

Clinical Policy: Immune Globulins

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[Coding Implications](#)

[Revision Log](#)

Description

The following are immune globulin (IG) products requiring prior authorization: Bivigam™, Carimune® NF, Cuvitru™, Flebogamma® DIF, GamaSTAN® S/D, Gammagard® liquid, Gammagard® S/D, Gammaked™, Gammaplex®, Gamunex®-C, Hizentra®, HyQvia®, Octagam®, and Privigen®.

FDA Approved Indication(s)

Brand Name	ROA	PI	ITP	CIDP	KS	MMN	CLL	VPPX
Bivigam	IV	x						
Carimune NF	IV	x	x					
Cuvitru	SC	x						
Flebogamma DIF	IV	x	x (10% only)					
GamaSTAN S/D	IM							x
Gammagard Liquid	IV, SC	x				x (IV only)		
Gammagard S/D Less IgA	IV	x	x		x		x	
Gammaked	IV, SC	x	x (IV only)	x (IV only)				
Gammaplex	IV	x	x					
Gamunex-C	IV, SC	x	x (IV only)	x (IV only)				
Hizentra	SC	x		x				
HyQvia	SC	x						
Octagam	IV	x (5% only)	x (10% only)					
Privigen	IV	x	x	x				

ROA = route of administration; CIDP = chronic inflammatory demyelinating polyneuropathy; CLL = B-cell chronic lymphocytic leukemia; ITP = idiopathic thrombocytopenic purpura; KS = Kawasaki syndrome; MMN = multifocal motor neuropathy; PI = primary humoral immunodeficiency; VPPX = viral prophylaxis (for hepatitis A, measles, varicella, rubella)

Policy/Criteria

Provider must submit documentation (including office chart notes and lab results) supporting that member has met all approval criteria

It is the policy of health plans affiliated with Pennsylvania Health and Wellness® that the immune globulin products referenced above are **medically necessary** when the following criteria are met:

I. Initial Approval Criteria

A. B-Cell Chronic Lymphocytic Leukemia Infection Prophylaxis (must meet all):

1. Diagnosis of B-Cell CLL;
2. Prescribed by or in consultation with an hematology/oncology specialist or immunologist;
3. Current (within the last 6 months) hypogammaglobulinemia as evidenced by two separate measurements of immunoglobulin G (IgG) level <500 mg/dL;
4. Documentation of one of the following (a or b):
 - a. One bacterial infection within the last 6 months requiring consultation or treatment with an infectious disease specialist;
 - b. Two or more bacterial infections within the last 12 months requiring IV antibiotic infusion therapy in the home or in the hospital;
5. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred) or Gammagard S/D;
 - b. Failure of Gamunex-C and Gammagard S/D unless contraindicated or clinically significant adverse effects are experienced;
6. Dose does not exceed one of the following (a or b):
 - a. 400 mg/kg IV every 3-4 weeks;
 - b. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

B. Dermatomyositis, Polymyositis (off-label) (must meet all):

1. Diagnosis of dermatomyositis (DM) or polymyositis (PM);
2. Prescribed by or in consultation with a dermatologist, neurologist, or neuromuscular specialist;
3. Failure of a 4-month trial of a systemic corticosteroid (e.g., prednisone) in combination with one of the following immunosuppressive agents, both at up to maximally indicated doses unless contraindicated or clinically significant adverse effects are experienced: methotrexate, azathioprine, cyclophosphamide, mycophenolate mofetil, tacrolimus, cyclosporine (*see Appendix D*);
4. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;
5. Dose does not exceed one of the following (a or b):
 - a. 2 g/kg IV per month;
 - b. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: – 6 months

C. Inflammatory Demyelinating Polyneuropathy (Acute/Guillain-Barre Syndrome or Chronic) (must meet all):

1. Diagnosis of acute inflammatory demyelinating polyneuropathy (AIDP)/Guillain-Barre Syndrome (GBS) or CIDP;

2. Prescribed by or in consultation with a neurologist or neuromuscular specialist;
3. Member meets one of the following (a – h):
 - a. Inability to stand or walk at least 30 feet without assistance;
 - b. ICU admission required for aspiration or mechanical ventilation;
 - c. Miller-Fisher syndrome;
 - d. Inability to raise head against gravity;
 - e. Severe bulbar palsy (e.g., impaired gag reflex, dysarthria and/or dysphagia);
 - f. Bilateral facial weakness;
 - g. Autonomic dysfunction (e.g., unexplained dysrhythmia, blood pressure fluctuations, significant bowel or bladder involvement);
 - h. Disease is progressive or relapsing for more than 2 months;
4. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;
5. Dose does not exceed one of the following (a, b, c, or d):
 - a. 2 g/kg IV per month;
 - b. Loading dose 2 g/kg IV given in divided doses over two to five consecutive days, following by maintenance dose of 1 g/kg IV every 3 weeks;
 - c. SC: Request is for Hizentra 0.2 g/kg body weight per week, starting 1 week after last IVIG infusion or 0.4 g/kg body weight per week if evidence submitted of worsening symptoms;
 - d. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: – 6 months

D. Idiopathic Thrombocytopenic Purpura (Acute or Chronic) (must meet all):

1. Diagnosis of acute or chronic ITP;
2. Prescribed by or in consultation with a hematologist;
3. Member meets one of the following (a or b):
 - a. Failure of one of the following at up to maximally indicated doses unless contraindicated or clinically significant adverse effects are experienced:
 - i. Systemic corticosteroids (e.g., prednisone);
 - ii. Rh_o(D) immune globulin (RhIG);**Prior authorization is required for RhIG*
 - b. Pregnant;
4. Member meets one of the following (a – e):
 - a. Current (within the last 30 days) platelet count < 30,000/ μ L;
 - b. Actively bleeding;
 - c. High risk of life-threatening hemorrhage;
 - d. Splenectomy is scheduled;
 - e. Pregnant;
5. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;

6. Dose does not exceed one of the following (a or b):
 - a. 2 g/kg IV per treatment course;
 - b. Dose is supported by practice guidelines or peer-reviewed literatures for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: – 6 months

E. Kawasaki Syndrome Aneurysm Prevention (must meet all):

1. Diagnosis of Kawasaki Syndrome or Incomplete (Atypical) Kawasaki Disease;
2. Prescribed by or in consultation with a cardiologist, allergist, immunologist, infectious disease specialist, or rheumatologist;
3. Prescribed concurrently with aspirin therapy, unless contraindicated or clinically significant adverse effects are experienced;
4. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred) or Gammagard S/D;
 - b. Failure of Gamunex-C and Gammagard S/D unless contraindicated or clinically significant adverse effects are experienced;
5. Dose does not exceed one of the following (a, b, c, or d):
 - a. 1 g/kg IV as a single infusion;
 - b. 400 mg/kg IV daily for 4 consecutive days;
 - c. 2 g/kg IV as a single infusion;
 - d. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: One time approval (1 month)

F. Kidney Transplant (off-label) (must meet all):

1. Member meets one of the following (a or b):
 - a. If prescribed prior to kidney transplant, member has high levels of “anti-donor” antibodies (i.e., member is highly sensitized to the tissue of the majority of living or cadaveric donors because of “non-self” human leukocyte antigen (HLA) or ABO incompatibility);
 - b. If prescribed following kidney transplant, used for the treatment of antibody-mediated rejection;
2. Prescribed by a nephrologist, transplant specialist, or hematologist/oncologist;
3. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;
4. Dose does not exceed one of the following (a or b):
 - a. 140 g IV per infusion;
 - b. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

G. Multifocal Motor Neuropathy (must meet all):

1. Diagnosis of MMN;
2. Prescribed by or in consultation with a neurologist or neuromuscular specialist;

3. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred) or Gammagard liquid;
 - b. Failure of Gamunex-C and Gammagard liquid unless contraindicated or clinically significant adverse effects are experienced;
4. Dose does not exceed one of the following (a or b):
 - a. 2.4 g/kg IV per month;
 - b. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

H. Multiple Myeloma Infection Prophylaxis (off-label) (must meet all):

1. Diagnosis of multiple myeloma (MM) with stable plateau phase disease;
2. Prescribed by or in consultation with an hematology/oncology specialist, or immunologist;
3. Current (within the last 6 months) hypogammaglobulinemia as evidenced by two separate measurements of immunoglobulin G (IgG) level < 600 mg/dL;
4. Documentation of one of the following (a or b):
 - a. One bacterial infection within the last 6 months requiring consultation or treatment with an infectious disease specialist;
 - b. Two or more bacterial infections within the last 12 months requiring IV antibiotic infusion therapy in the home or in the hospital;
5. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;
6. Dose does not exceed one of the following (a or b):
 - a. 400 mg/kg IV every 3 weeks;
 - b. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

I. Multiple Sclerosis (off-label) (must meet all):

1. Diagnosis of relapsing remitting multiple sclerosis (MS);
2. Prescribed by or in consultation with a neurologist;
3. Failure of three FDA-approved disease-modifying MS therapies (e.g., Avonex, Aubagio, Betaseron, Rebif, Copaxone, Tecfidera, Gilenya) at up to maximally indicated doses unless contraindicated or clinically significant side effects are experienced;
**Prior authorization is required for MS therapies*
4. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;
5. Dose does not exceed one of the following (a or b):

- a. Initial loading dose of 400 mg/kg IV for 5 days, followed by maintenance dose of 1 g/kg IV per month;
- b. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

J. Myasthenia Gravis (MG) Or Lambert Eaton Myasthenic Syndrome (LEMS) (off-label) (must meet all):

1. Diagnosis of myasthenia gravis (MG) or Lambert Eaton myasthenic syndrome (LEMS);
2. Prescribed by or in consultation with a neurologist or neuromuscular specialist;
3. Member meets one of the following (a, b, or c):
 - a. Acute crisis (e.g., vital capacity less than 1 L/min, inability to walk 100 ft without assistance, intubation, dysphagia with aspiration, mechanical ventilation);
 - b. Thymectomy surgery is scheduled;
 - c. Failure of both of the following at up to maximally indicated doses, unless contraindicated or clinically significant adverse effects are experienced (i and ii):
 - i. Cholinesterase inhibitor (e.g., pyridostigmine);
 - ii. Systemic corticosteroid (e.g., prednisone) or immunosuppressant (e.g., azathioprine);
4. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;
5. Dose does not exceed one of the following (a or b):
 - a. 2 g/kg IV per treatment course;
 - b. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

K. Neonatal/Fetal Alloimmune Thrombocytopenia (off-label) (must meet all):

1. Diagnosis of neonatal alloimmune thrombocytopenia (NAIT) or fetal alloimmune thrombocytopenia (FAIT);
2. Prescribed by or in consultation with a hematologist/oncologist, immunologist, neonatologist, or perinatologist;
3. Member meets one of the following (a, b, c, or d):
 - a. Previous pregnancy affected by FAIT and father is homozygous for human platelet antigen (HPA) genotype (e.g., HPA-1a);
 - b. Serological confirmation of NAIT as evidenced by maternal-fetal HPA incompatibility;
 - c. At 20 weeks, cordocentesis reveals fetal platelets $< 100 \times 10^9/L$;
 - d. Symptomatic neonates with both of the following (i and ii):
 - i. Current (within the last 30 days) severe thrombocytopenia $< 50 \times 10^9$ platelets/L;

- ii. At high risk of developing intracranial hemorrhage when washed irradiated maternal platelets are not available, have not been successful, have become intolerable, or are contraindicated;
- 4. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;
- 5. Dose does not exceed one of the following (a or b):
 - a. 2 g/kg IV per week;
 - b. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

L. Paraneoplastic Neurological Syndrome (off-label) (must meet all):

- 1. Diagnosis of one of the following subtypes of paraneoplastic neurological syndrome (a or b):
 - a. Opsoclonus-myoclonus-syndrome;
 - b. Anti-NMDA encephalitis;
- 2. Prescribed by or in consultation with a neurologist, neuromuscular specialist, or oncologist;
- 3. For opsoclonus-myoclonus-syndrome: Failure of at least one systemic corticosteroid (e.g., prednisone) at up to maximally indicated doses, unless contraindicated or clinically significant adverse effects are experienced;
- 4. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;
- 5. Dose does not exceed one of the following (a, b, c, or d):
 - a. 2 g/kg IV per month;
 - b. 0.4 g/kg IV per day;
 - c. 200 mg/kg SC per week;
 - d. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

M. Parvovirus B19 Infection and Anemia (off-label) (must meet all):

- 1. Diagnosis of anemia secondary to chronic parvovirus B19 infection;
- 2. Prescribed by or in consultation with a hematology/oncology specialist, infectious disease/HIV specialist, or immunologist;
- 3. Current (within the last 30 days) severe anemia (i.e., Hgb <10 or Hct < 30) due to bone marrow suppression;
- 4. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;
- 5. Dose does not exceed one of the following (a or b):

- a. Initial dose of 2 g/kg/day for up to 5 days, followed by maintenance dose of 400 mg/kg IV every 4 weeks;
- b. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

N. Pediatric Human Immunodeficiency Virus (HIV) Infection Prophylaxis (off-label)
(must meet all):

1. Prescribed for prophylaxis of serious bacterial infection in a child who has human immunodeficiency virus (HIV);
2. Prescribed by or in consultation with an HIV or infectious disease specialist;
3. Member meets one of the following (a – f):
 - a. Current (within the last 6 months) hypogammaglobulinemia as evidenced by two separate measurements of serum IgG concentration less than 400 mg/dL;
 - b. Recurrent serious bacterial infections (defined as two or more infections such as bacteremia, meningitis, or pneumonia in a 12 month period);
 - c. Inadequate antibody response to protein/polysaccharide vaccines (e.g., measles, pneumococcal, and/or *Haemophilus influenzae* type b);
 - d. Lives in an area where measles is highly prevalent and has not developed an antibody response after two doses of measles, mumps, and rubella virus live vaccine;
 - e. Exposure to measles (requires a single dose);
 - f. Chronic bronchiectasis that is suboptimally responsive to antimicrobial and pulmonary therapy;
4. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;
5. Dose does not exceed one of the following (a or b):
 - a. 400 mg/kg IV every 2 weeks;
 - b. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

O. Pemphigus Vulgaris, Pemphigus Foliaceus, Bullous Pemphigoid, Mucous Membrane Pemphigoid (a.k.a. Cicatricial Pemphigoid), Epidermolysis Bullosa Acquisita (off-label) (must meet all):

1. Diagnosis of one of the following (a, b, c, or d):
 - a. Pemphigus Vulgaris;
 - b. Pemphigus Foliaceus;
 - c. Bullous Pemphigoid, Mucous Membrane Pemphigoid (a.k.a. Cicatricial Pemphigoid);
 - d. Epidermolysis Bullosa Acquisita;
2. Prescribed by or in consultation with a dermatologist or immunologist;
3. Failure of at least one corticosteroid (e.g., prednisone) and at least one immunosuppressive agent (e.g., cyclophosphamide, azathioprine, mycophenolate

- mofetil) at up to maximally indicated doses unless contraindicated or clinically significant adverse effects are experienced;
4. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;
 5. Dose does not exceed one of the following (a, b, c, or d):
 - a. 2 gm/kg every 4 weeks;
 - b. 400 mg/kg/day for 5 days (1 cycle only; may repeat up to three times in a 6-month period);
 - c. 300 mg/kg/day for 5 days at monthly intervals (for up to 3 cycles);
 - d. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

P. Primary Immunodeficiencies (must meet all):

1. Diagnosis of primary immunodeficiencies (PI), including any of the following (a – g):
 - a. Agammaglobulinemia (e.g., X-linked, congenital);
 - b. Common variable immunodeficiency (CVID);
 - c. Congenital hypogammaglobulinemia;
 - d. Immunodeficiency with near/normal IgM (absent IgG, IgA) (also known as Hyper IgM syndrome);
 - e. Selective Immunodeficiency (e.g., selective IgA, IgM, or IgG subclass);
 - f. Severe combined immunodeficiency disorders (SCID) (e.g., X-SCID, jak3, ZAP70, ADA, PNP, RAG defects, Ataxia Telangiectasia, Wiskott-Aldrich syndrome, DiGeorge syndrome);
 - g. Subclass Deficiency or Functional Antibody Deficiency (*see Appendix D*);
2. Prescribed by or in consultation with an immunologist;
3. Current (within the last 6 months) hypogammaglobulinemia (below normal for age) as evidenced by two separate measurements of immunoglobulin level (*see Appendix E*);
4. Documentation of one of the following (a, b, c, or d):
 - a. One bacterial infection within the last 6 months requiring consultation or treatment with an infectious disease specialist;
 - b. Two or more bacterial infections within the last 12 months requiring IV antibiotic infusion therapy in the home or in the hospital;
 - c. Inadequate antibody response to protein/polysaccharide vaccines (e.g., tetanus, diphtheria, pneumococcal);
 - d. Member has SCID
5. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;
6. Dose does not exceed one of the following (a, b, c, or d):
 - a. 800 mg/kg IV every 3 to 4 weeks;
 - b. 600 mg/kg SC every 3 to 4 weeks;

- c. SC: 1.37 x previous initial IV dose, starting 1 week after last IGIV infusion;
- d. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

Q. Viral Prophylaxis for Hepatitis A, Measles, Varicella, Rubella Viruses (must meet all):

- 1. Request is for intramuscular formulation;
- 2. Request is for one of the following indications (a, b, c, or d):
 - a. Hepatitis A post-exposure/high-risk prophylaxis and meets both of the following (i and ii):
 - i. Hepatitis A exposure or at high risk for exposure as follows (a or b):
 - a) Exposure to hepatitis A in the past 2 weeks (e.g., household contact, sexual contact, sharing illicit drugs with someone positive for hepatitis A, regular babysitters/caretakers, food handlers at the same establishment as one who is positive for hepatitis A) AND does not have clinical manifestations of hepatitis A;
 - b) Traveling to or working in an area endemic for hepatitis A;
 - ii. Meets at least one of the following (a, b, or c):
 - a) Hepatitis A vaccine is locally unavailable;
 - b) History of severe allergic reaction (anaphylaxis) to the hepatitis A vaccine;
 - c) If either exposed to the virus or traveling in ≤ 2 weeks to an area endemic for hepatitis A, then (1, 2, or 3):
 - 1) Age < 1 year or > 40 years;
 - 2) Chronic liver disease or other chronic medical condition;
 - 3) Immunocompromised;
 - b. Measles (rubeola) post-exposure prophylaxis and meets all of the following (i, ii, iii, and iv):
 - i. Exposure to measles within the past 6 days;
 - ii. Member has not previously received a measles vaccine;
 - iii. Member has not previously had measles;
 - iv. Meets at least one of the following (a – f):
 - a) Measles vaccine is locally unavailable;
 - b) History of severe allergic reaction (anaphylaxis) to the measles vaccine;
 - c) Pregnancy;
 - d) Immunocompromised;
 - e) Has been > 3 days since exposure;
 - f) Age < 12 months;
 - c. Chickenpox (varicella) post-exposure prophylaxis and meets all of the following (i, ii, iii, and iv):
 - i. Exposure to varicella within the past 10 days;
 - ii. Member lacks immunity to varicella;
 - iii. Varicella zoster immune globulin (VZIG) is currently unavailable;
 - iv. Meets any of the following (a – e):
 - a) Varicella vaccine is locally unavailable;
 - b) History of a severe allergic reaction (anaphylaxis) to the varicella vaccine;

- c) Pregnancy;
- d) Immunocompromised;
- e) Newborn of mother who had varicella from 5 days before to 2 days after delivery;
- d. Rubella post-exposure prophylaxis (i and ii):
 - i. Recent exposure to rubella;
 - ii. Member is pregnant;
- 2. Dose does not exceed one of the following (a – e):
 - a. Hepatitis A (i, ii, or iii):
 - i. 0.1 mL/kg IM once;
 - ii. For anticipated exposure up to 2 months: 0.2 mL/kg IM once;
 - iii. For anticipated exposure 2 months or longer: 0.2 mL/kg IM every 2 months;
 - b. Measles: 15 mL IM once;
 - c. Varicella: 1.2 mL/kg IM once;
 - d. Rubella: 0.55 mL/kg IM once;
 - e. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration:

Hepatitis A: Up to 6 months

All other indications: One time approval (1 month)

R. Stiff Person Syndrome (off-label) (must meet all):

- 1. Diagnosis of stiff person syndrome (also known as Moersch-Woltmann syndrome);
- 2. Prescribed by or in consultation with a neurologist or neuromuscular specialist;
- 3. Failure of a benzodiazepine (e.g., diazepam) or baclofen at up to maximally indicated doses, unless contraindicated or clinically significant adverse effects are experienced;
- 4. Member meets one of the following (a or b):
 - a. Request is for Gamunex-C (preferred);
 - b. Failure of Gamunex-C unless contraindicated or clinically significant adverse effects are experienced;
- 5. Dose does not exceed one of the following (a or b):
 - a. 2 g/kg IV per treatment course;
 - b. Dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

S. Other diagnoses/indications

- 1. Refer to CP.PMN.53

II. Continued Therapy

A. Kawasaki Syndrome/Incomplete (Atypical) Kawasaki Disease, Viral Prophylaxis (Hep A, Measles, Varicella, Rubella):

- 1. Currently receiving medication via Pennsylvania Health and Wellness benefit or member has previously met all initial approval criteria or the Continuity of Care policy (PA.LTSS.PA.01) applies;

2. Member must be re-evaluated using initial approval criteria.

B. All Other Indications in Section I (must meet all):

1. Currently receiving medication via Pennsylvania Health and Wellness benefit or member has previously met all initial approval criteria or the Continuity of Care policy (PA.LTSS.PA.01) applies;
2. Member is responding positively to therapy;
3. If request is for a dose increase, request meets one of the following (a or b):
 - a. Dose titration or conversion is appropriate per package insert labeling;
 - b. New dose is supported by practice guidelines or peer-reviewed literature for the relevant off-label use (*prescriber must submit supporting evidence*).

Approval duration: 6 months

C. Other diagnoses/indications (must meet 1 or 2):

1. Currently receiving medication via Pennsylvania Health and Wellness benefit or member has previously met all initial approval criteria or the Continuity of Care policy (PA.LTSS.PA.01) applies;

Approval duration: Duration of request or 6 months (whichever is less); or

1. Refer to CP.PMN.53

II. Diagnoses/Indications for which coverage is NOT authorized:

- A. Non-FDA approved indications, which are not addressed in this policy, unless there is sufficient documentation of efficacy and safety according to the off label use policies – CP.PMN.53
- B. The following conditions are considered not medically necessary:
 1. Acquired factor VIII inhibitors;
 2. Adrenoleukodystrophy;
 3. Alzheimers Disease;
 4. Amyotrophic lateral sclerosis;
 5. Angioedema;
 6. Antiphospholipid syndrome;
 7. Aplastic anemia;
 8. Asthma;
 9. Autism;
 10. Autoimmune chronic urticaria;
 11. Behçet's syndrome;
 12. Cardiomyopathy, acute;
 13. Chronic fatigue syndrome;
 14. Chronic sinusitis;
 15. Complex pain regional syndrome (CPRS) ;
 16. Congenital heart block;
 17. Cystic fibrosis;
 18. Dermatitis, autoimmune blistering;
 19. Diabetes mellitus;
 20. Diamond-Blackfan anemia;

21. Dysautonomia, acute idiopathic;
22. Eczema;
23. Encephalopathy, acute;
24. Endotoxemia;
25. Epilepsy;
26. Goodpasture's syndrome;
27. Hemolytic transfusion reaction;
28. Hemolytic-uremic syndrome;
29. Hemophagocytic syndrome;
30. Idiopathic lumbosacral flexopathy;
31. Immune-mediated neutropenia;
32. Inclusion body myositis;
33. Infection prevention and control in newborns;
34. Intractable seizures;
35. Leukemia, acute lymphoblastic;
36. Lower motor neuron syndrome;
37. Multiple sclerosis - primary progressive or secondary types;
38. Myalgia, myositis, unspecified;
39. Myelopathy, HTLV-I associated;
40. Nephropathy, membranous;
41. Nephrotic syndrome;
42. Non-immune thrombocytopenia;
43. Ophthalmopathy, euthyroid;
44. Oral use;
45. Otitis media, recurrent;
46. Paraneoplastic cerebellar degeneration;
47. Paraproteinemic neuropathy;
48. Pediatric autoimmune neuropsychiatric disorders associated with streptococcal infection (PANDAS);
49. POEMS syndrome (see General Information – Section III for definition);
50. Polyarteritis nodosa;
51. Progressive lumbosacral plexopathy;
52. Radiculoneuritis, Lyme;
53. Rasmussen's syndrome;
54. Recurrent otitis media;
55. Recurrent spontaneous pregnancy loss;
56. Refractoriness to platelet transfusion;
57. Reiter's syndrome;
58. Renal failure, acute;
59. Rheumatoid arthritis (adult and juvenile);
60. Scleroderma;
61. Sensory neuropathy;
62. Systemic vasculitides;
63. Thrombocytopenia (non-immune);
64. Vasculitis associated with other connective tissue diseases;
65. Vogt-Koyanagi-Harada syndrome;

66. Wegener's granulomatosis.

III. Appendices/General Information

Appendix A: Abbreviation/Acronym Key

ACTH: adrenocorticotrophic hormone
AIDP: acute inflammatory
demyelinating polyneuropathy
CIDP: chronic inflammatory
demyelinating polyneuropathy
CLL: chronic lymphocytic leukemia
CVID: common variable
immunodeficiency
DIF: dual inactivation plus nanofiltration
FAIT: fetal alloimmune
thrombocytopenia
FDA: Food and Drug Administration
GBS: Guillain Barre Syndrome
HIV: human immunodeficiency virus
HLA: human leukocyte antigen
HPA: human platelet antigen
IG: immune globulin
IgA: immune globulin A
IgG: immune globulin G
IgM: immune globulin M

IMIG: immune globulin (IM route)
ITP: immune thrombocytopenic purpura
IVIG: immune globulin (IV route)
MMN: multifocal motor neuropathy
NAIT: neonatal alloimmune
thrombocytopenia
NF: nanofiltered
NMDA: N-methyl D-aspartate
PI: primary [humoral]
immunodeficiency
POEMS: Polyneuropathy,
Organomegaly, Endocrinopathy,
Monoclonal protein, Skin changes
RhIG: Rh_o(D) immune globulin
SCID: severe combined
immunodeficiency disorders
SCIG: immune globulin (SC route)
S/D: solvent/detergent treated
VZIG: varicella zoster immune globulin

Appendix B: Therapeutic Alternatives

This table provides a listing of preferred alternative therapy recommended in the approval criteria. The drugs listed here may not be a formulary agent for all relevant lines of business and may require prior authorization.

Drug Name	Dosing Regimen	Dose Limit/ Maximum Dose
baclofen (Lioresal [®])	Stiff Person Syndrome* 20 mg PO BID or TID, or 50 to 1,600 mcg/day intrathecally	PO: 80 mg/day IT: 1600 mcg/day
diazepam (Valium [®])	Stiff Person Syndrome* 20 to 80 mg/day PO (given in divided doses)	Daily doses needed to control the disease can be as high as 100 to 200 mg/day in some patients
pyridostigmine (Mestinon [®]); Mestinon [®] Timespan (pyridostigmine extended release)	Myasthenia Gravis <u>Immediate Release (IR) tablets and syrup</u> <i>Adults:</i> 60 to 1,500 mg PO daily in divided doses (avg 600 mg PO daily) <i>Pediatrics*:</i> 1 mg/kg PO Q4 to 6 hrs <u>Extended Release</u>	IR: 1,500 mg/day (adults) or 7 mg/kg/day (pediatrics) ER: 1,080 mg/day

Drug Name	Dosing Regimen	Dose Limit/ Maximum Dose
	180 to 540 mg PO QD or BID	
Rhophylac, WinRho SDF (Rh _o (D) immune globulin)	Idiopathic Thrombocytopenic Purpura in non-splenectomized, Rh_o(D) antigen positive patients <u>Initial:</u> 50 mcg/kg IV <u>Maintenance Therapy:</u> 25 to 60 mcg/kg IV	75 mcg/kg*
<i>Immunosuppressive agents</i>		
azathioprine (Imuran [®])	Dermatomyositis/Polymyositis*, Myasthenia Gravis* 2 mg/kg PO QD or 50 mg/day PO up to 2 to 3 mg/kg/day Pemphigus vulgaris and associated conditions* 2 to 3 mg/kg/day PO	3 mg/kg/day
cyclophosphamide (Cytosan [®])	Dermatomyositis/Polymyositis* 1 to 3 mg/kg/day PO QD or 500 mg IV every 2 weeks for 6 doses Pemphigus vulgaris and associated conditions* 50 to 75 mg/day PO or pulsed regimen of 500 mg IV on day, and then every 4 weeks thereafter in combination with oral cyclophosphamide and dexamethasone	Not applicable
cyclosporine (Gengraf [®] , Neoral [®] , Sandimmune [®])	Dermatomyositis/Polymyositis* 5 to 10 mg/kg/day PO	Not applicable
methotrexate (Rheumatrex [®])	Dermatomyositis/Polymyositis* 10 to 25 mg/week PO/IV	50 mg/week
mycophenolate mofetil (Cellcept [®])	Dermatomyositis/Polymyositis* 250 to 500 mg PO BID, increasing to a target dose of 1,500-3,000 mg/day Pemphigus vulgaris and associated conditions* 35 to 45 mg/kg/day PO or 1 g PO BID	DM/PM: 3 g/day PV, etc: 2 g/day
tacrolimus (Prograf [®])	Dermatomyositis/Polymyositis* 0.075mg/kg/day PO BID OR begin at 1 mg PO BID, increase to reach trough of 5-10 ng/ml	Not applicable

Drug Name	Dosing Regimen	Dose Limit/ Maximum Dose
Systemic corticosteroids (e.g., prednisone, prednisolone, methylprednisolone)	An equivalent dose of prednisone 1 mg/kg/day (with or without tapering)	2 mg/kg/day
<i>Disease-modifying therapies for relapsing remitting MS</i>		
Aubagio® (teriflunomide)	7 or 14 mg PO QD	14 mg/day
Avonex®, Rebif® (interferon beta-1a)	<i>Avonex</i> : 30 mcg IM Q week <i>Rebif</i> : 22 mcg or 44 mcg SC TIW	<i>Avonex</i> : 30 mcg/week <i>Rebif</i> : 44 mcg TIW
Betaseron®, Extavia® (interferon beta-1b)	250 mcg SC QOD	250 mg QOD
glatiramer acetate (Copaxone®, Glatopa®)	<i>Copaxone</i> : 20 mg SC QD or 40 mg SC TIW <i>Glatopa</i> : 20 mg SC QD	<i>Copaxone</i> : 20 mg/day or 40 mg TIW <i>Glatopa</i> : 20 mg/day
Gilenya™ (fingolimod)	0.5 mg PO QD	0.5 mg/day
Lemtrada® (alemtuzumab)	IV infusion for 2 treatment courses: <ul style="list-style-type: none"> First course: 12 mg/day on 5 consecutive days Second course: 12 mg/day on 3 consecutive days 12 months after first course 	See regimen
Novantrone® (mitoxantrone)	12 mg/m ² given as a short (approximately 5 to 15 minutes) IV every 3 months	Cumulative lifetime dose of ≥ 140 mg/m ²
Ocrevus™ (ocrelizumab)	Initial: 300 mg IV, then 300 mg IV 2 weeks later Maintenance: 600 mg IV every 6 months	600 mg/6 months
Plegridy® (peginterferon beta-1a)	125 mcg SC Q2 weeks	125 mcg/2 weeks
Tecfidera® (dimethyl fumarate)	120 mg PO BID for 7 days, followed by 240 mg PO BID	480 mg/day
Tysabri® (natalizumab)	300 mg IV every 4 weeks	300 mg/4 weeks
Zinbryta® (daclizumab)	150 mg SC once monthly	150 mg/month

Therapeutic alternatives are listed as Brand name® (generic) when the drug is available by brand name only and generic (Brand name®) when the drug is available by both brand and generic.

**Off-label*

Appendix C: Contraindications

Not applicable

Appendix D: General Information

- **CLL:**
 - These patients have a pattern of infection caused by encapsulated bacteria (*Haemophilus influenzae*, pneumococci, streptococci) which tends to be chronic and/or recurrent and does not demonstrate improvement with an adequate course of PO antibiotics and/or prophylactic antibiotics. Recurrent infections may include sinus infections, otitis media, bronchiectasis and pyogenic pneumonias.
- **Dermatomyositis, Polymyositis:**
 - IVIG may be medically necessary after less than 4 months trial of prednisone or prednisone combination therapies if the patient has profound, rapidly progressive and/or potentially life threatening muscular weakness (e.g., life-threatening aggressive disease with involvement of respiratory musculature, possibly requiring hospitalization, elective intubation and mechanical ventilatory support) and is refractory to or intolerant of previous therapy.
 - Failure or clinically significant adverse effects to continual high dose steroids in combination with other immunosuppressive agents is defined as the patient being unresponsive or poorly responsive to therapy (persistently elevated serum creatine kinase (CK) levels and/or lack of improvement on muscle strength improvement scales) or intolerant of therapy (i.e., steroid myopathy or severe osteoporosis).
 - Inclusion body myositis (IBM) is classified as one of the idiopathic inflammatory myopathies. However, despite some histologic similarities, the clinical manifestations, treatment and prognosis are different from DM and PM. IBM is relatively resistant to standard immunosuppressive therapy. In two clinical studies, IVIG was unable demonstrate objective improvement in the treatment of IBM.
- **ITP:**
 - Definitions of acute v. chronic ITP:
 - Per an International Working Group consensus panel of ITP experts, ITP is defined as newly diagnosed (diagnosis to 3 months), persistent (3 to 12 months from diagnosis), or chronic (lasting for more than 12 months). Although not formally validated, these definitions are supported and used by the American Society of Hematology (ASH).
 - In clinical trials evaluating the efficacy and safety of IVIG in ITP, acute ITP was defined as condition duration of up to 6 months while chronic ITP was defined as condition duration of greater than 12 months.
 - Per the 2011 ASH guidelines, response to treatment was defined by the following:
 - A response would be defined as a platelet count $\geq 30,000/\mu\text{L}$ and a greater than 2-fold increase in platelet count from baseline measured on 2 occasions > 7 days apart and the absence of bleeding.

- A failure would be defined as a platelet count $< 30,000/\mu\text{L}$ or a less than 2-fold increase in platelet count from baseline or the presence of bleeding. Platelet count must be measured on 2 occasions more than a day apart.
- There have been reports of fatal intravascular hemolysis with Rho(D) immune globulin and specific monitoring is required. This therapy is not necessarily recommended over IVIG but can be used instead in patients who are Rh positive, have a negative direct antiglobulin test (DAT), and have not had a splenectomy.
- For acute ITP, a single dose of IVIG is used as first line treatment. For adults, a second dose may be given if necessary.
- (Acute) Inflammatory Demyelinating Polyneuropathy or GBS:
 - GBS subtypes include the following: Acute inflammatory demyelinating polyneuropathy (AIDP), Acute motor axonal neuropathy (AMAN), Acute motor-sensory axonal neuropathy (AMSAN), and Miller Fisher Syndrome (MFS).
 - Miller Fisher syndrome is a rare, acute polyneuropathy characterized by ataxia (abnormal muscle coordination), ophthalmoplegia (paralysis of the eye muscles), and areflexia (absence of the reflexes).
 - Elevated CSF protein, with a normal CSF white blood cell count, is often present; fifty to 66 percent the first week of symptoms and ≥ 75 percent the third week.
 - GBS and AIDP typically progresses over 2 weeks, and the majority of patients achieve nadir of the disease by four weeks.
 - Initiation of IVIG within 2 weeks of symptom onset appears to be as effective as plasma exchange (PE).
 - The combination of IVIG and plasmapheresis used together is not better than either treatment used alone.
 - The combination of IVIG and IV methylprednisolone was not more effective than IVIG alone.
 - Immunoabsorption is an alternative technique to PE that removes immunoglobulins. There is insufficient evidence to recommend the use of immunoabsorption for GBS.
 - CSF filtration is as effective as PE for treatment of GBS.
 - Pulmonary function risk factors include one or more of the following:
 - Forced vital capacity $< 20 \text{ mL/kg}$
 - Maximal inspiratory pressure $< 30 \text{ cm H}_2\text{O}$
 - Maximal inspiratory pressure $< 40 \text{ cm H}_2\text{O}$
 - 30% reduction in vital capacity from baseline
- (Chronic) Inflammatory Demyelinating Polyneuropathy or CIDP:
 - The definition of CIDP includes multifocal acquired demyelinating sensory and motor neuropathy (MADSAM) variant or when Sensory CIDP exists with other causes of neuropathy such as diabetes and Charcot-Marie-Tooth (CMT), as evidenced by superimposed features of CIDP.
 - IVIG, corticosteroids, and plasmapheresis are all considered first-line treatments for patients with moderate to severe disability. Patient-specific factors may determine the appropriate choice of therapy.
 - As evidence of progression is more significant than the level of disability, mild cases of CIDP may not need to be treated aggressively if they are stable, but any signs of progression warrants effective treatment with IVIG to begin immediately.

- Plasmapheresis has not been shown to be more effective than IVIG, however, it may be used in patients who are unresponsive to both IVIG and corticosteroid therapy.
- Kawasaki:
 - The efficacy of intravenous immunoglobulin (IVIG) administered in the acute phase of Kawasaki disease in reducing the prevalence of coronary artery abnormalities is well-established. The mechanism of action of IVIG in treating Kawasaki disease is unknown; however IVIG appears to have a generalized anti-inflammatory effect.
 - For patients with persistent or recurrent fever after initial IVIG infusion, IVIG retreatment may be useful. Failure to respond usually is defined as persistent or recrudescent fever ≥ 36 hours after completion of the initial IVIG infusion. Most experts recommend retreatment with IVIG, 2 g/kg. The putative dose-response effect of IVIG forms the theoretical basis for this approach.
- Kidney Transplant:
 - Centene considers the combination of intravenous immunoglobulin (IVIG) and Rituxan (rituximab) for desensitization prior to renal transplantation, investigational at this time. Larger, prospective, randomized controlled trials are needed to evaluate the long-term efficacy and safety of this treatment and to compare this protocol with the current treatment of IVIG alone.
 - In a retrospective analysis of 50 kidney transplant patients at Johns Hopkins Hospital, all patients were live donor HLA incompatible recipients. Desensitization included plasmapheresis with low dose IVIG, mycophenolate and tacrolimus, and intraoperative induction therapy with anti-IL2 receptor antibodies. Twenty five of the higher risk patients also received rituximab (375 mg/m²) the day prior to transplant. There was no significant difference in the incidence of acute rejection within the first 3 months of transplant between the two groups. Further randomized, controlled trials are still needed.
- MMN:
 - Although not required for diagnosis, the presence of a high titer ($>1:1000$) of serum Immunoglobulin M (IgM) antibody directed against ganglioside-monodialic acid (IgM Anti-GM1 antibodies) provides independent support for MMN ($> 80\%$ of patients).
 - Although no reports exist of controlled trials of immunosuppressive drugs in patients with multifocal motor neuropathy, there are a series of anecdotal reports of patients who transiently responded to oral or pulsed doses of cyclophosphamide, however, this treatment was associated with significant side effects, related in part to the cumulative dose of cyclophosphamide.
- MM:
 - Plateau phase is defined as the time when other causative organisms that may be present due to dysfunction in other immunologic cells besides the B-cell lines of defense are less likely to be present. IVIG in any other phase is considered **not** medically necessary.
 - These patients have a pattern of infection caused by encapsulated bacteria (Haemophilus influenzae, pneumococci, streptococci) which tends to be chronic and/or recurrent and does not demonstrate improvement with an adequate course of PO antibiotics and/or prophylactic antibiotics. Recurrent infections may include sinus infections, otitis media, bronchiectasis and pyogenic pneumonias.

- MS:
 - The clinical course of MS usually falls within one of the following categories, with the potential for progression from one pattern to a more serious one:
 - Relapsing-remitting MS: This form of MS is characterized by clearly defined acute attacks with full recovery or with some remaining neurological signs/symptoms and residual deficit upon recovery. The periods between disease relapses are characterized by a lack of disease progression.
 - Secondary progressive MS: The disease begins with an initial relapsing-remitting course, followed by progression at a variable rate that may also include occasional relapses and minor remissions.
 - Progressive-relapsing MS: Persons with progressive-relapsing MS experience progressive disease from onset, with clear, acute relapses that may or may not resolve with full recovery. Unlike relapsing-remitting MS, the periods between relapses are characterized by continuing disease progression.
 - Primary progressive MS: The disease shows gradual progression of disability from its onset, without plateaus or remissions or with occasional plateaus and temporary minor improvements.
- MG:
 - Myasthenia gravis (MG) is a disorder of neuromuscular function that is characterized by fatigue and weakness of the muscular system without atrophy or sensory deficits.
 - Myasthenia “Crisis” refers to exacerbation sufficient to endanger life, and usually involves respiratory failure in MG, therefore would not include disabled patients who are able to walk with or without assistance.
 - Intravenous Immunoglobulin (IVIG) has not been shown to be superior to plasmapheresis in the treatment of life-threatening myasthenia gravis.
 - High-dose IVIG may temporarily modify the immune system and suppress autoantibody production to improve severe myasthenia gravis symptoms. The effect of IVIG is seen typically in less than a week, and the benefit can last for three to six weeks. IVIG is used to quickly reverse an exacerbation of myasthenia.
 - According to the European Federation of Neurological Studies (EFNS) guidelines on the use of intravenous immunoglobulin in treatment of neurological diseases, the efficacy of IVIG has been proven acute exacerbations of myasthenia gravis and short-term treatment of severe MG (level A recommendation).
 - A small clinical trial conducted by Wegner and Ahmed showed that long-term IVIG was effective. This trial included six patients who were anti-AChR-Ab-positive. These patients received IVIG at a dosage of 400 mg/kg/day for 5 days then a maintenance therapy of 400 mg/kg for 1 day every 3 to 4 months. After a 2 year follow up, all patients maintained a good functional status and side effects from IVIG did not increase.
- NAIT:
 - NAIT is caused by maternal alloantibodies directed against fetal (paternally inherited) platelet antigens as a result of feto-maternal transplacental passage of incompatible platelets during pregnancy.
 - HPA-1a is the platelet-specific antigen implicated in most cases of neonatal alloimmune thrombocytopenia.

- Administering IVIG to the mother during pregnancy is the most successful strategy for increasing the fetal platelet count and has become the recommended standard treatment of known fetal alloimmune thrombocytopenia.
- Studies have shown that weekly infusions (1 g/kg maternal body weight) beginning at 20 to 24 weeks' gestation stabilize or increase the fetal platelet count in fetuses with documented alloimmune thrombocytopenia.
- In very high-risk pregnancies (intracranial hemorrhage in a previous sibling before 30 weeks' gestation), some investigators recommend starting IVIG therapy as early as 12 to 14 weeks' gestation.
- Although the mechanism of action of IVIG in FAIT is not clearly defined, it is postulated that IVIG decreases maternal alloantibodies and may also block transplacental transport of maternal antiplatelet antibodies.
- There is still no consensus on the optimal protocol for managing IVIG after it is begun.
- **Paraneoplastic Syndromes**
 - Paraneoplastic syndromes are the remote effects of a cancer unrelated to the effects of the tumor or its metastasis. Sometimes they are associated with low immune globulin values and sometimes they are associated with autoantibodies.
 - The combination of IVIG, cyclophosphamide, and methylprednisolone in patients with paraneoplastic cerebellar degeneration and antineuronal antibodies is not effective.
 - Anti-NMDA encephalitis
 - Although no standard of care for anti-NMDA encephalitis exists, on the basis of data from the reviews completed, concurrent IVIG (0.4 g/kg per day for 5 days) and methylprednisolone (1 g/day for 5 days) is preferred over plasma exchange.
 - If no response is seen after 10 days, a second-line therapy is started.
 - Although there is a paucity of randomized controlled and comparative trials regarding the use of IVIG for this disorder, because of the severity of anti-NMDA encephalitis and on the basis of data from the completed reviews and case series, it has been noted that individuals who received early tumor treatment (usually with immunotherapy) had better outcome and fewer neurological relapses than the rest of the patients,
 - IVIG given concurrently with corticosteroids has been determined to assist with full or substantial recovery in approximately 75% of the individuals with anti-NMDA encephalitis.
 - Opsoclonus-myoelonus-syndrome or "dancing eyes-dancing feet" syndrome is a rare neurological disorder that affects infants and young children and has been described in adult patients with cancer
 - The current therapeutic strategies for OMS provide a broad spectrum of nonselective immunotherapies, including noncytotoxic and cytotoxic drugs, intravenous immunoglobulins, ACTH and plasma exchange
 - Intravenous immunoglobulin G is occasionally used as an alternative to ACTH.
 - Altogether, the available evidence suggests that IVIG may be an effective treatment in parainfectious and idiopathic OMS.
 - Treatment with IVIG has been reported in a few idiopathic adult-onset OMS cases in literature and they have concluded that idiopathic OMS presents an age

dependent prognosis and immunotherapy. IVIG seems to be associated with a faster recovery.

- Trends in the standard of care of OMS report that ACTH, prednisone, and intravenous immunoglobulin were used with equal frequency, but ACTH was associated with the best early response
- Parvovirus B19 Infection
 - Human parvovirus B19 infection can give rise to the loss of mature red blood cells, severe anemia and the formation of immune complexes.
 - A robust antibody response is necessary for virus clearance and control of the infection.
 - IVIG has been shown to be effective in recurrent infection in augmenting the inadequate humoral immune response. Based on the evidence available, IVIG therapy has become the standard of care if the aplastic crisis becomes prolonged, even though there are no definitive clinical trials demonstrating the efficacy of HPV B19-induced anemia.
 - Use of IVIG for treatment in parvovirus B19 infection is a category 2A NCCN recommendation
 - IVIG dose adjustments:
 - Adjustment of the IVIG dose and time interval between doses should be based on trough levels measured every month for the first three months of therapy and again at six months
 - Adjustments to infusion rates and measuring of serum IgG levels may be needed during infections or in persons who have a high catabolism of infused IgG
 - To reduce infection frequency in immunodeficient patients, serum trough levels should be maintained at 670-730 mg/dl, a value close to the lower limit of normal. All IgG trough levels outside of the low normal range of 6.7-7.3 mg/dl require dosage adjustment.
- Pemphigus Vulgaris and related conditions:
 - IVIG therapy for Pemphigus Vulgaris must be used only for short-term therapy and not as a maintenance therapy.
 - IVIG dose adjustments:
 - Adjustment of the IVIG dose and time interval between doses should be based on trough levels measured every month for the first three months of therapy and again at six months
 - Adjustments to infusion rates and measuring of serum (immunoglobulin G) IgG levels may be needed during infections or in persons who have a high catabolism of infused IgG
 - To reduce infection frequency in immunodeficient patients, serum trough levels should be maintained at 670-730 mg/dl, a value close to the lower limit of normal. All IgG trough levels outside of the low normal range of 6.7-7.3 mg/dl require dosage adjustment.
 - For Pemphigus Vulgaris, Pemphigus Foliaceus, Bullous Pemphigoid, Mucous Membrane Pemphigoid (a.k.a. Cicatricial Pemphigoid), Epidermolysis Bullosa Acquisita: the treatment is considered complete when the patient is free of disease after a 16-week interval between the last two infusion cycles;

- Examples of clinically significant adverse effects to corticosteroids, immunosuppressive agents (e.g., cyclophosphamide, azathioprine, mycophenolate mofetil) are diabetes or fractures from chronic steroid use.
- Black Box Warning: Thrombosis, renal dysfunction, acute renal failure, osmotic nephrosis, and death may occur.
- PI:
 - Common variable immunodeficiency (CVID), the most frequently diagnosed primary immunodeficiency, is characterized by a low serum IgG level antibody deficiency at least 2 SDs below the mean for age, with most patients having concurrent deficiencies of IgA and IgM. Many Patients with CVID have IgG levels below 639 that require IVIG. However, there are rare instances when a patient will have normal IgG levels. The serum immunoglobulin measurement alone does not establish a diagnosis of CVID. A definitive diagnosis of CVID is established when a patient does not demonstrate a prolonged antibody response to immunization with protein antigens (e.g., tetanus) or carbohydrate antigens (e.g., pneumococcal capsular polysaccharides such as pneumovax).
 - The gamma globulin band consists of 5 immunoglobulins: about 80% immunoglobulin G (IgG), 15% immunoglobulin A (IgA), 5% immunoglobulin M (IgM), 0.2% immunoglobulin D (IgD), and a trace of immunoglobulin E (IgE).
 - The use of intravenous immune globulin should be reserved for patients with serious defects of antibody function. All immune deficiency conditions require ongoing monitoring of the patient's clinical condition with measurement of pre-infusion (trough) serum IgG levels.
 - For lifelong treatment serum trough IgG levels should be measured before the infusion, and then monitored every 3 months to maintain low normal level (usually 400 – 600 mg/dl).
 - See Appendix E: Reference Ranges for Immune Globulin Levels
- Stiff Person Syndrome
 - Paraneoplastic Stiff-man syndrome (also known as Moersch-Woltmann syndrome) is a rare progressive neurological disorder characterized by progressive rigidity and stiffness of the axial musculature, associated with painful spasms, primarily in the lower limbs, neck and trunk.
 - Symptoms are related to autoantibodies directed against glutamic acid decarboxylase in the nervous system called anti-GAD antibodies. This antibody marker, which is an antibody to an enzyme found both in the pancreas and in nerve tissue, is found in high concentrations in classical Stiff-man syndrome.
 - In most cases, improvement in symptoms occurs with combinations of diazepam and baclofen, often in reasonably high dosage. Where all drug treatments fail to give sufficient relief from spasms and pain, treatment is directed against the underlying immunologic condition with drug choices consisting of steroids (either intravenous or orally), plasma exchange or pooled IVIG.
 - Current treatments do not offer or lead to a cure. However, they are able to control symptoms in the majority of patients.

Appendix E: Reference Ranges for Immune Globulin Levels

- The Mayo Clinic suggests the following reference ranges of immune globulins:

Age	IgG	IgA	IgM
0 to <5 months	100-334 mg/dL	7-37 mg/dL	26-122 mg/dL
5 to <9 months	164-588 mg/dL	16-50 mg/dL	32-132 mg/dL
9 to <15 months	246-904 mg/dL	27-66 mg/dL	40-143 mg/dL
15 to <24 months	313-1,170 mg/dL	36-79 mg/dL	46-152 mg/dL
2 to <4 years	295-1,156 mg/dL	27-246 mg/dL	37-184 mg/dL
4 to <7 years	386-1,470 mg/dL	29-256 mg/dL	37-224 mg/dL
7 to <10 years	462-1,682 mg/dL	34-274 mg/dL	38-251 mg/dL
10 to <13 years	503-1,719 mg/dL	42-295 mg/dL	41-255 mg/dL
13 to <16 years	509-1,580 mg/dL	52-319 mg/dL	45-244 mg/dL
16 to <18 years	487-1,327 mg/dL	60-337 mg/dL	49-201 mg/dL
> or =18 years	767-1,590 mg/dL	61-356 mg/dL	37-286 mg/d

IV. Dosage and Administration

Refer to full prescribing information for specific dosage instructions. Dosage must be individualized and is highly variable depending on the nature and severity of the disease and on the individual patient response. There is no absolute maximum dosage of immune globulin or hyaluronidase.

V. Product Availability

Drug	Availability
<i>IV administration-Ready to use</i>	
Bivigam (10%):	5, 10 gram single-use vials
Cytogam (5%)*	2.5 gram single-use vial
*Contains a standardized amount of antibody to CMV (human)	
Flebogamma DIF (5%)	0.5, 2.5, 5, 10, 20 gram single-use vials
Flebogamma DIF (10%)	5, 10, 20 gram single-use vials
Gammaplex (5%)	2.5, 5, 10, 20 gram single-use bottles
Octagam (5%)	1, 2.5, 5, 10, 25 gram single-use bottles
Octagam (10%)	2, 5, 10, 20 gram single-use bottles
Privigen (10%)	5, 10, 20, 40 gram single-use vials
<i>IV administration-lyophilized powder for reconstitution</i>	
Carimune NF	3, 6, 12 gram single-use vials
<i>IV administration- Freeze dried for reconstitution</i>	
Gammagard S/D	5%: 5 gram single-use bottle 10%: 10 gram single-use bottle
<i>IV or SC administration-Ready to use</i>	
Gammagard Liquid (10%)	1, 2.5, 5, 10, 20, 30 gram single-use bottles
Gammaked (10%)	1, 2.5, 5, 10, 20 gram single-use bottles
Gamunex-C (10%)	1, 2.5, 5, 10, 20, 40 gram single-use bottles
<i>SC administration-Ready to use</i>	
Cuvitru (20%)	1, 2, 4, 8 gram single-use vials
Hizentra (20%):	1, 2, 4, 10 gram single-use vials

Hyqvia (10%) IgG and 160 U/mL recombinant human hyaluronidase*	2.5g/200U, 5g/400U, 10g/800U, 20g/1600U, 30g/2400U dual-vial sets
*Hyaluronidase increases permeability of the local SC tissue for approximately 24 to 48 hours.	
<i>IM administration-Ready to use</i>	
GamaSTAN S/D (15-18%):	2 and 10 mL single-dose vials

VI. References

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Reviews, Revisions, and Approvals	Date	Approval Date
3Q 2018 annual review: separated CytoGam into an individual policy, added criteria for off-label uses for DM/PM, AIDP/GBS, acute ITP, kidney transplant, MM, MS, MG, NAIT/FAIT, paraneoplastic neurologic syndrome, parvovirus, peds HIV, pemphigus vulgaris, and stiff person syndrome; for CLL: added documentation of recurrent bacterial infection; for ITP: added criteria for pregnancy or trial and failure of first line agents, added criteria for high risk ITP requiring rapid increase in platelet count (e.g., active bleeding, current platelet count < 30,000/ μ L, etc.); for CIDP: added criteria for high risk (e.g., inability to stand/walk for 30 ft without assistance, ICU admission for aspiration or mechanical ventilation, muscle weakness (various), chronic disease); for PI: added hypogammaglobulinemia levels, documentation of recurrent bacterial infection or inadequate antibody response; for viral prophylaxis: defined recent varicella exposure, removed requirement that request is for IM GamaSTAN S/D to allow for off-label IV use for measles, modified duration of therapy to up to 6 months for hep A and one time approval for other postexposure prophylaxis; for continued therapy, added requirement that member be re-evaluated using initial approval criteria for KS and viral prophylaxis; added specialist requirement for all diagnoses; references reviewed and updated.	09.18	