Drug Monograph

Drug Name: **Durysta™ (bimatoprost) implant**
Drug Class: **Glaucoma, Prostaglandin Agonists**
Prepared For: MO HealthNet
Prepared By: Conduent

☒ **New Criteria** ☐ **Revision of Existing Criteria**

Executive Summary

Purpose:	The purpose of this monograph is to provide a review of new therapy to determine whether the reviewed drug should be made available on an open access basis to prescribers, require a clinical edit or require prior authorization for use.
Dosage Forms:	Durysta contains a 10 mcg bimatoprost intracameral implant in a single-use applicator that is packaged in a sealed foil pouch containing a desiccant.
Manufacturer:	Distributed by: Allergan USA, Inc., Madison, NJ 07940
Summary of Findings:	The efficacy of Durysta was demonstrated in 2 randomized phase I/II clinical trials in 150 people. The primary efficacy endpoint was intraocular pressure (IOP) change from baseline. The average decrease in IOP among four different strengths of bimatoprost implants was 7.9 mmHg between the two trials. Two phase III clinical trials have been completed comparing Durysta with timolol 0.5% topical ophthalmic solution. Results are only available via clinicaltrials.gov for one of these trials and shows Durysta™ to be non-inferior to timolol but not superior.

Status Recommendation:	☐ Clinical Edit ☐ Open Access	☐ PA Required ☒ PDL
Type of PA Criteria:	☐ Appropriate Indications ☐ No PA Required	☒ Non-Preferred ☐ Preferred

Purpose

The purpose of this monograph is to provide a review of new therapy to determine whether the reviewed drug should be considered a prior authorization drug, a clinical edit drug or an open access drug. While prescription expenditures are increasing at double-digit rates, payers are evaluating ways to control these costs by influencing prescriber behavior and guide appropriate medication usage. This review will assist in the achievement of qualitative and economic goals related to health care resource utilization. Restricting the use of certain medications can reduce costs by requiring documentation of appropriate indications for use, and where appropriate, encourage the use of less expensive agents within a drug class.

Introduction [1,2,3,4]

Glaucoma is a group of eye diseases traditionally characterized by elevated IOP. The most common form of glaucoma, open angel glaucoma (OAG), is an optic neuropathy characterized by progressive peripheral visual field loss followed by central field loss in a typical pattern. Increased aqueous production and/or decreased outflow are possible causes of the elevated IOP that usually accompanies OAG. If left untreated, OAG will result in irreversible blindness. OAG is most common among populations of European or African descent. It is estimated that there were 2.8 million people with open-angle glaucoma in the United States in 2010 and that the number will increase to 3.4 million by the end of 2020.

Dosage Form [5]

Durysta contains a 10 mcg bimatoprost intracameral implant in a single-use applicator that is packaged in a sealed foil pouch desiccant.

Manufacturer [5]

Distributed by: Allergan USA, Inc., Madison, NJ 07940.

Indication(s) [5]

Durysta is a prostaglandin analog indicated for the reduction of IOP in patients with OAG or ocular hypertension (OHT).

Clinical Efficacy [6,7] (mechanism of action/pharmacology, comparative efficacy)

After a single administration of Durysta, bimatoprost concentrations were below the lower limit of quantitation (0.001 ng/mL) in the majority (approximately 92%) of patients. For this reason, the following information is in reference to bimatoprost topical solution, not the Durysta implant, unless otherwise noted.

Pharmacokinetics:

Absorption	Not given; protein binding: ~ 88 %
Metabolism	Oxidation, N-deethylation, and glucuronidation after reaching systemic circulation; forms metabolites
Excretion	Renal (≤ 67%), fecal (25 %)
Half-life	IV formulation: ~ 45 minutes

Clinical Trials Experience

STUDY 1 DESIGN	Phase I/II, prospective, dose-ranging, paired-eye controlled clinical study (n = 75)
INCLUSION CRITERIA	• 18 years and older. • Diagnosis of OAG or ocular hypertension in each eye and both eyes require IOP-lowering treatment.
EXCLUSION CRITERIA	• Previous enrollment in another Allergan bimatoprost sustained-release (SR) study. • Eye surgery (including cataract surgery) and/or any eye laser surgery within the past 6 months in the study eye. • Anticipated need for laser eye surgery in either eye within the first 52 weeks of the study duration. • History of glaucoma surgery.
TREATMENT REGIMEN	At baseline following washout, • patients received bimatoprost SR (6, 10, 15, or 20 mcg) intracamerally in the study eye; • the fellow eye received topical bimatoprost 0.03% once daily. • Rescue topical IOP-lowering medication or single repeat administration with implant was permitted.
RESULTS	• Mean IOP reduction from baseline was 7.5, 7.3, 7.3 and 8.9 mmHg in eyes treated with bimatoprost SR 6, 10, 15, and 20 mcg, respectively, versus 8.2 mmHg in pooled fellow eyes. • IOP was controlled without rescue or re-administration in 51, 30, and 21 study eyes up to 6, 12, and 24 months, respectively.
SAFETY	Discussed in the Adverse Effects section below.

STUDY 2 DESIGN	Phase III randomized, parallel assignment, quadruple masked clinical trial (n = 594)
INCLUSION CRITERIA	• 18 years and older. • Diagnosis of OAG or ocular hypertension in each eye and both eyes require IOP-lowering treatment.
EXCLUSION CRITERIA	• Previous enrollment in another Allergan bimatoprost sustained-release (SR) study. • Eye surgery (including cataract surgery) and/or any eye laser surgery within the past 6 months in the study eye. • Anticipated need for laser eye surgery in either eye within the first 52 weeks of the study duration. • History of glaucoma surgery.
TREATMENT REGIMEN	• Bimatoprost 15 mcg arm: • Study Eye: bimatoprost SR 15 mcg administered on day 1, week 16, and week 32 vs placebo (timolol vehicle) given in the morning and evening. • Non-Study Eye: sham implant (implant) administered on day 1, week 16, and week 32 vs timolol 0.5% given in the morning and evening. • Bimatoprost 10 mcg arm: - Study Eye: bimatoprost SR 10 mcg administered on day 1, week 16, and week 32 vs placebo (timolol vehicle) given in the

	morning and evening. - Non-Study Eye: sham implant (placebo) administered on day 1, week 16, and week 32 vs timolol 0.5% given in the morning and evening. • Timolol 0.5% arm: - Sham implant (placebo) administered on day 1, week 16, and week 32 vs timolol 0.5% given in the morning and evening.
RESULTS	• Bimatoprost SR 15 mcg showed to be non-inferior to timolol 0.5%; bimatoprost SR 10 mcg was not shown to be non-inferior since the results were statistically significant. • Neither bimatoprost SR 15 mcg or 10 mcg was shown to be superior to timolol 0.5%.
SAFETY	Discussed in the Adverse Effects section below.

Contraindications [5,8]

- Ocular or periocular infections.
- Corneal endothelial cell dystrophy.
- Prior corneal transplantation.
- Absent or ruptured posterior lens capsule.
- Hypersensitivity.

Warnings and Precautions [5,8]

- Corneal adverse reactions.
- Iridocorneal angle.
- Macular edema.
- Intraocular inflammation.
- Pigmentation.
- Endophthalmitis.

Adverse Effects [5,8]

Most common, ≥ 1 %	(n = 669) %
Conjunctival hyperemia	27 - 31
Iritis	≤ 10
Photophobia	≤ 10
Corneal erosion	5 – 10
Increased intraocular pressure	5 - 10
Headache	5
Macular edema	≤ 5
Conjunctival hemorrhage	1 – 10
Eye pain	1 – 10
Anterior chamber inflammation	1 - 5
Corneal edema	1 – 5
Eye discharge	1 – 5
Eye discomfort	1 – 5
Synechiae of iris	1 - 5

Drug Interactions [5,8]

- Latanoprost: Concomitant use may result in increased ocular pressure.
- Latanoprost Bunod: Concomitant use may result in increased ocular pressure.
- Nonsteroidal anti-inflammatory agents (ophthalmic): May diminish or enhance the therapeutic effect of prostaglandins.

Dosage and Administration [5,8]

Durysta™ is an ophthalmic drug delivery system for a single intracameral administration, via an injection procedure, of a biodegradable implant. Durysta™ should not be readministered to an eye that received a prior Durysta™

Cost

Generic Name	Brand Name	Manufacturer	Dose	Cost**
Bimatoprost	Durysta™	Allergan USA, Inc	10 mcg	$1,950 per implant

** Wholesale Acquisition Cost

Conclusion

Durysta is a prostaglandin analog indicated for the reduction of IOP in patients with OAG or ocular hypertension (OHT). The efficacy of Durysta™ was demonstrated in 2 randomized phase I/II clinical trials in 150 people. The primary efficacy endpoint was IOP change from baseline. The average decrease in IOP in the bimatoprost 10 mcg implants arms of the studies was 7.7. Two phase III clinical trials have been completed comparing Durysta™ with timolol 0.5% topical ophthalmic solution. Results are only available via clinicaltrials.gov for one of these trials and shows Durysta™ to be non-inferior to timolol but not superior. The most common adverse reactions in patients implanted with Durysta™ were conjunctival hyperemia, iritis, and photophobia.

Recommendation

This drug is being considered for inclusion in the state specific Preferred Drug List (PDL).

References

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2) Friedman DS, Wolfs RC, O'Colmain BJ, et al. Prevalence of open-angle glaucoma among adults in the United States [published correction appears in Arch Ophthalmol. 2011 Sep;129(9):1224]. *Arch Ophthalmol*. 2004;122(4):532-538. doi:10.1001/archopht.122.4.532
3) Quigley HA, Broman AT. The number of people with glaucoma worldwide in 2010 and 2020. *Br J Ophthalmol*. 2006;90(3):262-267. doi:10.1136/bjo.2005.081224
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5) Durysta™ (bimatoprost) implant [prescribing information]. Madison, NJ: Allergan; March 2020.
6) Craven ER, Walters T, Christie WC, et al. 24-Month Phase I/II Clinical Trial of Bimatoprost Sustained-Release Implant (Bimatoprost SR) in Glaucoma Patients. *Drugs*. 2020;80(2):167-179. doi:10.1007/s40265-019-01248-0.
7) Lewis RA, Christie WC, Day DG, et al. Bimatoprost Sustained-Release Implants for Glaucoma Therapy: 6-Month Results From a Phase I/II Clinical Trial. *Am J Ophthalmol*. 2017;175:137-147. doi:10.1016/j.ajo.2016.11.020.
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