Name of Policy:  
Suprachoroidal Delivery of Pharmacological Agents

Policy #: 312
Category: Other
Latest Review Date: January 2014
Policy Grade: C

Background/Definitions:
As a general rule, benefits are payable under Blue Cross and Blue Shield of Alabama health plans only in cases of medical necessity and only if services or supplies are not investigational, provided the customer group contracts have such coverage.

The following Association Technology Evaluation Criteria must be met for a service/supply to be considered for coverage:

1. The technology must have final approval from the appropriate government regulatory bodies;
2. The scientific evidence must permit conclusions concerning the effect of the technology on health outcomes;
3. The technology must improve the net health outcome;
4. The technology must be as beneficial as any established alternatives;
5. The improvement must be attainable outside the investigational setting.

Medical Necessity means that health care services (e.g., procedures, treatments, supplies, devices, equipment, facilities or drugs) that a physician, exercising prudent clinical judgment, would provide to a patient for the purpose of preventing, evaluating, diagnosing or treating an illness, injury or disease or its symptoms, and that are:

1. In accordance with generally accepted standards of medical practice; and
2. Clinically appropriate in terms of type, frequency, extent, site and duration and considered effective for the patient’s illness, injury or disease; and
3. Not primarily for the convenience of the patient, physician or other health care provider; and
4. 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.
Description of Procedure or Service:
Delivery of pharmacological agents to the suprachoroidal space is being investigated for treatment of diseases of the retina and optic nerve. A microcannula system is used that combines a drug delivery channel with a fiberoptic light source for localization of the cannula tip. One potential advantage of suprachoroidal injection would be the ability to minimize systemic side-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. This technique is being investigated for the treatment of subchoroidal neovascularization related to diseases of the retina.

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
- Subconjunctival injections
- Transsceral 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.
Policy:
Suprachoroidal delivery of a pharmacologic agent does not meet Blue Cross and Blue Shield of Alabama’s medical criteria for coverage and is considered investigational.

Blue Cross and Blue Shield of Alabama does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Cross and Blue Shield of Alabama administers benefits based on the member’s contract and corporate medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.

Key Points:
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. 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 one 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. 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 two 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 six eyes of six patients. The subfoveal hard exudates were reported to be almost completely resolved at one to two 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. Patients were included in the analysis if they had been unresponsive to at least three 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 six-month follow-up (0.98 logMAR [minimum angle of resolution] at baseline, 0.92 logMAR at one month and 0.93 logMAR at six months; lower scores indicate improvement). There was a significant decrease in central foveal
thickness (407.2 mm at baseline to 333.3 mm at one month). There was no visible evidence of retinal or choroidal tissue trauma in this safety and 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 two 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.

**Key Words:**
Suprachoroidal delivery system, iTrack™, suprachoroidal delivery of pharmacological agents

**Approved by Governing Bodies:**
Various parts of the suprachoroidal delivery system have received 510(k) marketing clearance from the FDA. The iTrack™ (iScience Interventional) is a flexible microcannula designed to allow atraumatic cannulation of spaces in the eye for infusion and aspiration of fluids during surgery. 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.”

**Benefit Application:**
Coverage is subject to member’s specific benefits. Group specific policy will supersede this policy when applicable.

ITS: Home Policy provisions apply
FEP contracts: FEP does not consider investigational if FDA approved and will be reviewed for medical necessity.
Pre-certification requirements: Not applicable

**Current Coding:**
CPT Codes:
- There is no specific CPT code for this procedure (Effective 01/01/2014)
- **67299** Unlisted procedure, posterior segment

**Previous Coding:**
CPT Codes:
- **0186T** Suprachoroidal delivery of pharmacologic agent (does not include supply of medication) (Deleted 01/01/2014)
References:

Policy History:
Medical Policy Group, December 2007 (2)
Medical Policy Administration Committee, January 2008
Available for comment January 5-February 20, 2008
Medical Policy Group, December 2008 (1) Update to Key Points and References; no change to policy statement
Medical Policy Group, December 2009 (1)
Medical Policy Group, October 2011 (1): Update to Description, Key Points and References; no change in policy statement
Medical Policy Panel, December 2012
Medical Policy Group, January 2013 (1): Update to Key Points and References, no change to policy statement
Medical Policy Group, December 2013 (1): 2014 Coding Update: added unlisted code 67299, effective for use 01/01/2014; moved deleted code 0186T to Previous Coding section, effective 01/01/2014
Medical Policy Panel, December 2013
Medical Policy Group, January 2014 (1): Update to References with current literature search; no change to policy statement