURES, SVCS	E.	F.	G.	H.	I.	J.
m d y	11		9xxxx	A,B,C	$$	1		NPI	1234567890
m d y	11		92499	A,B	$$	1		NPI	1234567890
m d y	11		92025	A,B	$$	1		NPI	1234567890

Example 4

You are consulted about a 28 y/o male patient with gradually increasing blurred vision over the past 6 months. You performed LASIK OU on him 5 years ago. On slit lamp exam, the corneas appear thinner than expected. Using the Pentacam, you measure corneal thickness and obtain corneal topography OU. You diagnose corneal ectasia OU.

The vision is correctable with glasses today, and a prescription is given. In addition to the exam (shown as 9xxxx), the claim will read as follows.

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. H18.713 B. Z98.89 C. D.			

24. A. DATES OF SERVICE	B.	C	D. PROCEDURES, SVCS	E.	F.	G.	H.	I.	J.
m d y	11		9xxxx	A,B,C	$$	1		NPI	1234567890
m d y	11		92499	A	$$	1		NPI	1234567890
m d y	11		92025	A,B	$$	1		NPI	1234567890

Example 5

A new 78 y/o patient presents with complaints of haloes and persistent blurry vision following cataract surgery with IOL OU about 6 months ago by another surgeon outside your community. Best corrected Snellen visual acuity is 20/30 OU. Refraction with and without rigid contact lens yields no improvement. You order corneal wavefront analysis with the Pentacam. You find significant higher order aberrations. Since the patient is a Medicare beneficiary and refraction is not a covered service, your claim will read as follows.

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. H53.19 B. Z96.1 C. D.			

24. A. DATES OF SERVICE	B.	C	D. PROCEDURES, SVCS			E.	F.	G.	H.	I.	J.
m d y	11		9xxxx			A,B,C	$$	1		NPI	1234567890
m d y	11		92015	22	GY	A	$$	1		NPI	1234567890

Note: Use modifier -22 to indicate an unusual service and modifier - GY to indicate a noncovered service.

Example 6

You have been following a 72 y/o male patient over a number of years for cataract OS; the right eye is pseudophakic. He has noticed a dramatic decrease in vision in the left eye over the past few months; the acuity in the right eye remains at an acceptable level. The examination shows NS and cortical cataracts OS. Refraction shows no improvement, and his functional complaints are related to reading, watching television, and driving. After discussion, it is decided to schedule cataract surgery. Today, you order and obtain OCB

via the Pentacam AXL. You select the IOL by circling the IOL model and power and initialing and dating the IOL calculation printout. In addition to the exam (shown as 9xxxx), the claim will read as follows.

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. H25.812 B. Z96.1 C. D.			

24. A. DATES OF SERVICE	B.	C	D. PROCEDURES, SVCS		E.	F.	G.	H.	I.	J.
m d y	11		9xxxx		A,B,C	$$	1		NPI	1234567890
m d y	11		92136	LT	A	$$	1		NPI	1234567890

Financial Waivers

An Advance Beneficiary Notice of Non- Coverage (ABN, CMS-R-131)[36] 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

[36] Advance Beneficiary Notice of Noncoverage. Link here. Accessed 11/17/20.

codes alone 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,[37] 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,[38] effective April 1, 2010, two modifiers were updated to distinguish between *voluntary* and *required* use of liability notices.

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[37] CMS. *MLN Matters* (MM6136). Revised Form CMS-R-131 Advance Beneficiary Notice of Noncoverage. Link here. Accessed 11/17/20.

[38] CMS. Transmittal R1921CP. Billing for Services Related to Voluntary Uses of Advanced Beneficiary Notices of Noncoverage (ABNs). February 19, 2010. Link here. Accessed 11/17/20.

- 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 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) to control improper coding leading to inappropriate payments in Part B claims.[39] 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.

[39] Medicare Claims Processing Manual, Chapter 23, §20.9. Link here. Accessed 11/05/20

Table 6 **Applicable 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
92136	76519 99211	none
92285	92020 99211	15820 15821 15822 15823

NCCI edits in effect as of October 1, 2020.

Current NCCI edits for 92025, 92132, 92136, and 92285 are shown in Table 6. Non-covered codes such as 92015 have no bundles. A bundle means that just one service will be reimbursed when both are performed on the same day; it behooves you to bill just one, usually the greater one, assuming that both tests have clinical utility.

Health Professional Shortage Area (HPSA)

Medicare pays a quarterly 10% premium to physicians who provide services in a Health Professional Shortage Area (HPSA). No modifier is necessary if your zip code is listed as HPSA eligible. The bonus payment will be automatic. Eligible services provided at locations not listed need the modifier AQ.

This premium is pertinent only to professional services, and does not apply to the technical component (TC) of diagnostic tests. It is not necessary to separate the professional and technical components in order to receive bonuses; the MAC will automatically calculate bonus payments on the professional component. As an illustration, if the test in Sample Claim 1, above, had been performed in a HPSA not receiving automatic bonus payments, then the claim would be billed follows.

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. H40.033 B. H25.13 C. D.			

24. A. DATES OF SERVICE	B.	C	D. PROCEDURES, SVCS	E.	F.	G.	H.	I.	J.
m d y	11		9xxxx AQ	A,B	$$	1		NPI	1234567890
m d y	11		92132 AQ	A	$$	1		NPI	1234567890

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.[40] 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.[41]

PAYMENT RATES

National Medicare payment rates in 2021 for 92025, 92132, 92136, and 92285 are shown in Table 7, 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. MPPS reductions apply when multiple tests are performed on the same day.

Per CPT instructions, corneal topography is not reportable with keratoplasty and related corneal surgery (65710-65771). Because local coverage policies vary, separate payment may be made where the payer permits.

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[40] CMS Medicare Learning Network. MLN Matters MM6371, effective 07/06/09. Link here. Accessed 11/19/20.

[41] Medicare Claims Processing Manual, Chapter 1, Section 30.2.9. Link here. Accessed 11/19/20.

Table 7 **Medicare Fee Schedule** [42]

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
92132	SCODI-A	Global	32.10	30.50	35.07
		TC	15.70	14.92	17.15
		PC	16.40	15.58	17.92
92136	OCB	Global	55.48	52.71	60.61
		TC	24.77	23.54	27.07
		PC	30.71	29.17	33.55
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

In 2021, the national payment rate for 76514 is approximately $12. This CPT code does not describe optical corneal pachymetry performed with the Pentacam (92499), but many payers will likely use this as a reference point when setting payment rates.

Multiple Procedure Payment Reduction

Medicare has implemented a payment reduction when multiple tests are performed on a patient at the same encounter. Known as the Multiple Procedure Payment Reduction (MPPR),[43] it is effective for dates of service beginning January 1, 2013. 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 patient encounter on the same day by the same physician or group. The list of tests includes imaging,

[42] 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.

[43] CMS. Medicare Learning Network, MLN Matters MM7848, Eff. January 1, 2013. Link here. Accessed 11/19/20.

ultrasounds and visual fields.[44] Tests not on the list are not subject to the MPPR reduction. All of the CPT codes discussed in this monograph are included in the 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, you find new, suspicious conjunctival lesions. External ocular photography is ordered and interpreted. In 2021, the national Medicare payments 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, PAR allowable

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 for these services, but CMS publishes utilization data. 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 1 time per 100 exams performed by ophthalmologists. Claims for 92025 among optometrists were only 0.3 times per 100 exams.

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 occurred with similar frequency.

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[44] CMS Transmittal 1149, dated November 6, 2012. Attachment 2 identifies the specific tests by CPT code that are subject to the MPPR. The Medicare Physician Fee Schedule multiple procedure indicator also identifies these codes each year (multiple procedure indicator 7). Link here. Accessed 11/19/20.

In the Medicare program, 92132 was paid about 33,000 times, or only 0.2 times per 100 exams performed by ophthalmologists. Claims for 92132 among optometrists were 0.1 times per 100 exams.

In the Medicare program, 92136 was paid about 1,721,000 times, or about 8.5 times per 100 exams performed by ophthalmologists. Claims for 92136 among optometrists were negligible as we would expect.

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 various models of the OCULUS Pentacam provides ophthalmologists and optometrists with a versatile tool to perform a wide variety of tests to assess the anterior segment. Discrete reimbursement for medically necessary testing is available for: optical corneal pachymetry, corneal topography, external ocular photography, optical coherence biometry, and SCODI-A. Wavefront analysis of optical aberrations is part of refraction and not covered by Medicare and most medical plans. Reimbursement for anterior chamber depth, white-to-white measurements, densitometry, keratometry, and fluorescein pattern analysis for CLs is not discrete and included as an incidental part of another concurrent service. Where the indication for testing is not covered, an ABN or other financial waiver 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 this procedure, 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 or IOL calculation printouts 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, routine, or any other situation where there is coverage doubt. Document acceptance on a financial waiver form such as an ABN. Be sure and use the most current version of the 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.