Gene Therapy for Inherited Retinal Dystrophy (Luxturna)

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Applies to all products administered or underwritten by the Health Plan, unless otherwise provided in the applicable contract. Medical technology is constantly evolving, and we reserve the right to review and update Medical Policy periodically.

When Services May Be Eligible for Coverage

Coverage for eligible medical treatments or procedures, drugs, devices or biological products may be provided only if:

- *Benefits are available in the member's contract/certificate, and*
- *Medical necessity criteria and guidelines are met.*

Based on review of available data, the Health Plan may consider voretigene neparvovec-rzyl (Luxturna™)‡ for patients with vision loss due to biallelic human retinal pigment epithelial 65 kDa protein (RPE65) mutation-associated retinal dystrophy **to be eligible for coverage**** when patient selection criteria are met.

Patient Selection Criteria

Coverage eligibility for the use of voretigene neparvovec-rzyl (Luxturna) will be considered when all of the following criteria are met:

- Patient is an adult aged <65 years or child aged ≥3 years; AND
- Patient has a diagnosis of a confirmed biallelic *RPE65* mutation-associated retinal dystrophy (e.g. Leber congenital amaurosis, retinitis pigmentosa, or early onset severe retinal dystrophy); AND
- The requested dose for each eye is 1.5×10^{11} vector genomes administered by subretinal injection in a total volume of 0.3 mL; AND
- Patient has documentation of both of the following:
  - Genetic testing confirming presence of biallelic *RPE65* variant(s):
    - Single *RPE65* variant found in the homozygous state; OR
    - Two *RPE65* variants found in the trans configuration (compound heterozygous state); AND
  - Presence of viable retinal cells as determined by treating physicians as assessed by optical coherence tomography imaging and/or ophthalmoscopy:
    - An area of retina within the posterior pole of >100 µm thickness shown on optical coherence tomography, OR
    - ≥3 disc areas of retina without atrophy or pigmentary degeneration within the posterior pole, OR
    - Remaining visual field within 30° of fixation as measured by III4e isopter or equivalent; AND
- The patient does not have any of the following:
  - Pregnancy in females
  - Breastfeeding
  - Prior intraocular surgery within 6 months.

- Prior *RPE65* gene therapy in the intended eye
- Preexisting eye conditions or complications that preclude the ability to administer and assess the efficacy of Luxturna including but not limited to:
  - Malignancies whose treatment could affect central nervous system function (e.g. radiotherapy of the orbit or leukemia with central nervous system or optic nerve involvement)
  - Retinopathy associated with diabetic macular edema or sickle cell disease
  - Immunodeficiency (acquired or congenital) making the member susceptible to opportunistic infection

When Services Are Considered Not Medically Necessary

Based on review of available data, the Health Plan considers the use of voretigene neparvovec-rzyl (Luxturna) when the patient is ≥65 years old or <3 years old, is pregnant or breastfeeding, has had recent intraocular surgery, has previously received *RPE65* gene therapy in the intended eye, or has a preexisting eye condition affecting the ability to administer and assess the efficacy of Luxturna to be **not medically necessary**.**

When Services Are Considered Investigational

Coverage is not available for investigational medical treatments or procedures, drugs, devices or biological products.

Based on review of available data, the Health Plan considers the use of voretigene neparvovec-rzyl (Luxturna) for any indication other than the treatment of patients with confirmed biallelic *RPE65* mutation-associated retinal dystrophy who have sufficient viable retinal cells **to be investigational.***

Policy Guidelines

Diagnosis of Biallelic *RPE65*-Mediated Inherited Retinal Dystrophies

Genetic testing is required to detect the presence of variant(s) in the *RPE65* gene. By definition, variant(s) must be present in both copies of the *RPE65* gene to establish a diagnosis of biallelic *RPE65*-mediated inherited retinal dystrophy.

A single *RPE65* pathogenic variant found in the homozygous state (e.g., the presence of the same variant in both copies alleles of the *RPE65* gene) establishes a diagnosis of biallelic *RPE65*-mediated dystrophinopathy.

However, if 2 different *RPE65* variants are detected (e.g., compound heterozygous state), confirmatory testing such as segregation analysis by family studies may be required to determine the *trans* vs *cis* configuration (e.g., whether the 2 different variants are found in different copies or in the same copy of the *RPE65* gene). The presence of 2 different *RPE65* variants in separate copies of the *RPE65* gene (*trans* configuration) establishes a diagnosis of biallelic *RPE65*-mediated dystrophinopathy. The presence of 2 different *RPE65* variants in only 1 copy of the *RPE65* gene (*cis* configuration) is not considered a biallelic *RPE65*-mediated dystrophinopathy.

Next-generation sequencing and Sanger sequencing typically cannot resolve the phase (e.g., *trans* vs *cis* configuration) when two *RPE65* variants are detected. In this scenario, additional documentation of the *trans* configuration is required to establish a diagnosis of biallelic *RPE65*-mediated inherited retinal dystrophy. Table PG1 provides a visual representation of the genetic status requirements to establish a diagnosis of *RPE65*-mediated inherited retinal dystrophy.

Table PG1. Genetic Diagnosis of *RPE65*-Mediated Inherited Retinal Dystrophy

Genetic Status	Diagram	Diagnosis of *RPE65*-Mediated Inherited Retinal Dystrophy?
Homozygous	*RPE65* gene copy #1 (- - - - - - **X** - - - - - -) *RPE65* gene copy #2 (- - - - - - **X** - - - - - -) **X**=single *RPE65* pathogenic variant	Yes
Heterozygous (*trans* configuration)	*RPE65* gene copy #1 (- - - - - - **X** - - - - - -) *RPE65* gene copy #2 (- - - **O** - - - - - - - - -) **X**=*RPE65* pathogenic variant #1 **O**=*RPE65* pathogenic variant #2	Yes
Heterozygous (*cis* configuration)	*RPE65* gene copy #1 (- - **O** - - **X** - - - - - -) *RPE65* gene copy #2 (- - - - - - - - - - - - -) **X**=*RPE65* pathogenic variant #1 **O**=*RPE65* pathogenic variant #2	No

Genetic Counseling

Experts recommend formal genetic counseling for patients who are at risk for inherited disorders and who wish to undergo genetic testing. Interpreting the results of genetic tests and understanding risk factors can be difficult for some patients; genetic counseling helps individuals understand the impact of genetic testing, including the possible effects the test results could have on the individual or their family members. It should be noted that genetic counseling may alter the utilization of genetic testing substantially and may reduce inappropriate testing; further, genetic counseling should be performed by an individual with experience and expertise in genetic medicine and genetic testing methods.

Background/Overview

Inherited retinal dystrophies

Inherited retinal dystrophies are a diverse group of disorders with overlapping phenotypes characterized by progressive degeneration and dysfunction of the retina. The most common subgroup is retinitis pigmentosa, which is characterized by a loss of retinal photoreceptors, both cones and rods. The hallmark of the condition is night blindness (nyctalopia) and loss of peripheral vision. These losses lead to difficulties in performing visually dependent activities of daily living such as orientation and navigation in dimly lit areas. Visual acuity may be maintained longer than peripheral vision, though eventually, most individuals progress to vision loss.

***RPE65* Gene**

Retinitis pigmentosa (RP) and Leber congenital amaurosis (LCA) both have subtypes related to variants in *RPE65*. *RPE65* (retinal pigment epithelium-specific protein 65-kD) gene encodes the RPE54 protein is an all-*trans* retinal isomerase, a key enzyme expressed in the retinal pigment epithelium (RPE) that is responsible for regeneration of 11-*cis*-retinol in the visual cycle. The *RPE65* gene is located on the short (p) arm of chromosome 1 at position 31.3 (1p31.3). Individuals with biallelic variations in *RPE65* lack the RPE65 enzyme; this lack leads to build-up of toxic precursors and damage to RPE cells, loss of photoreceptors, and eventually complete blindness.

Epidemiology

RPE65-associated inherited retinal dystrophy is rare. The prevalence of LCA has been estimated to be between 1 in 33,000 and 1 in 81,000 individuals in the United States. LCA subtype 2 (*RPE65*-associated LCA) accounts for between 5% and 16% of cases of LCA. The prevalence of RP in the United States is approximately 1 in 3500 to 1 in 4000 with approximately 1% of patients with RP having *RPE65* variants. Assuming a U.S. population of approximately 326.4 million at the end of 2017, the prevalence of *RPE65*-associated retinal dystrophies in the United States would, therefore, be roughly 1000 to 2500 individuals.

Gene therapy

Gene therapies are treatments that change the expression of genes to treat disease, e.g., by replacing or inactivating a gene that is not functioning properly or by introducing a new gene. Genes may be introduced into human cells through a vector, usually a virus. Adeno-associated viruses (AAV) are frequently used due to their unique biology and simple structure. These viruses are in the parvovirus family and are dependent on coinfection with other viruses, usually adenoviruses, to replicate. AAVs are poorly immunogenic compared with other viruses but can still trigger immune response making it a challenge to deliver an effective dose without triggering an immune response that might render the gene therapy ineffective or harm the patient. There are over 100 different AAVs, and 12 serotypes have been identified so far, labeled AAV1 to AAV12; in particular, AAV2, AAV4, and AAV5 are specific for retinal tissues. The recombinant AAV2 is the most commonly used AAV serotype in gene therapy.

The eye is a particularly appropriate target for gene therapy due to the immune privilege provided by the blood-ocular barrier and the minimal amount of vector needed, given the size of the organ. Gene therapy for *RPE65* variant-associated retinal dystrophy using various AAV vectors to transfect cells with a functioning copy of *RPE65* in the RPE cells has been investigated.

Luxturna
Voretigene neparvovec-rzyl (Luxturna) is a live, non-replicating, AAV2 which has been genetically modified to express the human *RPE65* gene. Luxturna is derived from naturally occurring adeno-associated virus using recombinant DNA techniques. The recommended dose of Luxturna for each eye is 1.5×10^{11} vector genomes (vg), administered by subretinal injection in a total volume of 0.3 mL.

Subretinal administration of Luxturna to each eye must be performed on separate days within a close interval, but no fewer than 6 days apart. This therapy is administered at highly specialized facilities with an active ophthalmology practice treating individuals with retinal dystrophies. Access is needed to medical retina specialists, vitreoretinal surgery expertise, and specialty pharmacies.

Systemic oral corticosteroids equivalent to prednisone at 1 mg/kg/d (maximum, 40 mg/d) are recommended for a total of 7 days (starting 3 days before administration of Luxturna to each eye), and followed by a tapering dose during the next 10 days.

FDA or Other Governmental Regulatory Approval

U.S. Food and Drug Administration (FDA)
On December 19, 2017, the AAV2 gene therapy vector voretigene neparvovec-rzyl (Luxturna™‡; Spark Therapeutics) was approved by the U.S. Food and Drug Administration for use in patients with vision loss due to confirmed biallelic RPE65 variant-associated retinal dystrophy. Spark Therapeutics received breakthrough therapy designation, rare pediatric disease designation, and orphan drug designation.

Rationale/Source

This medical policy was developed through consideration of peer-reviewed medical literature generally recognized by the relevant medical community, U.S. FDA approval status, nationally accepted standards of medical practice and accepted standards of medical practice in this community, technology evaluation centers, reference to federal regulations, other plan medical policies, and accredited national guidelines.

Gene Therapy for *RPE65* Variant-Associated Retinal Dystrophy

Clinical Context and Test Purpose

The purpose of gene therapy in patients who have retinal dystrophies caused by *RPE65* variants is to restore the visual cycle so that vision is improved and patients can function more independently in their daily activities.

The question addressed in this evidence review is: Does gene augmentation therapy improve the net health outcome for patients with vision loss due to biallelic *RPE65* variant-associated retinal dystrophy?

The following PICOTS were used to select literature to inform this review.

Patients

The relevant population of interest is patients with biallelic *RPE65* variant-associated retinal dystrophy who have vision loss. Patients must still have sufficient, viable retinal cells to respond to the missing protein and restore visual function.

Interventions

The treatment being considered is gene augmentation therapy.
Voretigene neparvovec (Luxturna) is a FDA approved adeno-associated viral serotype 2 (AAV2) gene therapy vector that supplies a functional copy of the *RPE65* gene within the retinal pigment epithelium (RPE) cells.

Comparators

There are no other Food and Drug Administration approved pharmacologic treatments for *RPE65* variant-associated retinal dystrophy. Supportive care such as correction of refractive error and visual aids and assistive devices may aid in performing daily activities.

Outcomes

Outcomes related to both how the eyes function and how an individual functions in vision-related activities of daily living are important for evaluating the efficacy of gene therapy for the treatment of retinal dystrophy. Relevant outcomes measures are listed in Table 1 below.

Table 1. Health Outcome Measures Relevant to Retinal Dystrophy

Outcome	Measure (Units)	Description	Clinically Meaningful Difference (If Known)
Functional vision	Multi-Luminance Mobility Testing (score change)	Measures ability to navigate at different levels of environmental illumination; scores at a specific time range from 0 (minimum) to 6 (maximum). Positive	1 light level

Outcome	Measure (Units)	Description	Clinically Meaningful Difference (If Known)
		change indicates improved ability to navigate under different lighting conditions	
Light sensitivity	Full-field Light Sensitivity Threshold (log10 [cd.s/m^2])	Measures light sensitivity of the entire retina; more negative values indicate improved sensitivity to light	10 dB or 1 log
Visual acuity	ETDRS test charts (logMAR)	Measures central visual function; 0.1 logMAR = 5 ETDRS letters or 1 line; lower logMAR signifies better visual acuity	10-15 ETDRS letters (1-2 lines)
Visual field	Humphrey Visual Field (dB)	Measures area in which objects can be detected in the periphery of the visual environment, while the eye is focused on a central point; Humphrey measures static fields; higher dB indicates increased sensitivity	3-dB change
	Goldmann perimetry (sum total degrees)	Measures kinetic fields; higher sum total degrees indicates a larger field of vision	
Contrast sensitivity	Pelli-Robson Contrast Sensitivity Charts (log contrast sensitivity)	Measures ability to see objects of different saturations (shades of gray); larger log contrast sensitivity indicates letters of lower contrast can be read correctly	
Visual-specific activities of daily living	NEI VFQ-25 (sum)	Measures patient report of effect of visual function on activities of daily living for individuals with poor vision; higher scores indicate visually dependent tasks are perceived to be less difficult	2- to 4-point change

ETDRS: Early Treatment of Diabetic Retinopathy Study; log10 (cd.s/m^2): logarithm of candela second per meter squared; logMAR: logarithm of the minimum angle of resolution; NEI: National Eye Institute; VFQ: Visual Function Questionnaire.

Because the hallmark of the disease is nyctalopia, the manufacturer developed a novel outcome measure that assesses functional vision by evaluating the effects of illumination on speed and accuracy of navigation. The measure incorporates features of visual acuity (VA), visual field (VF), and light sensitivity. The Multi-Luminance Mobility Test (MLMT) grades individuals navigating a marked path while avoiding obstacles through various courses at 7 standardized levels of illumination, ranging from 1 to 400 lux (see examples in Table 3). Graders monitoring the navigation assign each course either a “pass” or “fail” score, depending on whether the individual navigates the course within 180 seconds with 3 or fewer errors. The lowest light level passed corresponds to an MLMT lux score, which ranges from 0 (400 lux) to 6 (1 lux). The score change is the difference between the MLMT lux score at year 1 and baseline. A positive score change corresponds to passing the MLMT at a lower light level. The reliability and content validity of the MLMT were evaluated in 60 (29 normal sighted, 31 visually impaired) individuals who navigated MLMT courses 3 times over 1 year.

Table 2. Light Levels for Multi-Luminance Mobility Test

Light Levels (lux)	Example of Light Level in Environment
1	Moonless summer night; indoor nightlight
4	Cloudless night with half moon; parking lot at night
10	1 hour after sunset in city; bus stop at night
50	Outdoor train station at night; inside of lighted stairwell
125	30 minutes before sunrise; interior of train or bus at night
250	Interior of elevator or office hallway
400	Office environment or food court

Adapted from the manufacturer’s Food and Drug Administration briefing materials.

Timing

Improvements in vision and function over a period of a year would demonstrate treatment efficacy. Evidence of durability of these effects over a period of several years or more is also needed given the progressive nature of the disease process.

Setting

Gene therapy is administered at highly specialized facilities with an active ophthalmology practice treating individuals with retinal dystrophies. Access is needed to medical retina specialists, vitreoretinal surgery expertise, and specialty pharmacies. Training programs for surgeons and pharmacists will likely be necessary.

Review of Evidence

Randomized Controlled Trials

One gene therapy (Luxturna) for patients with biallelic *RPE65* variant-associated retinal dystrophy has RCT evidence. The pivotal RCT (NCT00999609) for Luxturna was an open-label trial of patients ages 3 or older with biallelic *RPE65* variants, VA worse than 20/60, and/or a VF less than 20^{o} in any meridian, with sufficient viable retinal cells. Those patients meeting these criteria were randomized 2:1 to intervention (n=21) or control (n=10). The intervention treatment group received sequential injections of 1.5E11 vg Luxturna to each eye no more than 18 days apart (target, 12 days; standard deviation, 6 days). The injections were delivered in a total subretinal volume of 0.3 mL under general anesthesia. The control treatment group received Luxturna 1 year after the baseline evaluation. Patients received prednisone 1 mg/kg/d (max, 40 mg/d) for 7 days starting 3 days before injection in the first eye and tapered until 3 days before injection of the second eye at which point the steroid regimen was repeated. During the first year, follow-up visits occurred at 30, 90, 180 days, and 1 year. Extended follow-up is planned for 15 years. The efficacy outcomes were compared at 1 year. The primary outcome was the difference in mean bilateral MLMT score change. MLMT graders were masked to treatment group. The trial was powered to have greater than 90% power to detect a difference of 1 light level in the MLMT score at a 2-sided type I error rate of 5%. Secondary outcomes were hierarchically ranked: (1) difference in change in full-field light sensitivity threshold (FST) testing averaged over both eyes for white light; (2) difference in change in monocular (first eye) MLMT score change; (3) difference in change in VA averaged over both eyes. Patient-reported vision-related activities of daily living (ADLs) using a Visual Function Questionnaire (VFQ) and VF testing (Humphrey and Goldmann) were also reported. The VFQ has not been validated.

At baseline, the mean age was about 15 years old (range, 4-44 years) and approximately 42% of the participants were male. The MLMT passing level differed between the groups at baseline; about 60% passed at less than 125 lux in the intervention group vs 40% in the control group. The mean baseline VA was not reported but appears to have been between approximately 20/200 and 20/250 based on a figure in the manufacturer briefing document. One patient in each treatment group withdrew before the year 1 visit; neither received Luxturna. The remaining 20 patients in the intervention treatment and 9 patients in the control treatment groups completed the year 1 study visit. The intention-to-treat population included all randomized patients.

The efficacy outcome results at year 1 for the intention-to-treat population are shown in Table 3. In summary, the differences in change in MLMT and FST scores were statistically significant. No patients in the intervention group had worsening MLMT scores at 1 year compared with 3 patients in the control group. Almost two-thirds of the intervention arm showed maximal improvement in MLMT scores (passing at 1 lux) while no participants in the control arm were able to do so. Significant improvements were also observed in Goldmann III4e and Humphrey static perimetry macular threshold VF exams. The difference in change in VA was not statistically significant although the changes correspond to an improvement of about 8 letters in the intervention group and a loss of 1 letter in the control group. The original VA analysis used the Holladay method to assign values to off-chart results. Using, instead the Lange method for off-chart results, the treatment effect estimate was similar, but variability estimates were reduced (difference in change, 7.4 letters; 95% confidence interval [CI], 0.1 to 14.6 letters). No control patients experienced a gain of 15 or more letters (≤0.3 logMAR) at year 1 while 6 of 20 patients in the intervention group gained 15 or more letters in the first eye and 4 patients also experienced this improvement in the second eye. Contrast sensitivity data were collected but were not reported.

Table 3. Efficacy Outcomes Results at Year 1 in the Pivotal Phase 3 Trial of Gene Therapy for *RPE65* Variant-Associated Retinal Dystrophy

Outcomes	**Intervention**	**Control**	**Difference (95% CI)**	**p**

	Mean (SD)	Mean (SD)		
Primary outcome				
Bilateral MLMT change score	1.8 (1.1)	0.2 (1.0)	1.6 (0.72 to 2.41)	0.001
Secondary outcomes				
Bilateral FST change, log10 (cd.s/m²)	-2.08 (0.29)	0.04 (0.44)	-2.11 (-3.19 to 1.04)	0.000
First eye MLMT change score	1.9 (1.2)	0.2 (0.6)	1.7 (0.89 to 2.52)	0.001
Bilateral VA change, logMAR	-0.16 (SD NR)[a]	0.01 (SD NR)[b]	-0.16 (-0.41 to 0.08)	0.17
Other supportive outcomes				
Goldmann VF III4e change (sum total degrees)	302.1 (289.6)	-76.7 (258.7)	378.7 (145.5 to 612.0)	0.006
Humphrey VF, foveal sensitivity change, dB	2.4 (9.7)	2.3 (5.3)	0.04 (-7.1 to 7.2)	0.18
Humphrey VF, macula threshold change, dB	7.7 (6.2)	-0.2 (1.7)	7.9 (3.5 to 12.2)	0.001
Visual Function Questionnaire, subject	2.6 (1.8)	0.1 (1.4)	2.4 (1.0, 3.8)	0.001

CI: confidence interval; FST: full-field light sensitivity threshold; MLMT: Multi-Luminance Mobility Test; NR: not reported; SD: standard deviation; VA: visual acuity; VF: visual field.
[a] Corresponds to mean improvement of about 8 letters.
[b] Corresponds to mean loss of about 1 letter.

The manufacturer briefing document reports results out to 2 years of follow-up. In the intervention group, both functional vision and visual function improvements were observed for at least 2 years. At year 1, all 9 control patients received bilateral injections of Luxturna. After receiving treatment, the control group experienced improvement in MLMT (change score, 2.1; standard deviation, 1.6) and FST (change, -2.86; standard deviation, 1.49). VA in the control group improved an average of 4.5 letters between years 1 and 2. Overall, 72% (21/29) of all treated patients achieved the maximum possible MLMT improvement at 1 year following injection.

Two patients (one in each group) experienced serious adverse events; both were unrelated to study participation. The most common ocular adverse events in the 20 patients treated with Luxturna were mild to moderate: elevated intraocular pressure, 4 (20%) patients; cataract, 3 (15%) patients; retinal tear, 2 (10%) patients; and eye inflammation, 2 (10%) patients. Several ocular adverse events occurred only in 1 patient each: conjunctival cyst, conjunctivitis, eye irritation, eye pain, eye pruritus, eye swelling, foreign body sensation, iritis, macular hold, maculopathy, pseudopapilledema, and retinal hemorrhage. One patient experienced a loss of VA (2.05 logMAR) in the first eye injected with Luxturna; the eye was profoundly impaired at 1.95 logMAR (approximately 20/1783 on a Snellen chart) at baseline.

Section Summary: Randomized Controlled Trials

In the pivotal RCT, patients in the Luxturna group demonstrated greater improvements on the MLMT, which measures the ability to navigate in dim lighting conditions, compared with patients in the control group. The difference in mean improvement was both statistically significant and larger than the a priori defined clinically meaningful difference. Most other measures of visual function were also significantly improved in the Luxturna group compared with the control group, except VA. Improvements seemed durable over a period of 2 years. The adverse events were mostly mild to moderate; however, 1 patient lost 2.05 logMAR in the first eye treated with Luxturna by the 1 year visit. There are limitations in the evidence. There is limited follow-up available. Therefore, long-term efficacy and safety are unknown. The primary outcome measure has not been used previously in RCTs and has limited data to support its use. Only the MLMT assessors were blinded to treatment assignment, which could have introduced bias assessment of other outcomes. The modified VFQ is not validated, so effects on quality of life remain uncertain.

Early Phase Trials

Based on preclinical studies performed in animals, early phase studies of gene augmentation therapy for *RPE65*-associated Leber congenital amaurosis were initiated in 2007 by several independent groups of investigators. The initial reports of the results of these studies began to be published in 2008. The studies did not have an untreated control group, but several used a patient's untreated eye as a control. Characteristics of the studies are shown in Table 5. Most cohorts included in the studies have been followed in several publications. The baseline visual function, gene constructs, vector formulations, and surgical approaches used by different investigators have varied. Luxturna was administered to the Children's Hospital of Pennsylvania (CHOP) cohort.

Table 4. Characteristics of Phase 1/2 studies of Gene Therapy for *RPE65* Variant-Associated Retinal Dystrophy

Cohort (Registration)	Author (Year)	Country/ Institution	Participants	Treatment	Follow-Up
Voretigene neparvovec					
CHOP (NCT00516477, NCT01208389)	Maguire (2008); Maguire (2009); Simonelli (2010); Ashtari (2011); Bennett (2012); Testa (2013); Ashtari (2015);	U.S./Children's Hospital of Pennsylvania	• N=12 • Age range, 8-44 y • *RPE65*-associated LCA	• Vector: AAV2-hRPE65v2 • Administration: subretinal space of worse seeing eye • Vector dose: 1.5E10 to1.5E11 vg • Volume delivered: 0.15 mL	Up to 3 y

Cohort (Registration)	Author (Year)	Country/ Institution	Participants	Treatment	Follow-Up
	Bennett (2016); Ashtari (2017)			• Systemic steroids: Yes • Contralateral eye treated with 1.5E11 vg during follow-up study	
Other gene therapies					
London (NCT00643747)	Bainbridge (2008); Stieger (2010); Bainbridge (2015); Ripamonti (2015)	U.K./Moorfield's Eye Hospital; University College London	• N=12 • Age range, 6-23 y • Early-onset, *RPE65*-associated severe retinal dystrophy	• Vector: rAAV2/2-hRPE65p-hRPE65 • Administration: subretinal space of worse seeing eye • Vector dose: 1E11 • Volume delivered: 1.0 mL • Systemic steroids: Yes	Up to 3 y
Scheie/Shands (NCT00481546)	Hauswirth (2008); Cideciyan (2008); Cideciyan (2009); Jacobson (2012); Cideciyan (2013); Cideciyan (2014); Jacobson (2015)	U.S./Scheie Eye Institute of the University of Pennsylvania; Shands Children's Hospital, University of Florida	• N=15 • Age range, 10-36 y • *RPE65*-associated LCA	• Vector: rAAV2-CBSB-hRPE65 • Administration: subretinal space of worse seeing eye • Vector dose: 5.96E10 to 18E10 • Volume delivered: 0.15-0.30 mL • Systemic steroids: No	Up to 6 y

Cohort (Registration)	Author (Year)	Country/ Institution	Participants	Treatment	Follow-Up
Israel (NCT00821340)	Banin (2010)	Israel/Hadassah-Hebrew University Medical Center	• N=10	• Vector: rAAV2-CB-hRPE65 • Administration: subretinal space of worse seeing eye • Vector dose: 1.19E10 • Volume delivered: 0.3 mL • Systemic steroids: No	3 y
Casey/UMass (NCT00749957)	Weleber (2016)	U.S./Casey Eye Institute, Oregon Health & ScienceUniversity; University of Massachusetts	• N=12 • Age range, 6-39 y • *RPE65*-associated LCA or SECORD	• Vector: rAAV2-CB-hRPE65 • Administration: subretinal space of worse seeing eye • Vector dose: 1.8E11 to 6E11 • Volume delivered: 0.45 mL • Systemic steroids: No	Up to 2 y
Nantes (NCT01496040)	Le Meur (2018)	France/Nantes University Hospital	• N=9 • Age range, 9-42 y • *RPE65*-associated LCA	• Vector: rAAV2/4-hRPE65 • Administration: subretinal space of worse seeing eye • Vector dose: 1.2E10 to 4.8E10	Up to 3.5 y

Cohort (Registration)	Author (Year)	Country/ Institution	Participants	Treatment	Follow-Up
				• Volume delivered: 0.20-0.80 mL • Systemic steroids: Yes	

AAV: adeno-associated viruses; CHOP: Children's Hospital of Pennsylvania; vg: vector genomes; LCA: Leber congenital amaurosis; SECORD: severe early-childhood onset retinal degeneration; VA: visual acuity; vg: vector genomes.

Voretigene Neparvovec
CHOP Cohort
Several publications have described various outcomes and subgroups of the cohort included in the phase 1/2 studies of voretigene neparvovec (Luxturna). Early results showed improvement in subjective and objective measurements of vision (ie, dark adaptometry, pupillometry, electroretinography, nystagmus, ambulatory behavior). Although the samples were too small for subgroups analyses, the investigators noted that the greatest improvement appeared to be in children. Three-year follow-up of five of the first injected eyes (in patients from Italy) was reported. There was a statistically significant improvement in VA between baseline and 3 years ($p<0.001$). All patients maintained increased VF and a reduction of the nystagmus frequency compared with baseline. Three-year follow-up is also available for both the originally injected eye and contralateral eye in 11 patients. Statistically significant improvements in mean mobility and full-field light sensitivity persisted to year 3. The changes in VA were not significant. Ocular adverse events were mostly mild (dellen formation in 3 patients and cataracts in 2 patients). One patient developed bacterial endophthalmitis.

Long-term follow-up for safety was reported in the manufacturer's Food and Drug Administration briefing documents. This follow-up included the 12 patients in the phase 1 study as well as the 29 patients in the phase 3 study. Two phase 2 patients had 9 years of follow-up, 8 patients had 8 years of follow-up, and all 12 patients had at least 7 years of follow-up. Four phase 3 patients had 4 years of follow-up and the remaining patients had between 2 and 3 years of follow-up. No deaths occurred. The adverse events tended to occur early and diminish and resolve over time. While all patients experienced at least 1 adverse event, 85% of the adverse events reported were of mild or moderate intensity. Fourteen serious adverse events were reported by 9 patients, but none were assessed as related to the product; one was assessed as related to the administration procedure (retinal disorder) and another as related to a periocular steroid injection (increased intraocular pressure). Ocular adverse events that were assessed as related to treatment, required clinical management, or impacted the benefit-risk profile occurred in 81 eyes (41 patients): macular disorders (9 eyes, 7 patients), increased intraocular pressure (10 eyes, 8 patients), retinal tear (4 eyes, 4 patients), infections/inflammation (5 eyes, 3 patients), and cataracts (16 eyes, 9 patients). Nine eyes in 7 patients had a 15-letter or more loss in VA. Four of the eyes had VA loss within a month of surgery, and the other 5 eyes had VA loss at or after the first year. No deleterious immune responses were observed in any patients.

Other Gene Therapies
London Cohort
At least 4 publications following the London cohort are available. Preliminary results showed increased retinal sensitivity in 1 of 3 participants. After 3 years of follow-up in all 12 patients, 2 patients had substantial improvements (10 to 100 times as high) in rod sensitivity that peaked around 12 months after treatment and then declined. There was no consistent improvement overall in VA. A decline in VA of 15 letters or more occurred in 2 patients. Intraocular inflammation and/or immune responses occurred in 5 of the 8 patients who received the higher dose and in 1 of 4 patients who received the lower dose. The immune response was deleterious in 1 patient.

Scheie/Shands Cohort
Results for patients in the Scheie/Shands cohort have also been reported in many publications. Visual function was reported to have improved in all patients. Dark-adapted FST showed highly significant increases from baseline in the treated eye and no change in the control eye. Cone and rod sensitivities improved significantly in the treated regions of the retina at 3 months, and these improvements were sustained through 3 years. Small improvements in VA were reported, and the improvement appeared to be largest in eyes with the lowest baseline acuities. Retinal detachment and persistent choroidal effusions were reported in 1 patient each; both were related to surgery. However, at a mean follow-up of 4.6 years, the investigators noted that while improvements in vision were maintained overall, the photoreceptors showed progressive degeneration. In 3 patients followed for 5 to 6 years, improvements in vision appeared to peak between 1 and 3 years after which there was a decline in the area of improved sensitivity in all 3 patients.

Israel Cohort
Although the registration for this study indicates that 10 patients were enrolled and followed for 3 years, only the short-term results of 1 patient have been reported. In that patient, there was an increase in vision as early as 15 days after treatment.

Casey/UMass Cohort
Two publications have reported results for the Casey/UMass cohort. In 9 of 12 patients, there was improvement in 1 or more measures of visual function. VA increased in 5 patients, 30° VF hill of vision increased in 6 patients, total VF hill of vision increased in 5 patients, and kinetic VF area increased in 3 patients. The improvements persisted to 2 years in most patients. National Eye Institute VFQ-25 scores improved in 11 of 12 patients. Subconjunctival hemorrhage occurred in 8 patients, and ocular hyperemia occurred in 5 patients.

Results at 5 years following treatment were available for 11/12 patients, with 1 patient lost to follow-up. Improvements in VA and static perimetry persisted during years 3-5 in all 4 pediatric patients, with no consistent changes in kinetic perimetry. In 2 of these patients, VA in the untreated eye also improved in years 3-5. Most adult subjects had no consistent changes in VA or static perimetry. In 4 of 5 adult subjects with poor baseline VA, progressive loss of vision in one or both eyes was noted during years 3-5. No significant adverse safety events were observed with results providing further evidence that treatment at an early age promotes improved outcomes.

Nantes Cohort
One publication has described results of the Nantes cohort. In 8 of 9 patients, there was an improvement in VA of more than 2.5 letters at 1 year after injection; improvements were greatest for patients with a baseline VA between 7 and 31 letters and those with nystagmus. After 2 years of follow-up, the surface area of the VF had increased in 6 patients, decreased in 2 patients, and was the same in 1 patient. For the 6 patients with 3 years of follow-up, four continued to have improvements in VF.

Section Summary: Early Phase Trials
Voretigene neparvovec (Luxturna) appears to have durable effects to at least 3 years in a small number of patients with follow-up.

Other gene therapies tested in early phase trials have shown improvements in retinal function but the variable durability of effect; some patients from 2 cohorts who initially experienced improvements have subsequently experienced declines after 1 to 3 years.

Adverse events of gene therapy tended to occur early; most are mild to moderate and diminished over time. Seven of 41 patients treated with voretigene neparvovec (Luxturna) have had a loss of 15 letters or more in at least 1 eye. Most studies have reported minimal immune response.

Summary of Evidence
For individuals who have vision loss due to biallelic *RPE65* variant-associated retinal dystrophy who receive gene therapy, the evidence includes randomized controlled trials and uncontrolled trials. Relevant outcomes are symptoms, morbid events, functional outcomes, quality of life, and treatment-related morbidity. Biallelic *RPE65* variant-associated retinal dystrophy is a rare condition and, as such, it is recognized that there will be particular challenges in generating evidence, including recruitment for adequately powered randomized controlled trials, validation of novel outcome measures, and obtaining long-term data on safety and durability. There are no other FDA approved pharmacologic treatments for this condition. One randomized controlled trial (N=31) comparing voretigene neparvovec (Luxturna) with a control demonstrated greater improvements on the Multi-Luminance Mobility Test, which measures the ability to navigate in dim lighting conditions. Most other measures of visual function were also significantly improved in the voretigene neparvovec (Luxturna) group compared with the control group. Adverse events were mostly mild to moderate. However, there is limited follow-up available. Therefore, the long-term efficacy and safety are unknown. Based on a small number of patients from early phase studies, voretigene neparvovec (Luxturna) appears to have durable effects to at least 3 years. Other gene therapies tested in early phase trials have shown improvements in retinal function but variable durability of effect; some patients from 2 cohorts who initially experienced improvements have

subsequently experienced declines after 1 to 3 years. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

References

1. Hartong DT, Berson EL, Dryja TP. Retinitis pigmentosa. Lancet. Nov 18 2006;368(9549):1795-1809. PMID 17113430
2. Jin M, Li S, Moghrabi WN, et al. Rpe65 is the retinoid isomerase in bovine retinal pigment epithelium. Cell. Aug 12 2005;122(3):449-459. PMID 16096063
3. Naso MF, Tomkowicz B, Perry WL, et al. Adeno-associated virus (AAV) as a vector for gene therapy. BioDrugs. 2017;31(4):317-334. PMID 28669112
4. Stone EM. Leber congenital amaurosis - a model for efficient genetic testing of heterogeneous disorders: LXIV Edward Jackson Memorial Lecture. Am J Ophthalmol. Dec 2007;144(6):791-811. PMID 17964524
5. Koenekoop RK. An overview of Leber congenital amaurosis: a model to understand human retinal development. Surv Ophthalmol. Jul-Aug 2004;49(4):379-398. PMID 15231395
6. den Hollander AI, Roepman R, Koenekoop RK, et al. Leber congenital amaurosis: genes, proteins and disease mechanisms. Prog Retin Eye Res. Jul 2008;27(4):391-419. PMID 18632300
7. Astuti GD, Bertelsen M, Preising MN, et al. Comprehensive genotyping reveals RPE65 as the most frequently mutated gene in Leber congenital amaurosis in Denmark. Eur J Hum Genet. Jul 2016;24(7):1071-1079. PMID 26626312
8. Kumaran N, Moore AT, Weleber RG, et al. Leber congenital amaurosis/early-onset severe retinal dystrophy: clinical features, molecular genetics and therapeutic interventions. Br J Ophthalmol. Sep 2017;101(9):1147-1154. PMID 28689169
9. Haim M. Epidemiology of retinitis pigmentosa in Denmark. Acta Ophthalmol Scand Suppl. Mar 2002(233):1-34. PMID 11921605
10. Morimura H, Fishman GA, Grover SA, et al. Mutations in the RPE65 gene in patients with autosomal recessive retinitis pigmentosa or leber congenital amaurosis. Proc Natl Acad Sci U S A. Mar 17 1998;95(6):3088-3093. PMID 9501220
11. U.S. and World Population Clock 2017; https://www.census.gov/popclock/.
12. FDA Advisory Committee Briefing Document: Spark Therapeutics, Inc, Luxturna (voretigene neparvovec). 2017; https://www.fda.gov/downloads/advisorycommittees/committeesmeetingmaterials/bloodvaccinesandotherbiologics/cellulartissueandgenetherapiesadvisorycommittee/ucm579300.pdf .
13. Campa C, Gallenga CE, Bolletta E, et al. The role of gene therapy in the treatment of retinal diseases: a review. Curr Gene Ther. Nov 16 2017;17(3):194-213. PMID 29149824
14. Russell S, Bennett J, Wellman JA, et al. Efficacy and safety of voretigene neparvovec (AAV2-hRPE65v2) in patients with RPE65-mediated inherited retinal dystrophy: a randomised, controlled, open-label, phase 3 trial. Lancet. Aug 26 2017;390(10097):849-860. PMID 28712537
15. Beck RW, Maguire MG, Bressler NM, et al. Visual acuity as an outcome measure in clinical trials of retinal diseases. Ophthalmology. Oct 2007;114(10):1804-1809. PMID 17908590

16. Bittner AK, Gould JM, Rosenfarb A, et al. A pilot study of an acupuncture protocol to improve visual function in retinitis pigmentosa patients. Clin Exp Optom. May 2014;97(3):240-247. PMID 24773463
17. Lichter PR, Musch DC, Gillespie BW, et al. Interim clinical outcomes in the Collaborative Initial Glaucoma Treatment Study comparing initial treatment randomized to medications or surgery. Ophthalmology. Nov 2001;108(11):1943-1953. PMID 11713061
18. Gillespie BW, Musch DC, Niziol LM, et al. Estimating minimally important differences for two vision-specific quality of life measures. Invest Ophthalmol Vis Sci. Jun 6 2014;55(7):4206-4212. PMID 24906863
19. Evaluation of minimum clinically meaningful changes in scores on the National Eye Institute Visual Function Questionnaire (NEI-VFQ) SST Report Number 19. Ophthalmic Epidemiol. Jul-Aug 2007;14(4):205-215. PMID 17896299
20. Chung DC, McCague S, Yu ZF, et al. Novel mobility test to assess functional vision in patients with inherited retinal dystrophies. Clin Exp Ophthalmol. Jul 11 2017. PMID 28697537
21. Maguire AM, Simonelli F, Pierce EA, et al. Safety and efficacy of gene transfer for Leber's congenital amaurosis. N Engl J Med. May 22 2008;358(21):2240-2248. PMID 18441370
22. Maguire AM, High KA, Auricchio A, et al. Age-dependent effects of RPE65 gene therapy for Leber's congenital amaurosis: a phase 1 dose-escalation trial. Lancet. Nov 7 2009;374(9701):1597-1605. PMID 19854499
23. Simonelli F, Maguire AM, Testa F, et al. Gene therapy for Leber's congenital amaurosis is safe and effective through 1.5 years after vector administration. Mol Ther. Mar 2010;18(3):643-650. PMID 19953081
24. Ashtari M, Cyckowski LL, Monroe JF, et al. The human visual cortex responds to gene therapy-mediated recovery of retinal function. J Clin Invest. Jun 2011;121(6):2160-2168. PMID 21606598
25. Bennett J, Ashtari M, Wellman J, et al. AAV2 gene therapy readministration in three adults with congenital blindness. Sci Transl Med. Feb 8 2012;4(120):120ra115. PMID 22323828
26. Testa F, Maguire AM, Rossi S, et al. Three-year follow-up after unilateral subretinal delivery of adeno-associated virus in patients with Leber congenital Amaurosis type 2. Ophthalmology. Jun 2013;120(6):1283-1291. PMID 23474247
27. Ashtari M, Zhang H, Cook PA, et al. Plasticity of the human visual system after retinal gene therapy in patients with Leber's congenital amaurosis. Sci Transl Med. Jul 15 2015;7(296):296ra110. PMID 26180100
28. Bennett J, Wellman J, Marshall KA, et al. Safety and durability of effect of contralateral-eye administration of AAV2 gene therapy in patients with childhood-onset blindness caused by RPE65 mutations: a follow-on phase 1 trial. Lancet. Aug 13 2016;388(10045):661-672. PMID 27375040
29. Ashtari M, Nikonova ES, Marshall KA, et al. The role of the human visual cortex in assessment of the long-term durability of retinal gene therapy in follow-on RPE65 clinical trial patients. Ophthalmology. Jun 2017;124(6):873-883. PMID 28237426
30. Bainbridge JW, Smith AJ, Barker SS, et al. Effect of gene therapy on visual function in Leber's congenital amaurosis. N Engl J Med. May 22 2008;358(21):2231-2239. PMID 18441371

31. Stieger K. tgAAG76, an adeno-associated virus delivered gene therapy for the potential treatment of vision loss caused by RPE65 gene abnormalities. Curr Opin Mol Ther. Aug 2010;12(4):471-477. PMID 20677098
32. Bainbridge JW, Mehat MS, Sundaram V, et al. Long-term effect of gene therapy on Leber's congenital amaurosis. N Engl J Med. May 14 2015;372(20):1887-1897. PMID 25938638
33. Ripamonti C, Henning GB, Robbie SJ, et al. Spectral sensitivity measurements reveal partial success in restoring missing rod function with gene therapy. J Vis. Nov 2015;15(15):20. PMID 26605849
34. Hauswirth WW, Aleman TS, Kaushal S, et al. Treatment of leber congenital amaurosis due to RPE65 mutations by ocular subretinal injection of adeno-associated virus gene vector: short-term results of a phase I trial. Hum Gene Ther. Oct 2008;19(10):979-990. PMID 18774912
35. Cideciyan AV, Aleman TS, Boye SL, et al. Human gene therapy for RPE65 isomerase deficiency activates the retinoid cycle of vision but with slow rod kinetics. Proc Natl Acad Sci U S A. Sep 30 2008;105(39):15112-15117. PMID 18809924
36. Cideciyan AV, Hauswirth WW, Aleman TS, et al. Human RPE65 gene therapy for Leber congenital amaurosis: persistence of early visual improvements and safety at 1 year. Hum Gene Ther. Sep 2009;20(9):999-1004. PMID 19583479
37. Cideciyan AV, Hauswirth WW, Aleman TS, et al. Vision 1 year after gene therapy for Leber's congenital amaurosis. N Engl J Med. Aug 13 2009;361(7):725-727. PMID 19675341
38. Jacobson SG, Cideciyan AV, Ratnakaram R, et al. Gene therapy for leber congenital amaurosis caused by RPE65 mutations: safety and efficacy in 15 children and adults followed up to 3 years. Arch Ophthalmol. Jan 2012;130(1):9-24. PMID 21911650
39. Cideciyan AV, Jacobson SG, Beltran WA, et al. Human retinal gene therapy for Leber congenital amaurosis shows advancing retinal degeneration despite enduring visual improvement. Proc Natl Acad Sci U S A. Feb 5 2013;110(6):E517-525. PMID 23341635
40. Cideciyan AV, Aguirre GK, Jacobson SG, et al. Pseudo-fovea formation after gene therapy for RPE65-LCA. Invest Ophthalmol Vis Sci. Dec 23 2014;56(1):526-537. PMID 25537204
41. Jacobson SG, Cideciyan AV, Roman AJ, et al. Improvement and decline in vision with gene therapy in childhood blindness. N Engl J Med. May 14 2015;372(20):1920-1926. PMID 25936984
42. Banin E, Bandah-Rozenfeld D, Obolensky A, et al. Molecular anthropology meets genetic medicine to treat blindness in the North African Jewish population: human gene therapy initiated in Israel. Hum Gene Ther. Dec 2010;21(12):1749-1757. PMID 20604683
43. Weleber RG, Pennesi ME, Wilson DJ, et al. Results at 2 years after gene therapy for RPE65-deficient Leber congenital amaurosis and severe early-childhood-onset retinal dystrophy. Ophthalmology. Jul 2016;123(7):1606-1620. PMID 27102010
44. Pennesi ME, Weleber RG, Yang P, et al. Results at 5 years after Gene Therapy for RPE65-Deficient REtinal Dystrophy. Hum Gen Ther. Dec 2018;29(12):1428-1437. PMID 29869534
45. Le Meur G, Lebranchu P, Billaud F, et al. Safety and long-term efficacy of AAV4 gene therapy in patients with RPE65 Leber congenital amaurosis. Mol Ther. Jan 3 2018;26(1):256-268. PMID 29033008
46. Express Scripts Drug Evaluation. Luxturna. Updated January 2018.

Gene Therapy for Inherited Retinal Dystrophy (Luxturna)

Medicare Advantage Medical Policy # 084
Original Effective Date: 04/01/2025
Current Effective Date: 04/01/2025

Policy History

Original Effective Date: 04/01/2025
Current Effective Date: 04/01/2025
01/21/2025 UM Committee review. New Policy.
Next Scheduled Review Date: 01/2026

Coding

Codes used to identify services associated with this policy may include (but may not be limited to) the following:

Code Type	Code
CPT	0810T, 67299
HCPCS	J3398
ICD-10 Diagnosis	H35.50-H35.54

*Investigational – A medical treatment, procedure, drug, device, or biological product is Investigational if the effectiveness has not been clearly tested and it has not been incorporated into standard medical practice. Any determination we make that a medical treatment, procedure, drug, device, or biological product is Investigational will be based on a consideration of the following:

A. Whether the medical treatment, procedure, drug, device, or biological product can be lawfully marketed without approval of the U.S. Food and Drug Administration (FDA) and whether such approval has been granted at the time the medical treatment, procedure, drug, device, or biological product is sought to be furnished; or

B. Whether the medical treatment, procedure, drug, device, or biological product requires further studies or clinical trials to determine its maximum tolerated dose, toxicity, safety, effectiveness, or effectiveness as compared with the standard means of treatment or diagnosis, must improve health outcomes, according to the consensus of opinion among experts as shown by reliable evidence, including:
    1. Consultation with technology evaluation center(s);
    2. Credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community; or
    3. Reference to federal regulations.

**Medically Necessary (or "Medical Necessity") - Health care services, treatment, procedures, equipment, drugs, devices, items or supplies that a Provider, exercising prudent clinical judgment, would provide to a patient for the purpose of preventing, evaluating, diagnosing or treating an illness, injury, disease or its symptoms, and that are:

A. In accordance with nationally accepted standards of medical practice;
B. Clinically appropriate, in terms of type, frequency, extent, level of care, site and duration, and considered effective for the patient's illness, injury or disease; and
C. Not primarily for the personal comfort or convenience of the patient, physician or other health care provider, and not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that patient's illness, injury or disease.

For these purposes, "nationally accepted standards of medical practice" means standards that are based on credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community, Physician Specialty Society recommendations and the views of Physicians practicing in relevant clinical areas and any other relevant factors.
‡ Indicated trademarks are the registered trademarks of their respective owners.

NOTICE: If the Patient's health insurance contract contains language that differs from the Health Plan Medical Policy definition noted above, the definition in the health insurance contract will be relied upon for specific coverage determinations.

NOTICE: Medical Policies are scientific based opinions, provided solely for coverage and informational purposes. Medical Policies should not be construed to suggest that the Health Plan recommends, advocates, requires, encourages, or discourages any particular treatment, procedure, or service, or any particular course of treatment, procedure, or service.

NOTICE: Federal and State law, as well as contract language, including definitions and specific contract provisions/exclusions, take precedence over Medical Policy and must be considered first in determining eligibility for coverage.

Medicare Advantage Medical Policy # 084
Original Effective Date: 04/01/2025
Current Effective Date: 04/01/2025

Medicare Advantage Members

Established coverage criteria for Medicare Advantage members can be found in Medicare coverage guidelines in statutes, regulations, National Coverage Determinations (NCD)s, and Local Coverage Determinations (LCD)s. To determine if a National or Local Coverage Determination addresses coverage for a specific service, refer to the Medicare Coverage Database at the following link: https://www.cms.gov/medicare-coverage-database/search.aspx. You may wish to review the Guide to the MCD Search here: https://www.cms.gov/medicare-coverage-database/help/mcd-bene-help.aspx.

When coverage criteria are not fully established in applicable Medicare statutes, regulations, NCDs or LCDs, internal coverage criteria may be developed. This policy is to serve as the summary of evidence, a list of resources and an explanation of the rationale that supports the adoption of this internal coverage criteria.