MEDICAL POLICY

POLICY TITLE	SUPRACHOROIDAL DELIVERY OF PHARMACOLOGIC AGENTS
POLICY NUMBER	MP- 4.032

Original Issue Date (Created):	**3/1/2013**
Most Recent Review Date (Revised):	**9/14/2020**
Effective Date:	**1/1/2021**

I. POLICY

Suprachoroidal delivery of a pharmacologic agent is considered **investigational,** as there is insufficient evidence to support a conclusion concerning the health outcomes or benefits associated with this procedure.

Cross-references:

MP 2.028 Eye Care
MP 2.149 Aqueous Shunts and Stents for Glaucoma
MP 2.159 Intravitreal Corticosteroid Implants
MP 4.008 Photodynamic Therapy for Choroidal Neovascularization

II. PRODUCT VARIATIONS TOP

This policy is only applicable to certain programs and products administered by Capital BlueCross please see additional information below, and subject to benefit variations as discussed in Section VI below.

FEP PPO - Refer to FEP Benefit Brochure for information on Suprachoroidal Delivery of Pharmacologic Agents
https://www.fepblue.org/benefit-plans/benefit-plans-brochures-and-forms
Note* - The Federal Employee Program (FEP) Service Benefit Plan does not have a medical policy related to these services.

III. DESCRIPTION/BACKGROUND Top

Delivery of pharmacologic agents to the suprachoroidal space is being investigated for treatment of posterior eye segment diseases.

The structure of the eye is classified under two subheadings: 1) anterior segment, and 2) posterior segment. The anterior segment consists of the front one-third of the eye that includes;

pupil, cornea, iris, ciliary body, aqueous humor, and lens; the posterior segment consists of the back two-thirds of the eye that includes vitreous humor, retina, choroid, macula, and optic nerve. Posterior segment ocular diseases (e.g., age-related macular degeneration, diabetic neuropathy) are the most prevalent causes of visual impairment. The following is a list of the various routes for ocular drug administration:

Invasive drug administration to intraocular cavities

- Suprachoroidal injections
- Intravitreal surgery
- Intravitreal injections
- Intracameral surgery
- Subretinal injection
- Intracameral injections

Invasive periocular and scleral modes of drug administration

- Intrascleral surgery
- Episcleral surgery
- Periocular injections
- Subconjuctival injections
- Transscleral diffusion from controlled release systems

Noninvasive methods

- Topical administration on the eye

Systemic administration

- Intravenous infusion and injection
- Oral

Many ocular diseases are treated with either topical or systemic medications. Topical application has remained the most preferred delivery route due to ease of administration. Topical application is useful in the treatment of disorders affecting the anterior segment of the eye. Although topical and systemic routes are convenient, lack of bioavailability and failure to deliver therapeutic levels of drugs to the retina has prompted vision scientists to continue to explore alternative routes of administration.

One potential advantage of suprachoroidal injection would be the ability to minimize systemic adverse effects while delivering higher local tissue levels of drugs. This proposed benefit assumes that high local levels lead to improved outcomes. Weighed against this potential benefit is the risk of localized tissue damage from the microcannula. A microcannula system combines a drug delivery channel with a fiberoptic light source for localization of the cannula tip. This technique is being investigated for the treatment of subchoroidal neovascularization related to diseases of the retina.

Regulatory Status

The iTrack™ (iScience Interventional), which is a flexible microcannula designed to allow atraumatic cannulation of spaces in the eye for infusion and aspiration of fluids during surgery, received 510(k) marketing clearance from the U.S. Food and Drug Administration (FDA). The microcannula incorporates an optical fiber to allow transmission of light to the microcannula tip for surgical illumination and guidance. The microcannula "is indicated for fluid infusion and aspiration, as well as illumination, during surgery."

IV. RATIONALE

Top

At the time this policy was created, searches of the MEDLINE database did not identify any clinical studies on the suprachoroidal delivery of pharmacologic agents. One 2007 review discussed industry funded tests of the suprachoroidal injection technique in pig eyes. (3) Triamcinolone (3 mg) was found to remain at detectable levels in the posterior tissues of the pig eye for up to 120 days. Adverse events included infection (2 of 94), scleral ectasia (4 of 94), choroidal blood flow abnormalities (4 of 94), and inflammation (6 of 94). Some cannula tip designs resulted in snag lesions in the pigment epithelium, and the suprachoroidal space was found to separate from the sclera following injection of sodium hyaluronate but returned to a normal position after 1 month. Clinical trials in humans were reported to be ongoing.

A 2008 review by Del Amo and Urtti discussed the emerging methods of ocular drug delivery, which include polymeric-controlled release injections and implants; nanoparticulates; microencapsulated cells; iontophoresis; and gene therapy.(4) The authors note the biggest drug delivery challenge is to develop effective methods for posterior segment therapies that would also be applicable for outpatient use.

Periodic literature has identified 2 small studies from the same group of investigators. One was a prospective case series (2012) that used a microcatheter (iTRACK) for suprachoroidal drug delivery for the treatment of advanced, chronic macular edema with large subfoveal hard exudates in 6 eyes of 6 patients. (5) The subfoveal hard exudates were reported to be almost completely resolved at 1 to 2 months following a single suprachoroidal infusion of bevacizumab and triamcinolone, with no surgical or postoperative complications.

In 2012, these investigators also published an industry-sponsored retrospective analysis of 21 eyes of 21 patients with choroidal neovascularization secondary to age-related macular degeneration that were treated with bevacizumab and triamcinolone using the iTRACK microcatheter.(6) Patients were included in the analysis if they had been unresponsive to at least 3 prior treatments including thermal laser photocoagulation, photodynamic therapy, or intravitreal injections of pegaptanib, bevacizumab, or ranibizumab. Best corrected visual acuity did not improve significantly from baseline through the 6-month follow-up (0.98 logMAR [minimum angle of resolution] at baseline, 0.92 logMAR at 1 month and 0.93 logMAR at 6

months; lower scores indicate improvement). There was a significant decrease in central foveal thickness (from 407.µm at baseline to 33µm at 1 month. There was no visible evidence of retinal or choroidal tissue trauma in this feasibility study.

Summary
Controlled trials are needed to evaluate the safety and efficacy of suprachoroidal drug administration compared to the standard of care. Evidence to date consists of 2 small case series from the same group of investigators in Europe. Current evidence is insufficient to determine whether suprachoroidal delivery of pharmacologic agents improves the net health outcome. Thus, this procedure is considered investigational.

V. DEFINITIONS

Top

ANGIOGENESIS refers to the development of blood vessels.

CHOROID is the thin, highly vascular membrane covering the posterior five sixths of the eye between the retina and the sclera.

CHOROIDAL NEOVASCULARIZATION refers to the abnormal formation of new blood vessels usually on or under the retina, usually seen in diabetic retinopathy, blockages of central retinal vision and macular degeneration.

EXUDATION refers to the pathological oozing of fluids, usually the result of inflammation.

MACULAR DEGENERATION refers to loss of pigmentation in the macular region of the retina, usually affecting persons over age fifty (50); a common disease of unknown etiology that produces central visual field loss and is the leading cause of permanent blindness in the United States.

OCULAR refers to the eye or vision.

PHOTODYNAMIC refers to the effects of light on biological, chemical, or physical systems.

VI. BENEFIT VARIATIONS

Top

The existence of this medical policy does not mean that this service is a covered benefit under the member's health benefit plan. Benefit determinations should be based in all cases on the applicable health benefit plan language. Medical policies do not constitute a description of benefits. A member's health benefit plan governs which services are covered, which are excluded, which are subject to benefit limits and which require preauthorization. There are different benefit plan designs in each product administered by Capital BlueCross. Members and providers should consult the member's health benefit plan for information or contact Capital BlueCross for benefit information.

POLICY TITLE	SUPRACHOROIDAL DELIVERY OF PHARMACOLOGIC AGENTS
POLICY NUMBER	MP- 4.032

VII. DISCLAIMER

Top

Capital BlueCross's medical policies are developed to assist in administering a member's benefits, do not constitute medical advice and are subject to change. Treating providers are solely responsible for medical advice and treatment of members. Members should discuss any medical policy related to their coverage or condition with their provider and consult their benefit information to determine if the service is covered. If there is a discrepancy between this medical policy and a member's benefit information, the benefit information will govern. If a provider or a member has a question concerning the application of this medical policy to a specific member's plan of benefits, please contact Capital BlueCross' Provider Services or Member Services. Capital BlueCross considers the information contained in this medical policy to be proprietary and it may only be disseminated as permitted by law.

VIII. CODING INFORMATION

Top

Note: This list of codes may not be all-inclusive, and codes are subject to change at any time. The identification of a code in this section does not denote coverage as coverage is determined by the terms of member benefit information. In addition, not all covered services are eligible for separate reimbursement.

Investigational; therefore, not covered:

CPT Codes®								
0465T								

IX. REFERENCES

Top

1. *Del Amo EM, Urtti A. Current and future ophthalmic drug delivery systems. A shift to the posterior segment. Drug Discov Today. Feb 2008;13(3-4):135-143. PMID 18275911*
2. *Gilger BC, Mandal A, Shah S, et al. Episcleral, intrascleral, and suprachoroidal routes of ocular drug delivery -recent research advances and patents. Recent Pat Drug Deliv Formul. 2014;8(2):81-91. PMID 25001638*
3. *Olsen, T. Drug delivery to the suprachoroidal space shows promise. Retina Today; March 2007. [Website]: http://retinatoday.com/2007/03/0307_10.html. Accessed September 4, 2020.*
4. *Rizzo S, Ebert FG, Bartolo ED, et al. Suprachoroidal drug infusion for the treatment of severe subfoveal hard exudates. Retina. Apr 2012;32(4):776-784. PMID 21817959*
5. *Taber's Cyclopedic Medical Dictionary, 19th edition.*
6. *Tetz M, Rizzo S, Augustin AJ. Safety of submacular suprachoroidal drug administration via a microcatheter: retrospective analysis of European treatment results. Ophthalmologica. 2012;227(4):183-189. PMID 22354263*

7. *US Food and Drug Administration (FDA). Summary of Safety and Effectiveness: iScience Surgical Ophthalmic Microcannula (iTRACK) - June 22, 2004. [Website]: https://www.accessdata.fda.gov/cdrh_docs/pdf4/K041108.pdf Accessed September 4, 2020*
8. *Habot-Wilner Z, Noronha G, Wykoff CC, et al. Suprachoroidally injected pharmacological agents for the treatment of chorio-retinal diseases: A targeted approach. Acta Ophthalmol. 2019;97(5):460-472. PMID 30702218*
9. *Archived: Blue Cross Blue Shield Association Medical Policy Reference Manual. 9.03.19, Suprachoroidal Delivery of Pharmacologic Agents December 2014.*

X. POLICY HISTORY

Top

MP 4.032	**CAC 10/28/12** Adopting BCBSA**.** • New policy • Extracted information regarding Suprachoroidal Delivery of Pharmacologic Agents from MP 4.008 Ocular Therapy. • No change to policy statement, remains investigational. • Codes reviewed 9/19/2012
	CAC 11/26/13 Consensus review. References updated but no changes to the policy statement. Rationale added. FEP variation revised to refer to the FEP medical policy manual.
	CAC 11/25/14 Consensus review. No change to policy statements. References and rationale updated. Coding reviewed and update new code 11/10/14
	CAC 11/24/15 Consensus review. No change to the policy statement. Reference and rationale update. Coding updated.
	CAC 11/29/16 Consensus review. FEP variation removed due to archiving of their policy. References updated. New code 0465T added to policy with effective date of 1/1/2017. Variation reformatting.
	12/19/17 Consensus review. No change to the policy statement. References reviewed. Coding and configuration reviewed. 2/28/18 Admin coding review, no changes.
	11/1/18 Consensus review. No change to the policy statement. References reviewed.
	10/01/20 Consensus review. No changes to policy statement.
	9/14/20 Consensus review. Policy statement unchanged. References updated. Removed MP4.023 from cross references—retired.

Top