

## Corporate Medical Policy

### Eculizumab (Soliris®)

**File Name:** eculizumab\_soliris  
**Origination:** 8/2014  
**Last CAP Review:** 4/2018  
**Next CAP Review:** 4/2019  
**Last Review:** 10/2018

### Description of Procedure or Service

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#### Paroxysmal nocturnal hemoglobinuria

Paroxysmal nocturnal hemoglobinuria (PNH) is a rare clonal hematopoietic stem cell disorder clinically characterized by chronic complement-mediated hemolysis, thrombosis, and bone marrow failure. Thrombosis, the major cause of death in PNH, is observed in approximately 40% of patients. The symptoms associated with this disorder, including fatigue, pain, esophageal spasm, and erectile dysfunction, are often severe and disabling.

#### Hemolytic-uremic syndrome

Hemolytic-uremic syndrome (HUS) is characterized by hemolytic anemia, thrombocytopenia, and renal failure caused by platelet thrombi in the microcirculation of the kidney and other organs. Typical (acquired) HUS is triggered by infectious agents such as strains of *E. coli* (Stx-*E. coli*) that produce powerful Shiga-like exotoxins, whereas atypical HUS (aHUS) can be genetic, acquired, or idiopathic (of unknown cause). Onset of atypical HUS ranges from prenatal to adulthood. Individuals with genetic atypical HUS frequently experience relapse even after complete recovery following the presenting episode. Sixty percent of genetic aHUS progresses to end-stage renal disease (ESRD).

#### Myasthenia gravis

Myasthenia gravis (MG) is a debilitating, chronic and progressive autoimmune neuromuscular disease. It can occur at any age and is characterized by muscle weakness that typically begins with difficulty controlling eye movement. The disease often progresses to the more severe and generalized form, known as generalized myasthenia gravis (gMG) that includes weakness of the head, neck, trunk, limb and respiratory muscles. Individuals with anti-acetylcholine receptor (AChR) antibody-positive MG produce antibodies against AChR, a receptor located on muscle cells at the neuromuscular junction. As a result, the communication between nerve and muscle is impaired causing a loss of normal muscle function. This loss of function can lead to further complication, exacerbations and myasthenic crises which can be life-threatening.

First-line treatment typically includes symptomatic management with anticholinesterase agents, such as pyridostigmine, and may be the only therapy needed for some patients. However, most myasthenia gravis patients require further treatment with or addition of corticosteroids (prednisone) and/or chronic immunomodulating therapy at some point during the disease process.

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The approach to therapy with chronic immunomodulating drugs is usually highly individualized for each patient and will depend upon patient age, disease severity and rate of disease progression. There are a number of chronic immunomodulating drugs that are used to treat MG, with proposed treatment algorithms involving different lines of therapy. In general, commonly used first-line immunotherapies for long-term control are azathioprine and mycophenolate mofetil. Second-line agents include cyclosporine and tacrolimus. Immunomodulating agents generally reserved for treatment-refractory MG include rituximab, methotrexate and cyclophosphamide.

Periodic intravenous immune globulin (IVIG) or plasmapheresis offer rapid treatment with short duration of action, and are typically reserved for treatment of myasthenic crisis, bridge therapy during initiation of slow acting immunotherapies, preoperatively prior to thymectomies, or as an adjuvant to other immunomodulators in refractory patients.

Surgical treatment with thymectomy serves beneficial to patients with nonthymomatous, generalized acetylcholine receptor antibody-associated myasthenia gravis; however, benefits from such treatment may take months or years to demonstrate effect.

### Regulatory status

On March 16, 2007, Eculizumab (Soliris®; Alexion Pharmaceuticals, Inc. Cheshire, CT), a humanized monoclonal antibody that binds to the human C5 complement protein, received accelerated approval by the U.S. Food and Drug Administration for the treatment of patients with paroxysmal nocturnal hemoglobinuria (PNH) to reduce hemolysis.

On September 23, 2011 the U.S. Food and Drug Administration (FDA) approved Eculizumab (Soliris®) for the treatment of all pediatric and adult patients with atypical hemolytic uremic syndrome (aHUS).

On October 23, 2017, the U.S. Food and Drug Administration approved Eculizumab (Soliris®) for the treatment of adult patients with generalized myasthenia gravis (gMG) who are anti-acetylcholine receptor (AChR) antibody-positive.

***\*\*\*Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.***

### **Related Policies:**

Place of Service for Medical Infusion

## **Policy**

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**BCBSNC will provide coverage for Eculizumab (Soliris®) when it is determined to be medically necessary because the medical criteria and guidelines noted below are met.**

## **Benefits Application**

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This medical policy relates only to the services or supplies described herein. Please refer to the Member's Benefit Booklet for availability of benefits. Member's benefits may vary according to benefit design; therefore member benefit language should be reviewed before applying the terms of this medical policy.

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## When Eculizumab (Soliris®) is covered

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Eculizumab may be considered medically necessary as a treatment for **Paroxysmal Nocturnal Hemoglobinuria (PNH)** when the following clinical criteria are met:

- The member has a diagnosis of paroxysmal nocturnal hemoglobinuria (PNH); **AND**
- The member is transfusion-dependent (i.e., has at least 1 transfusion in the 24 months prior to initiation of eculizumab due to documented hemoglobin less than 7 g/dL in persons without anemic symptoms or less than 9 g/dL in persons with symptoms from anemia) prior to initiation of eculizumab treatment; **OR** the member has a documented history of major adverse vascular events from thromboembolism; **AND**
- The member has been administered a meningococcal vaccine at least two weeks prior to initiation of eculizumab therapy; **AND**
- The member is re-vaccinated according to current medical guidelines for vaccine use while on eculizumab therapy.

Eculizumab may be considered medically necessary as a treatment for **Atypical Hemolytic Uremic Syndrome (aHUS)** when the following clinical criteria are met:

- The member has a diagnosis of Atypical Hemolytic Uremic Syndrome (aHUS); **AND**
- The member has been administered a meningococcal vaccine at least two weeks prior to initiation of eculizumab therapy; **AND**
- The member is revaccinated according to current medical guidelines for vaccine use while on eculizumab therapy.

Eculizumab may be considered medically necessary as treatment in adults for refractory **Myasthenia Gravis** when the following clinical criteria are met:

- The member has a diagnosis of generalized Myasthenia Gravis (gMG) with class II to IV disease per Myasthenia Gravis Foundation of America (MGFA) classification system (see Policy Guidelines); **and**
- The member is anti-acetylcholine receptor (AChR) antibody positive; **and**
- The member has impaired activities of daily living defined by a Myasthenia Gravis Activities of Daily Living (MG-ADL) score of at least 6 or higher (see Policy Guidelines); **and**
- The member has had an inadequate response or intolerance to at least three previous lines of non-steroidal chronic immunomodulating therapies used alone or in combination, for at least one year

## When Eculizumab (Soliris®) is not covered

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Use of Eculizumab as a treatment of conditions other than aHUS, PNH, or gMG is considered **investigational**.

Use of Eculizumab as treatment of patients with Shiga toxin E. coli related hemolytic uremic syndrome (STEC-HUS) is considered **investigational**.

Continued use of Eculizumab as a treatment of PNH is considered not medically necessary when transfusion requirements are not significantly reduced.

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Continued use of Eculizumab as a treatment of PNH is considered not medically necessary when thromboembolism events persist despite treatment.

## Policy Guidelines

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### **FDA Approved Indications**

#### **Paroxysmal Nocturnal Hemoglobinuria (PNH)**

Soliris® is indicated for the treatment of patients with PNH to reduce hemolysis.

The recommended dosing regimen for eculizumab for PNH consists of:

- 600 mg every seven days for the first four weeks followed by
- 900 mg for the fifth dose seven days later, then
- 900 mg every 14 days thereafter.

Eculizumab should be administered at the recommended dosage regimen time points, or within two days of these time points.

#### **Atypical Hemolytic Uremic Syndrome (aHUS)**

Soliris® is indicated for the treatment of patients with aHUS to inhibit complement-mediated thrombotic microangiopathy

There is no history or evidence of injection drug abuse that might be associated with atypical HUS or TTP (specifically Opana).

The recommended dosing regimen for eculizumab in aHUS for patients 18 years of age and older consists of:

- 900 mg every seven days for the first four weeks, followed by
- 1200 mg for the fifth dose seven days later, then
- 1200 mg every 14 days thereafter.

The recommended dosing regimen for eculizumab in aHUS for patients less than 18 years of age is weight based.

The FDA issued a Black Box Warning for Soliris® regarding serious meningococcal infection risk. Therefore, patients should receive a meningococcal vaccination at least 2 weeks prior to receiving the first eculizumab treatment and have revaccination according to current medical guidelines. Patients must be monitored and evaluated immediately for early signs of meningococcal infections and treated with antibiotics as indicated.

Eculizumab (Soliris®) is being studied in a variety of conditions, including neuromyelitis optica spectrum disorders. There is insufficient evidence regarding safety and efficacy, therefore treatment of conditions other than aHUS, PNH, or myasthenia gravis are considered investigational.

Eculizumab is not indicated for the treatment of patients with Shiga toxin E. coli related hemolytic uremic syndrome (STEC-HUS). While the few studies available demonstrate possible efficacy of eculizumab in treating Shiga toxin E. coli-related hemolytic uremic syndrome, further studies are needed to demonstrate that it is both safe and effective for this indication.

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Plasma therapy should be initiated quickly in any patient in whom noninfectious HUS is suspected while awaiting the results of complement testing and genotyping. If not initiated, irreversible renal lesions may develop within a few days. Plasma therapy may need to continue until complement genotyping is completed.

### **Generalized Myasthenia Gravis (gMG)**

There are many effective chronic immunomodulating agents available for use in MG. The choice of which agent to use depends on many factors, including relative contraindications to glucocorticoids, desired time for response onset, leukopenia and liver or kidney disease precluding the use of certain agents. The use of eculizumab should be reserved for use in patients who have tried and failed first and second line immunomodulating as well as one of the agents usually reserved for refractory disease. Refractory disease is defined by unchanged or worsened status after treatment with corticosteroids and at least two other immunosuppressant agents, used in adequate doses for a sufficient duration, with persistent symptoms or side effects limiting function. The three lines of therapy to which the policy statement refers may have been used with or without prednisone.

Eculizumab (Soliris®) is indicated for the treatment of patients with generalized myasthenia gravis who are anti-acetylcholine receptor antibody positive.

### **Dosing and Administration:**

The recommended dosing regimen for eculizumab (Soliris®) in gMG for members 18 years of age and older consists of:

- 900 mg every seven days for the first four weeks followed by
- 1200 mg for the fifth dose seven days later, then
- 1200 mg every 14 days thereafter.

Administer eculizumab (Soliris®) at the recommended dosage regimen time points, or within two days of these time points.

### **Clinical Trial Evidence:**

The efficacy and safety of eculizumab in the treatment of generalized myasthenia gravis was evaluated by the REGAIN study. This phase 3, randomized, double-blind, placebo-controlled, multicenter clinical trial included 125 adult patients with anti-acetylcholine receptor antibody-positive refractory generalized myasthenia gravis. Patients were required to have Myasthenia Gravis Foundation of America (MGFA) class II-IV disease with a Myasthenia Gravis-Activities of Daily Living (MG-ADL) score of 6 or greater (scale: 0-24), and previous treatment with at least two immunosuppressant drugs or at least one immunosuppressant drug and chronic intravenous immune globulin (IVIG) or plasma exchange given at least four times per year, for a duration of 12 months without symptom control. Patients were randomized to receive either intravenous eculizumab (n=62) or intravenous matched placebo (n=63) for a total of 26 weeks. Prior to enrollment, over half of patients (52%) had tried three or more immunosuppressive treatments, 28% had previous long-term IVIG therapy, and 11% had previous long-term plasma exchange therapy. Patients were maintained on existing myasthenia gravis therapies if acceptable. The primary efficacy endpoint was change from baseline to week 26 in MG-ADL total score. In the 26-week trial, change in MG-ADL total score was not statistically significant between the eculizumab and placebo groups as measured by pre-specified worst-rank analysis (least-squares mean rank 56.6 [SEM 4.5] vs. 68.3 [4.5]; rank-based treatment difference -11.7

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[95% CI -24.3 to 0.96]; p=0.0698). However, eculizumab significantly improved the secondary efficacy outcomes compared with placebo.

### Myasthenia Gravis Foundation of America (MGFA) Disease Classification:

<u>Class</u>	<u>Clinical Symptoms</u>
I	Any ocular weakness
II	Mild weakness; possible ocular weakness of any severity
III	Moderate weakness affecting other than ocular muscles; possible ocular muscle weakness of any severity
IV	Severe weakness affecting other than ocular muscles; possible ocular muscle weakness of any severity
V	Defined by intubation, with or without mechanical ventilation, except when employed during routine postoperative management

Myasthenia Gravis-Activities of Daily Living (MG-ADL) Scoring System is a tool assessing the level of function or severity of eight different symptomatic areas including talking, chewing, swallowing, breathing, impairment of ability to brush teeth or comb hair, impairment of ability to arise from a chair, double vision, and eyelid droop. Total scoring of activities of daily living ranges from 0 to 24.

### Administration of eculizumab (Soliris) - Site of Care Eligibility

1. Administration of eculizumab (Soliris) may be given in an inpatient setting if the inpatient setting is medically necessary. An inpatient admission for the sole purpose of eculizumab (Soliris) infusion is not medically necessary, OR
2. Administration of eculizumab (Soliris) in a hospital outpatient setting is considered medically necessary if the following criteria are met:
  - a. History of mild adverse events that have not been successfully managed through mild pre-medication (diphenhydramine, acetaminophen, steroids, fluids, etc.), OR
  - b. Inability to physically and cognitively adhere to the treatment schedule and regimen complexity, OR
  - c. First infusion, OR
  - d. Less than 3 months since first eculizumab (Soliris) infusion, OR
  - e. First infusion after six months of no eculizumab (Soliris) infusions, OR
  - f. Requirement of a change in eculizumab (Soliris) product.
3. Members who do not meet the criteria above are appropriate for eculizumab (Soliris) administration in a **home-based infusion** or physician office setting with or without supervision by a certified healthcare professional. Inpatient and hospital outpatient infusion, in the absence of the criteria in #1 or #2 above is considered not medically necessary.

### Billing/Coding/Physician Documentation Information

This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative Policies on the Blue Cross Blue Shield of North Carolina web site at [www.bcbsnc.com](http://www.bcbsnc.com). They are listed in the Category Search on the Medical Policy search page.

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*Applicable codes: J1300*

BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

## Scientific Background and Reference Sources

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Legendre CM, Licht C, Muus P, et al. Terminal complement inhibitor eculizumab in atypical hemolytic-uremic syndrome. *N Engl J Med* 2013;368:2169-81.

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Specialty Matched Consultant Advisory Panel review 4/2018

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Alexion Pharmaceuticals Inc., FDA Press Release, October 23, 2017;  
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Medical Director review 10/2018

### Policy Implementation/Update Information

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- 8/26/14 New policy developed. BCBSNC will provide coverage for Ecuzumab (Soliris®) when it is determined to be medically necessary because the medical criteria and guidelines are met. Medical Director review 8/2014. Policy noticed 8/26/14 for effective date 10/28/14. (mco)
- 5/26/15 Specialty Matched Consultant Advisory Panel review 4/2015. Medical Director review 4/2015. Policy Statements unchanged. (td)
- 5/31/16 Specialty Matched Consultant Advisory Panel review 4/2016. Medical Director review 4/2016. (td)
- 5/26/17 Added statement to Policy Guidelines regarding lack of evidence associating injection drug abuse with atypical HUS and TTP. Specialty Matched Consultant Advisory Panel review 4/2017. References updated. Medical Director review 4/2017. (jd)
- 12/29/17 Policy Guidelines updated to include guidelines for “Site of Care Eligibility related to infusion of eculizumab (Soliris). Policy notification given 1/1/18, effective 4/1/18. Medical Director review. (jd)
- 5/11/18 Specialty Matched Consultant Advisory Panel review 4/2018. No change to policy intent. (krc)
- 10/12/18 Updated Description section, Policy Statement, and Policy Guidelines with indication of eculizumab (Soliris) for refractory generalized myasthenia gravis in adults who are



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anti-acetylcholine receptor (AchR) antibody-positive. References added. Medical Director review 10/2018. (krc)

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Medical policy is not an authorization, certification, explanation of benefits or a contract. Benefits and eligibility are determined before medical guidelines and payment guidelines are applied. Benefits are determined by the group contract and subscriber certificate that is in effect at the time services are rendered. This document is solely provided for informational purposes only and is based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. Medical practices and knowledge are constantly changing and BCBSNC reserves the right to review and revise its medical policies periodically.