Prior Authorization Review Panel
MCO Policy Submission

A separate copy of this form must accompany each policy submitted for review.
Policies submitted without this form will not be considered for review.

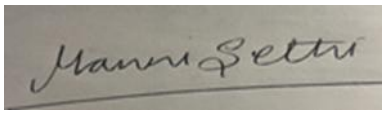
Plan: AmeriHealth Caritas Pennsylvania & Keystone First	Submission Date: 4/1/2025
Policy Number: CCP.1510	Effective Date: 4/2022 Revision Date: 3/2025
Policy Name: XEN® gel stent for glaucoma	

Type of Submission:

☐ New Policy	☒ Prior Authorization Policy
☒ Revised Policy*	☐ Base Policy
☐ Annual Review- no revisions	☐ Experimental/Investigational Policy
	☐ Statewide PDL
	☐ Other:

*All revisions to the policy must be highlighted using track changes throughout the document.

Please provide any clarifying information for the policy below:

Name of Authorized Individual (Please type or print): Manni Sethi, MD, MBA, CHCQM	Signature of Authorized Individual: 

XEN® gel stent for glaucoma

Clinical Policy ID: CCP.1510

Recent review date: 3/2025

Next review date: 7/2026

Policy contains: Glaucoma, sub-conjunctival filtration, trabeculectomy, XEN gel stent

AmeriHealth Caritas Pennsylvania has developed clinical policies to assist with making coverage determinations. AmeriHealth Caritas Pennsylvania clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of "medically necessary," and the specific facts of the particular situation are considered by AmeriHealth Caritas Pennsylvania on a case by case basis when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. AmeriHealth Caritas Pennsylvania clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. AmeriHealth Caritas Pennsylvania clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, AmeriHealth Caritas Pennsylvania will update its clinical policies as necessary. AmeriHealth Caritas Pennsylvania clinical policies are not guarantees of payment.

Coverage policy

XEN® gel stent (AbbVie Inc., North Chicago, Illinois, formerly Allergan Inc.) is clinically proven and, therefore, may be medically necessary in cases of glaucoma with prior failure of a filtering/cilioablative procedure and/or uncontrolled intraocular pressure (progressive damage and mean diurnal medicated intraocular pressure ≥ 20 mm Hg) on maximally tolerated medical therapy, i.e., ≥ 4 classes of topical intraocular pressure-lowering medications or fewer in the case of tolerability or efficacy issues (American Academy of Ophthalmology, 2020; Panarelli, 2023; Traverso, 2023; U.S. Food and Drug Administration, 2016).

XEN45 insertion is medically necessary only when performed by an ophthalmologist experienced with trabeculectomy and bleb management (U.S. Food and Drug Administration, 2016).

Limitations

Only one XEN45 device per eye is medically necessary.

Alternative covered services

- Trabeculoplasty.
- Trabeculectomy.

Background

Glaucoma is a group of eye diseases most often caused by a buildup of aqueous humor that cannot drain properly from the eye, resulting in increasing intraocular pressure and, over time, damage to optic nerve fibers.

An estimated three million Americans have the disease, but only half are aware of having it. About 120,000 Americans are blind from glaucoma. African Americans are 15 times more likely to be visually impaired from glaucoma than White individuals. Other high-risk groups include people over age 60, those with a family history of glaucoma, diabetics, and the severely nearsighted (Glaucoma Research Foundation, 2024).

There are several types of glaucoma. The most common is open-angle glaucoma, in which drainage is impaired gradually. It has no symptoms, increasing the importance of early detection. Less common forms are: angle-closure glaucoma, in which a sudden blockage results in rapid eye pressure; congenital glaucoma present at birth, and; secondary glaucoma as a complication of another medical condition or treatment (National Eye Institute, 2024).

Glaucoma is an incurable disease, but treatment can lower intraocular pressure and prevent further vision loss. First-line treatments for glaucoma are typically topical ophthalmic drops to reduce intra-ocular pressure, along with various medications. In refractory cases, surgery may be considered, including laser surgery (often trabeculoplasty), traditional surgery (often trabeculectomy), shunts, or canaloplasty. Minimally invasive surgery techniques are emerging treatment options (Dietze, 2024).

One type of minimally invasive surgery is sub-conjunctival filtration, or XEN gel stent. XEN is implanted through an ab interno approach without conjunctival dissection. The U.S. Food and Drug Administration issued 510(k) Premarket Notification approval to the XEN Glaucoma Treatment System on November 21, 2016 for the management of refractory glaucomas, including when previous surgical treatment has failed, primary open angle glaucoma, and pseudoexfoliative or pigmentary glaucoma with open angles that are unresponsive to maximum tolerated medical therapy. The system consists of an injector, a single piece tube of porcine collagen/gelatin inserted permanently. An outflow pathway is created from the anterior chamber to the sub-conjunctival space through which aqueous humor can flow (U.S. Food and Drug Administration, 2016).

Findings

Guidelines

The American Academy of Ophthalmology practice guideline stated that trabeculectomy is the preferred treatment for open angle glaucoma cases not controlled by medicine. It also noted micro-invasive glaucoma surgeries are less effective in lowering intra-ocular pressure than trabeculectomy, but may have fewer short-term complications. The guideline issued a discretionary recommendation for the XEN gel stent as a subconjunctival minimally invasive glaucoma surgery option that should be left to the discretion of the treating ophthalmologist, in consultation with the individual patient, recognizing that no randomized controlled trials had been conducted up to that point (American Academy of Ophthalmology, 2020).

Evidence review

The evidence from systematic reviews of XEN gel stents consists of several nonrandomized and uncontrolled retrospective studies and one randomized controlled trial. The evidence suggests XEN offers a safe and effective minimally invasive alternative for reducing intraocular pressure and medication use associated with open-angle glaucoma. These results show durability for up to three years, whether performed alone or combined with phacoemulsification. However, serious complications can occur, and frequent postoperative maneuvers may be required.

Early postoperative complications (0 to 30 days postoperatively) include hypotony maculopathy (1.9% to 4.6%), occlusion (3.9% to 8.8%), and choroidal detachment (0% to 15%), and less frequently, suprachoroidal hemorrhage, conjunctival erosion, stent exposure (1.1% to 2.3%), wound and bleb leaks (2.1%), and malignant glaucoma (2.2%). At the mid-postoperative stage (one to six months), stent migration (1.5%), ptosis (1.2%),

endophthalmitis (0.4% to 3%), macular edema (1.5% to 4.3%), hypertrophic bleb (8.8%) and subconjunctival stent fragmentation may occur, while spontaneous dislocation and intraocular degradation, although rare, may occur in the late postoperative stages (Gan, 2024).

XEN is often combined with subconjunctival injection of mitomycin C and 5-fluorouracil to preventing scarring disorders. In a meta-analysis of 26 studies (2,329 eyes) of participants with open-angle glaucoma, XEN combined with mitomycin C injection significantly decreased intraocular pressure and the amount of medication used at different time points and remained lower at 24 months following the procedure compared to preoperative levels. Common complications associated with XEN were, in order from most to least common, subconjunctival hemorrhage, hypotony, shallow anterior chamber, bleb needling, hyphema, choroidal detachment, macular edema, tube migration, tube exposure, tube fracture, and endophthalmitis. Studies lacked clear descriptions of the medications and dosages used or use of a washout period preoperatively, which limits interpretation of the findings (Feng, 2024).

A systematic literature review of 59 studies (n = 4,208 eyes) documented median declines of intraocular pressure after XEN gel stent placement from 22.0 to 14.6 mmHg, and from 2.8 to 0.7 for medication use. These patterns were consistent by follow-up (up to three years); by pre-operative level; by patient age; and by whether the procedure was standalone or part of a combination (Panarelli, 2023).

A systematic literature review of 96 studies found significant declines in intraocular pressure after XEN gel stent implant at 12, 24, and 36 months, each ending under 15 mmHg. In addition, 15 papers demonstrated similar reductions whether phacoemulsification was or was not included; and significant declines in 11 papers that directly compared XEN gel stent with trabeculectomy (Traverso, 2023).

The randomized control trial, which was examined in the Traverso (2023) review, compared XEN45 to trabeculectomy in participants with open-angle glaucoma and an intraocular pressure 15 to 44 mm Hg on topical medication. The primary end point was the percentage of patients achieving ≥ 20% reduction in intraocular pressure from baseline without a medication change. At month 12, both treatments achieved the primary endpoint (62.1% and 68.2%, $P = .487$) and significant reductions in medication counts from preoperative baseline values (both $P < .001$), although trabeculectomy achieved a significantly greater mean change in intraocular pressure from baseline ($P = .024$). XEN resulted in less need for secondary surgical interventions ($P = .024$ after excluding laser suture lysis), faster visual recovery ($P \leq .048$), and greater six-month improvements in visual function problems ($P \leq .022$) (Sheybani, 2023).

A systematic review/meta-analysis of 56 studies (n = 4,410 eyes) found ab-interno XEN gel implant, alone or combined with cataract surgery, reduced intra-ocular pressure by 35%, and reduced the number of anti-glaucoma medications. Vision-threatening complications occurred in 1% of subjects (Chen, 2022).

A systematic review/meta-analysis of 78 studies found XEN to be effective in lowering intra-ocular pressure ($P < .01$) and the number of glaucoma medications ($P < .001$). Reductions in intra-ocular pressure for XEN and trabeculectomy were similar, but XEN had a higher bleb needling rate ($P < .004$) (Yang, 2022).

In 2025, we updated the references, deleted several older references, and made no changes to the policy.

References

On February 4, 2025, we searched PubMed and the databases of the Cochrane Library, the U.K. National Health Services Centre for Reviews and Dissemination, the Agency for Healthcare Research and Quality, and the Centers for Medicare & Medicaid Services. Search terms were “glaucoma,” “sub-conjunctival filtration,” “minimally invasive,” and “XEN gel stent”. We included the best available evidence according to established

evidence hierarchies (typically systematic reviews, meta-analyses, and full economic analyses, where available) and professional guidelines based on such evidence and clinical expertise.

American Academy of Ophthalmology. Preferred Practice Pattern Guidelines. Primary open-angle glaucoma. https://www.aao.org/preferred-practice-pattern/primary-open-angle-glaucoma-ppp. Published November 2020.

Chen X-Z, Liang Z-Q, Yang K-Y, et al. The outcomes of XEN gel stent implantation: A systematic review and meta-analysis. *Front Med (Lausanne)*. 2022;9:804847. Doi: 10.3389/fmed.2022.804847.
Dietze J, Blair K, Zeppieri M, et al. Glaucoma. In: *StatPearls* [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. https://www.ncbi.nlm.nih.gov/books/NBK538217/. Updated March 16, 2024.
Feng H, Zhang Z. Efficacy of XEN gel stent implantation combined with mitomycin c injection in the treatment of open-angle glaucoma: A meta-analysis. *Int Ophthalmol*. 2024;44(1):410. Doi: 10.1007/s10792-024-03306-3.

Gan L, Wang L, Chen J, Tang L. Complications of XEN gel stent implantation for the treatment of glaucoma: A systematic review. *Front Med (Lausanne)*. 2024;11:1360051. Doi: 10.3389/fmed.2024.1360051.

Glaucoma Research Foundation. Glaucoma Facts and Stats. https://www.glaucoma.org/glaucoma/glaucoma-facts-and-stats.php. Last reviewed November 8, 2024.

National Eye Institute. Types of glaucoma. https://www.nei.nih.gov/learn-about-eye-health/eye-conditions-and-diseases/glaucoma/types-glaucoma. Last updated December 5, 2024.

Panarelli JF, Vera V, Sheybani A, et al. Intraocular pressure and medication changes associated with Xen gel stent: A systematic review of the literature. *Clin Ophthalmol*. 2023;17:25-46. Doi: 10.2147/OPTH.S390955.

Sheybani A, Vera V, Grover DS, et al. Gel stent versus trabeculectomy: The randomized, multicenter, gold-standard pathway study (GPS) of effectiveness and safety at 12 months. *Am J Ophthalmol*. 2023;252:306-325. Doi: 10.1016/j.ajo.2023.03.026.

Traverso CE, Carassa RG, Fea AM, et al. Effectiveness and safety of Xen Gel Stent in glaucoma surgery: A systematic review of the literature. *J Clin Med*. 2023;12(16):5339. Doi: 10.3390/jcm12165339.

U.S. Food and Drug Administration. Letter from Malvina Eydelman to Allergan, Inc. regarding [K161457] Xen Glaucoma Treatment System. https://www.accessdata.fda.gov/cdrh_docs/pdf16/k161457.pdf. Published November 21, 2016.

Yang X, Zhao Y, Zhong Y, Duan X. The efficacy of XEN gel stent implantation in glaucoma: A systematic review and meta-analysis. *BMC Ophthalmol*. 2022;22(1):305. Doi: 10.1186/s12886-022-02502-y.

Policy updates

3/2022: initial review date and clinical policy effective date: 4/2022

3/2023: Policy references updated.

3/2024: Policy references updated.

3/2025: Policy references updated.