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Department	Clinical Strategy
Subcategory	Medical Management
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Company Entities Supported (Select All that Apply)

Superior Vision Benefit Management
 Superior Vision Services
 Superior Vision of New Jersey, Inc.
 Block Vision of Texas, Inc. d/b/a Superior Vision of Texas
 Davis Vision
 (Collectively referred to as 'Versant Health' or 'the Company')

Acronyms and Definitions

IOP	Intraocular pressure
MIGS	Minimally Invasive Glaucoma Surgery
Target Pressure	The upper limit of the range of intraocular pressures in which visual field loss is unlikely to risk a patient's vision, health, or quality of life.

PURPOSE

To provide the medical necessity criteria to support the indication(s) for glaucoma surgery and to render medical necessity determinations. Applicable procedure codes related to glaucoma surgery are also defined.

POLICY
A. BACKGROUND

Glaucoma is an optic neuropathy that can lead to progressive visual field loss and significant impairment of both vision and health related quality of life. Reducing intraocular pressure is associated with a decreased risk of developing or progressing optic nerve damage. There is no absolute number or range of intraocular pressure (IOP) that defines glaucoma.¹

¹ Sommer, 2011

Glaucoma surgical procedures are intended to lower IOP for an extended period, thus reducing the risk of additional permanent optic nerve damage. IOP can be lowered in a variety of ways. One method is by enhancing the outflow of aqueous from the anterior chamber through various methods. Some types of procedures open, enhance, or stent the eye's natural drainage system by reducing obstruction at the level of the trabecular meshwork. A second method is to create an alternative route for aqueous drainage² through either a microshunt, fistulization of the sclera, or implantation of a glaucoma drainage implant. A third method is to reduce the amount of aqueous humor production through partial destruction of the ciliary body.³

B. Medically Necessary

1. Minimally invasive glaucoma surgery (MIGS) reduces the risk for ongoing optic nerve damage for patients with glaucoma. The following MIGS procedures may be medically necessary as follows:
 - a. Select aqueous drainage assist devices with concurrent cataract extraction and implantation of an intraocular lens (66989, 66991). See Clinical Policy 1301 Cataract Surgery for the medical necessity criteria.
 - b. Select aqueous drainage assist device without concurrent cataract extraction (0167T)
 - i. The patient is diagnosed with open angle glaucoma; and
 - ii. When a trial of medical therapy (medication and laser therapy) has not controlled the intraocular pressure due to lack of efficacy, adherence, or coexisting ocular surface disease.
 - iii. When the patient is unable to administer or receive consistent topical medication therapy either through physical limitations or cognitive impairment.
 - c. Excisional (Trabeculotomy, Goniotomy, GATT 65820)^{4,5}
 - i. As an initial treatment for congenital or juvenile glaucoma where trials of topical or laser therapies are not required; or,
 - ii. Open angle glaucoma when trials of topical medication and laser therapy have been unable to control intraocular pressure due to lack of efficacy, adherence, cognitive impairment, or coexisting ocular surface disease.
 - d. Transluminal dilation of aqueous outflow canal (66174, 66175)⁶
 - i. For a diagnosis of mild to moderate open angle glaucoma confirmed by gonioscopy; and,
 - ii. When a trial of topical medication and laser therapy has been unable to control intraocular pressure due to lack of efficacy, adherence, cognitive impairment, or coexisting ocular surface disease.
 - e. Ab interno implant (Xen 0449T, 0450T)⁷

² See Clinical Policy 1308 Laser Trabeculoplasty; and Clinical Policy 1322 Laser Peripheral Iridotomy.

³ See Clinical Policy 1300 Cataract Surgery for procedures done in conjunction with cataract surgery

⁴ Smith, 2022.

⁵ Dorairaj, 2022.

⁶ Lusthaus, 2024.

⁷ Panarelli, 2023.

- i. For a diagnosis of open angle glaucoma^{8,9} confirmed by gonioscopy; and,
- ii. When a trial of topical medication therapy or laser therapy, or surgical therapy has been unable to control intraocular pressure due to lack of efficacy, adherence, cognitive or physical impairment, or coexisting ocular surface disease.

2. Trabeculectomy and related fistulization procedures, with or without stents or drainage device¹⁰ (Ab externo implant: ExPRESS,¹¹ Ab externo XEN [66183];¹² Trabeculectomy [66170,66172]; Tube Shunt:^{13, 14, 15, 16} [66179, 66180].
 - a. Diagnosis of glaucoma; and,
 - b. Maximum medical therapy (full topical therapy and, if appropriate, laser therapy or glaucoma surgery) has been trialed and failed to control intraocular pressure to reduce the risk for further optic nerve damage due to lack of efficacy, adherence, or cognitive impairment.

C. Not Medically Necessary

1. The surgical procedures listed may not be medically necessary for the following:
 - a. In the absence of glaucoma; or,
 - b. When tolerated medication or laser therapy provides adequate control of intraocular pressure; or,
 - c. When evidence of visual field loss or a thinning of the nerve fiber layer is not documented; or,
 - d. With ocular hypertension or initial status of glaucoma suspect; or,
 - e. Any off label or investigational use of an aqueous drainage device or glaucoma drainage device; or,
 - f. When there is no risk for further optic nerve damage.
2. Glaucoma drainage devices, not explicitly approved by the FDA, are considered experimental or investigational and may not be considered medically necessary.

D. Documentation

Medical necessity must be supported by adequate and complete documentation in the patient's medical record that describes the procedure and the medical rationale.

Documentation requires at a minimum all of the following items which must be available upon request. For any retrospective review, a full operative report and the medical plan of care are needed.

⁸ Grover, 2017.

⁹ Boopathiraj, 2024.

¹⁰ Minckler, 2006

¹¹ DeJong, 2011.

¹² Tan, 2021.

¹³ Ahmed, 2020.

¹⁴ Koo, 2015.

¹⁵ Kim, 2017.

¹⁶ Broadway, 2001.

Every page of the record must be legible and include appropriate patient identification information (e.g., complete name, date(s) of service). Services provided/ordered must be authenticated by the physician. The method used should be handwritten or electronic signature. Stamped signatures are not acceptable.

1. Eye exam with description of medical justification for the proposed glaucoma surgical procedure and absence of contraindications for the surgery. This must include gonioscopy and thorough evaluation of the optic nerve to validate structural glaucomatous changes; and,
2. Documentation of glaucoma findings and inability to reduce risk for optic nerve damage with medical therapy due to noncompliance with medical therapy such as cost, memory problems, difficulty with instillation, adherence, or intolerance to the medication; and,
3. Documentation of ongoing risk of optic nerve damage despite topical therapies and laser trabeculoplasty, when considering trabeculectomy and related external fistulization procedures with or without stents or other drainage devices; and,
4. Allied diagnostic testing with physician's order, medical rationale, findings, interpretation and report demonstrating reproducible visual field loss with threshold perimetry, and optic disc changes on OCT and/or fundus photography. The perimetry requirement is waived for patients who cannot reliably perform this test (e.g., nystagmus); and,
5. Documentation of previously failed glaucoma surgery when applicable; and,
6. A statement from the surgeon anticipating the procedure(s) will achieve reduction of risk to the optic nerve, and that this reduction will be adequate to control the glaucoma; and,
7. An explanatory statement from the surgeon when more than one aqueous drainage assist device, or glaucoma drainage device, will be implanted in the same eye during the same operative session; and,
8. For retrospective review, detailed operative report that incorporates indications, procedure description, make, model, serial number(s) of implant(s) that are FDA approved.

E. PROCEDURAL DETAIL

CPT Codes	
0449T	Insertion of aqueous drainage device, without extraocular reservoir, internal approach, into the subconjunctival space; initial device
0450T	Insertion of aqueous drainage device, without extraocular reservoir, internal approach, into the subconjunctival space; each additional device (List separately in addition to code for primary procedure) Add on code for 0449T
0474T	Insertion of anterior segment aqueous drainage device, with creation of intraocular reservoir, internal approach, into the supraciliary space
0671T	Insertion of anterior segment aqueous drainage device into the trabecular meshwork, without external reservoir, and without concomitant cataract removal, one or more
65820	Goniotomy
66150	Fistulization of sclera for glaucoma; trephination with iridectomy
66155	Fistulization of sclera for glaucoma; thermocauterization with iridectomy
66160	Fistulization of sclera for glaucoma; sclerectomy with punch or scissors, with iridectomy

66170	Fistulization of sclera for glaucoma; trabeculectomy ab externo in absence of previous surgery
66172	Fistulization of sclera for glaucoma; trabeculectomy ab externo with scarring from previous ocular surgery or trauma (includes injection of antifibrotic agents)
66174	Transluminal dilation of aqueous outflow canal; without retention of device or stent
66175	Transluminal dilation of aqueous outflow canal; with retention of device or stent
66179	Aqueous shunt to extraocular equatorial plate reservoir; external approach; without graft
66180	Aqueous shunt to extraocular equatorial plate reservoir; external approach; with graft.
66183	Insertion of anterior segment aqueous drainage device, without extraocular reservoir, external approach (also known as express shunt).
66184	Revision of aqueous shunt to extraocular equatorial plate reservoir; without graft
66185	Revision of aqueous shunt to extraocular equatorial plate reservoir; with graft
66250	Revision or repair of operative wound of anterior segment, any type, early or late, major or minor procedure
66989	Extracapsular cataract removal with insertion of intraocular lens prosthesis (1-stage procedure), manual or mechanical technique (e.g., irrigation and aspiration or phacoemulsification), complex, requiring devices or techniques not generally used in routine cataract surgery (e.g., iris expansion device, suture support for intraocular lens, or primary posterior capsulorrhesis) or performed on patients in the amblyogenic developmental stage; with insertion of intraocular (e.g., trabecular meshwork, supraciliary, suprachoroidal) anterior segment aqueous drainage device, without extraocular reservoir, internal approach, one or more.
66991	Extracapsular cataract removal with insertion of intraocular lens prosthesis (1 stage procedure), manual or mechanical technique with insertion of intraocular, anterior segment aqueous drainage device, without extraocular reservoir, internal approach, one or more.
Required Modifiers	
Anatomic Modifiers	RT – Right side LT – Left side 50 – Bilateral

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RELATED POLICIES AND PROCEDURES	
1300	Cataract Surgery
1308	Laser Trabeculoplasty
1322	Laser Peripheral Iridotomy

DOCUMENT HISTORY		
Approval Date	Revisions	Effective Date
05/01/2018	Initial Policy	05/01/2018
03/13/2019	Annual review; no criteria change.	03/13/2019
10/18/2019	Correction of code 66160.	11/01/2019
08/19/2020	Annual review; no criteria change.	01/01/2021
07/07/2021	Annual review; added background information on IOP measurement; removed exclusion from surgery for closed angle glaucoma and excessive synechiae; removed inclusion of borderline glaucoma; added requirement for presurgical eye exam to include gonioscopy.	01/01/2022
10/06/2021	Revised criteria for surgery to not require visual field loss due to glaucoma.	01/01/2022
01/05/2022	Annual review; revised criteria for MIGS to match criteria in 1300 for same procedure codes. Remove two CMS deleted codes; add three CMS released codes.	04/01/2022

01/04/2023	Annual review; revised language related to achieving or requiring measures of target intraocular pressure to now describe risk/status of optic nerve damage as primary measurement for surgery; added goniotomy as medically necessary test for three indications; removed requirement to submit surgical clearance documentation.	07/01/2023
09/20/2023	Administrative review for CMS 2024 final rule Medicare Part C equity: no changes.	n/a
04/03/2024	Removed MIGS combination cataract surgery criteria which is retained in 1300 Cataract Surgery policy. Add indication of laser trabeculoplasty failure for trabeculotomy/goniotomy procedures; added indication of risk to the optic nerve with further laser therapy for procedures of trabeculectomy and related fistulization	07/01/2024
01/08/2025	Add criteria for iStent Infinite (drug/device historically on policy); modified criteria for XEN stent to allow use regardless of glaucoma stage.	04/01/2025
01/07/2026	Clarified excisional surgical criteria for treatment of all severities of glaucoma; clarified criteria for patients unable to adhere to nonsurgical therapies.	04/01/2026

REFERENCES AND SOURCES

1. Ahmed IIK, Fea A, Au L, et.al. A Prospective Randomized Trial Comparing Hydrus and iStent Microinvasive Glaucoma Surgery Implants for Standalone Treatment of Open-Angle Glaucoma: The COMPARE Study. *Ophthalmology*. 2020 Jan;127(1):52-61. doi: 10.1016/j.ophtha.2019.04.034. Epub 2019 Apr 26. PMID: 31034856.
2. Boopathiraj N, Wagner IV, Lentz PC, et al. 36-Month Outcomes of Standalone Kahook Dual Blade Goniotomy Compared with Ab-Interno Closed Conjunctiva Xen Gel Stent Implantation. *Clin Ophthalmol*. 2024;18:2593-2603. Published 2024 Sep 16. doi:10.2147/OPTH.S473303.
3. Broadway DC, Lester M, Schulzer M, Douglas GR. Survival analysis for success of Molteno tube implants. *Br J Ophthalmol*. 2001;85(6):689-695. doi:10.1136/bjo.85.6.689.
4. Chen TC, Chen PP, Francis BA, Junk AK, Smith SD, Singh K, Lin SC. Pediatric glaucoma surgery: a report by the American Academy of Ophthalmology. *Ophthalmology*. 2014 Nov;121(11):2107-15. doi: 10.1016/j.ophtha.2014.05.010. Epub 2014 Jul 24. PMID: 25066765.
5. DeJong L, Lafuma A, Aguadé AS, et.al. Five-year extension of a clinical trial comparing the EX-PRESS glaucoma filtration device and trabeculectomy in primary open-angle glaucoma. *Clin Ophthalmol*. 2011;5: 527-533.
6. Donnenfeld ED, Solomon KD, Voskanyan L, et al. A prospective 3-year follow-up trial of implantation of two trabecular micro bypass stents in open-angle glaucoma. *Clinical Ophthalmology*. 2015; 9:2057-2065.
7. Dorairaj S, Radcliffe NM, Grover DS, Brubaker JW, Williamson BK. A Review of Excisional Goniotomy Performed with the Kahook Dual Blade for Glaucoma Management. *J Curr Glaucoma Pract*. 2022;16(1):59-64. doi:10.5005/jp-journals-10078-1352.
8. Fellman R.L., Mattox C., Singh K., et. al., American Glaucoma Society Position Paper: Microinvasive Glaucoma Surgery, *Ophthal Glaucoma* Jan-Feb 2020; 3(1):1-6
9. Ferguson TJ, Berdahl JP, Schweitzer JA, Sudhagoni R. Evaluation of a trabecular micro-bypass stent in pseudo phakic patients with open-angle glaucoma. *Journal of glaucoma*.

2016;25(11):896-900.

10. Francis BA, Hong B, Winarko J, Kawji S, et. al., Vision loss and recovery after trabeculectomy: risk and associated risk factors. *Arch Ophthalmology* 2011; 129(8):1011-1017.
11. Galal A, Bilgic A, Eltanamly R, et.al. XEN Glaucoma Implant with Mitomycin C 1-Year Follow-Up: Result and Complications. *J Ophthalmol.* 2017; 2017:5457246.
12. Grover DS, Flynn WJ, Bashford KP, et al. Performance and Safety of a New Ab Interno Gelatin Stent in Refractory Glaucoma at 12 Months. *Am J Ophthalmol.* 183:25-36. 2017.
13. Grover DS, Godfrey DG, Smith O, et.al. Gonioscopy-assisted transluminal trabeculotomy, ab interno trabeculotomy: technique report and preliminary results. *Ophthalmology.* 2014. 121: 855-861.
14. Grover DS, Godfrey DG, Smith O, et.al. Outcomes of Gonioscopy-assisted Transluminal Trabeculotomy (GATT) in Eyes with Prior Incisional Glaucoma Surgery. *J Glaucoma.* 2017. 26: 41-45.
15. Jabłońska J, Lewczuk K, Konopińska J, et.al. Microinvasive glaucoma surgery: a review and classification of implant-dependent procedures and techniques. *Acta Ophthalmol.* 2022 Mar;100(2):e327-e338. doi: 10.1111/aos.14906. Epub 2021 May 14. PMID: 33988310; PMCID: PMC9291507.
16. Junoy Montolio FG, Müskens RPHM, Jansonius NM. Influence of glaucoma surgery on visual function: a clinical cohort study and meta-analysis. *Acta Ophthalmol.* 2019 Mar;97(2):193-199. doi: 10.1111/aos.13920. Epub 2018 Oct 4. PMID: 30288923; PMCID: PMC6586003.
17. Katz LJ, Erb C, Carceller GA, et al. Prospective, randomized study of one, two, or three trabecular bypass stents in open-angle glaucoma subjects on topical hypotensive medication. *Clinical Ophthalmology.* 2015; 9:2313-2320.
18. Khaimi, MA. Ab Interno Canaloplasty. *Glaucoma Today.* http://glaucomatoday.com/pdfs/gt1115_surgpearls.pdf November/December 2015.
19. Kim EL, Tran J, Töteberg-Harms M, et al. Vision Loss and Recovery after Baerveldt Aqueous Tube Shunt Implantation. *J Ophthalmol.* 2017; 2017:4140305. doi:10.1155/2017/4140305.
20. Koo EB, Hou J, Han Y, Keenan JD, Stamper RL, Jeng BH. Effect of glaucoma tube shunt parameters on cornea endothelial cells in patients with Ahmed valve implants. *Cornea.* 2015;34(1):37-41. doi:10.1097/ICO.0000000000000301.
21. Lewis RA, von Wolff K, Tetz M, et al. Canaloplasty: three-year results of circumferential vasodilation and tensioning of Schlemm's canal using a micro catheter to treat open-angle glaucoma. *J Cataract Refract Surg.* 2011; 37:682-690.
22. Lusthaus JA. Imaging of aqueous outflow in health and glaucoma. Justifying the re-direction of aqueous. *Eye (Lond).* Published online March 1, 2024. doi:10.1038/s41433-024-02968-8.
23. Minckler DS, Vedula SS, Li TJ, Mathew MC, Ayyala RS, Francis BA. Aqueous shunts for glaucoma. *Cochrane Database Syst Rev.* 2006;(2):CD004918. Published 2006 Apr 19. doi: 10.1002/14651858.CD004918.pub2,
24. Panarelli JF, Vera V, Sheybani A, et al. Intraocular Pressure and Medication Changes Associated with Xen Gel Stent: A Systematic Review of Literature. *Clin Ophthalmol.* 2023; 17:25-46. Published 2023 Jan 5. doi:10.2147/OPTH.S390955.
25. Hu R, Racette L, Chen KS, Johnson CA. Functional assessment of glaucoma: Uncovering progression. *Surv Ophthalmol.* 2020;65(6):639-661. doi: 10.1016/j.survophthal.2020.04.004.
26. Paik B, Chua CH, Yip LW, Yip VCH. Outcomes and Complications of Minimally Invasive Glaucoma Surgeries (MIGS) in Primary Angle Closure and Primary Angle Closure Glaucoma: A Systematic Review and Meta-Analysis. *Clin Ophthalmol.* 2025;19:483-506. Published 2025 Feb 11. doi:10.2147/OPTH.S505856.
27. Samuelson TW, Katz LJ, Wells JM, et al. US iStent Study Group. Randomized Evaluation of the Trabecular Micro-Bypass Stent with Phacoemulsification in Patients with Glaucoma and Cataract. *Ophthalmology* 2011.
28. Schlenker MB, Gulamhusein H, Conrad-Hengerer I, et al. Efficacy, Safety, and Risk Factors

for Failure of Standalone Ab Interno Gelatin Micro Stent Implantation versus Standalone Trabeculectomy. *Ophthalmology*. 2017; 124(11):1579-1588.

29. Smith OU, Butler MR, Grover DS, et al. Twenty-Four-Month Outcome of Gonioscopy-Assisted Transluminal Trabeculotomy (GATT) in Eyes with Prior Corneal Transplant Surgery. *J Glaucoma*. 2022;31(1):54-59. doi:10.1097/IJG.0000000000001949.

30. Somer A. Ocular Hypertension and Normal Tension Glaucoma, *Arch of Ophthalmology*;129,6, June 2011, p. 785-6.

31. Tan NE, Tracer N, Terraciano A, Parikh HA, Panarelli JF, Radcliffe NM. Comparison of Safety and Efficacy Between Ab Interno and Ab Externo Approaches to XEN Gel Stent Placement. *Clin Ophthalmol*. 2021; 15:299-305. Published 2021 Jan 26. doi:10.2147/OPTH.S292007.

32. Wu N, Sun X. Factors associated with the time of glaucoma-related adverse events onset after pediatric cataract surgery and the preferred anti-glaucomatous surgical selection. *Int Ophthalmol*. 2025;45(1):28. Published 2025 Jan 20. doi:10.1007/s10792-025-03412-w.

33. Yang X, Zhao Y, Zhong Y, et.al. The efficacy of XEN gel stent implantation in glaucoma: a systematic review and meta-analysis. *BMC Ophthalmol*. 2022 Jul 15;22(1):305. doi: 10.1186/s12886-022-02502-y. PMID: 35836197; PMCID: PMC9284889.

SOURCES

1. American Academy of Ophthalmology, "[Goniotomy makes a comeback in adults.](#)" 2023, Accessed 11/2025..
2. American Academy of Ophthalmology, [Primary Open Angle Glaucoma Suspect](#) PPP 2020. Accessed 11/2025.
3. American Academy of Ophthalmology, [Glaucoma Summary Benchmarks](#) 2024. Accessed 11/2025.
4. CMS Micro Invasive Glaucoma Surgery (MIGS) [A56588](#). Accessed 11/2025.