

PHARMACY / MEDICAL POLICY – 5.01.593

Pharmacologic Treatment of Transthyretin-Mediated Amyloidosis

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None

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Introduction

Amyloid is an abnormal protein. There are many different reasons why the body makes amyloid. One cause is a change to the TTR gene. This gene provides instructions to the liver about how to make a certain protein. But changes to the TTR gene means this liver protein is faulty. These faulty liver proteins get deposited throughout the body and build up over time. This condition is known as hereditary transthyretin-mediated amyloidosis (hATTR). Symptoms like numbness, pain and weakness in the arms and legs, heart problems, and stomach and bowel problems develop as the condition progresses. One way to treat hATTR is to use certain drugs to reduce the amount of TTR protein the liver makes. This policy describes when these types of drugs may be considered medically necessary.

Note: The Introduction section is for your general knowledge and is not to be taken as policy coverage criteria. The rest of the policy uses specific words and concepts familiar to medical professionals. It is intended for providers. A provider can be a person, such as a doctor, nurse, psychologist, or dentist. A provider also can be a place where medical care is given, like a hospital, clinic, or lab. This policy informs them about when a service may be covered.

Policy Coverage Criteria

Drug	Medical Necessity
<p>Amvuttra (vutrisiran) SC</p> <p>Managed under medical benefit</p>	<p>Amvuttra (vutrisiran) may be considered medically necessary for the treatment of polyneuropathy of hereditary transthyretin-mediated amyloidosis when:</p> <ul style="list-style-type: none"> • Individual is 18 years of age or older <p>AND</p> <ul style="list-style-type: none"> • Documented transthyretin (TTR) mutation verified by genetic testing OR tissue biopsy showing amyloid deposition <p>AND</p> <ul style="list-style-type: none"> • Presence of symptoms consistent with polyneuropathy of hereditary transthyretin amyloidosis <ul style="list-style-type: none"> ○ Peripheral sensorimotor polyneuropathy (e.g., tingling or increased pain in the hands or feet, loss of feeling or numbness in the hands or feet, carpal tunnel syndrome, loss of ability to sense temperature, difficulty with fine motor skills, weakness in the legs, difficulty walking) <p>OR</p> <ul style="list-style-type: none"> ○ Autonomic neuropathy (e.g., postural hypotension, sexual dysfunction, recurrent urinary tract infection) <p>AND</p> <ul style="list-style-type: none"> • Polyneuropathy disability (PND) score IIIb or less or familial amyloid polyneuropathy (FAP) stage 2 or less <p>AND</p> <ul style="list-style-type: none"> • Not used in combination with the following: TTR stabilizers (e.g., tafamidis, tafamidis meglumine, diflunisal), Onpattro (patisiran), Tegsedi (inotersen), or Wainua (eplontersen) <p>AND</p> <ul style="list-style-type: none"> • The individual does not have ANY of the following: <ul style="list-style-type: none"> ○ New York Heart Association (NYHA) class III or IV heart failure ○ Sensorimotor or autonomic neuropathy not related to hereditary transthyretin-mediated (hATTR) amyloidosis such as monoclonal gammopathy or an autoimmune disease ○ Prior liver transplantation <p>AND</p> <ul style="list-style-type: none"> • Prescribed by or in consultation with a neurologist <p>AND</p>

Drug	Medical Necessity
	<ul style="list-style-type: none"> • Dose prescribed is 25 mg injected subcutaneously once every 3 months <p>Note: Clinical description of PND score</p> <ul style="list-style-type: none"> • Score 0 = No symptoms • Score I = Sensory disturbances but preserved walking capability • Score II = Impaired walking capacity but ability to walk without a stick or crutches • Score IIIA = Walking with the help of one stick or crutch • Score IIIB = Walking with the help of two sticks or crutches • Score IV = Confined to a wheelchair or bedridden <p>Note: Clinical description of FAP stage</p> <ul style="list-style-type: none"> • Stage 0 = No symptoms • Stage 1 = Unimpaired ambulation • Stage 2 = Assistance with ambulation required • Stage 3 = Wheelchair-bound or bedridden
<p>Onpattro (patisiran) IV</p> <p>Managed under medical benefit</p>	<p>Onpattro (patisiran) may be considered medically necessary for the treatment of polyneuropathy of hereditary transthyretin-mediated amyloidosis when:</p> <ul style="list-style-type: none"> • Individual is 18 years of age or older <p>AND</p> <ul style="list-style-type: none"> • Documented transthyretin (TTR) mutation verified by genetic testing OR tissue biopsy showing amyloid deposition <p>AND</p> <ul style="list-style-type: none"> • Presence of symptoms consistent with polyneuropathy of hereditary transthyretin amyloidosis <ul style="list-style-type: none"> ○ Peripheral sensorimotor polyneuropathy (e.g., tingling or increased pain in the hands or feet, loss of feeling or numbness in the hands or feet, carpal tunnel syndrome, loss of ability to sense temperature, difficulty with fine motor skills, weakness in the legs, difficulty walking) <p>OR</p> <ul style="list-style-type: none"> ○ Autonomic neuropathy (e.g., postural hypotension, sexual dysfunction, recurrent urinary tract infection) <p>AND</p> <ul style="list-style-type: none"> • Polyneuropathy disability (PND) score IIIb or less or familial amyloid polyneuropathy (FAP) stage 2 or less <p>AND</p>

Drug	Medical Necessity
	<ul style="list-style-type: none"> Not used in combination with the following: TTR stabilizers (e.g., tafamidis, tafamidis meglumine, diflunisal), Amvuttra (vutrisiran), Tegsedi (inotersen), or Wainua (eplontersen) <p>AND</p> <ul style="list-style-type: none"> The individual does not have ANY of the following: <ul style="list-style-type: none"> New York Heart Association (NYHA) class III or IV heart failure Sensorimotor or autonomic neuropathy not related to hereditary transthyretin-mediated (hATTR) amyloidosis such as monoclonal gammopathy or an autoimmune disease Prior liver transplantation <p>AND</p> <ul style="list-style-type: none"> Prescribed by or in consultation with a neurologist <p>AND</p> <ul style="list-style-type: none"> Dose is based on actual body weight as follows: <ul style="list-style-type: none"> For individuals weighing less than 100 kg, the dosage is 0.3 mg/kg once every 3 weeks For individuals weighing 100 kg or more, the dosage is 30 mg once every 3 weeks <p>Note: Clinical description of PND score</p> <ul style="list-style-type: none"> Score 0 = No symptoms Score I = Sensory disturbances but preserved walking capability Score II = Impaired walking capacity but ability to walk without a stick or crutches Score IIIA = Walking with the help of one stick or crutch Score IIIB = Walking with the help of two sticks or crutches Score IV = Confined to a wheelchair or bedridden <p>Note: Clinical description of FAP stage</p> <ul style="list-style-type: none"> Stage 0 = No symptoms Stage 1 = Unimpaired ambulation Stage 2 = Assistance with ambulation required Stage 3 = Wheelchair-bound or bedridden
<p>Tegsedi (inotersen) SC</p> <p>Managed under pharmacy and medical benefit</p>	<p>Tegsedi (inotersen) may be considered medically necessary for the treatment of polyneuropathy of hereditary transthyretin-mediated amyloidosis when:</p> <ul style="list-style-type: none"> Individual is 18 years of age or older <p>AND</p>



Drug	Medical Necessity
	<ul style="list-style-type: none"> Documented transthyretin (TTR) mutation verified by genetic testing OR tissue biopsy showing amyloid deposition <p>AND</p> <ul style="list-style-type: none"> Presence of symptoms consistent with polyneuropathy of hereditary transthyretin amyloidosis <ul style="list-style-type: none"> Peripheral sensorimotor polyneuropathy (e.g., tingling or increased pain in the hands or feet, loss of feeling or numbness in the hands or feet, carpal tunnel syndrome, loss of ability to sense temperature, difficulty with fine motor skills, weakness in the legs, difficulty walking) <p>OR</p> <ul style="list-style-type: none"> Autonomic neuropathy (e.g., postural hypotension, sexual dysfunction, recurrent urinary tract infection) <p>AND</p> <ul style="list-style-type: none"> Polyneuropathy disability (PND) score IIIb or less or familial amyloid polyneuropathy (FAP) stage 2 or less <p>AND</p> <ul style="list-style-type: none"> Not used in combination with the following: TTR stabilizers (e.g., tafamidis, tafamidis meglumine, diflunisal), Amvuttra (vutrisiran), Onpattro (patisiran), or Wainua (eplontersen) <p>AND</p> <ul style="list-style-type: none"> The individual does not have ANY of the following: <ul style="list-style-type: none"> New York Heart Association (NYHA) class III or IV heart failure Sensorimotor or autonomic neuropathy not related to hereditary transthyretin-mediated (hATTR) amyloidosis such as monoclonal gammopathy or an autoimmune disease Prior liver transplantation <p>AND</p> <ul style="list-style-type: none"> Prescribed by or in consultation with a neurologist <p>AND</p> <ul style="list-style-type: none"> Dose prescribed is 284 mg injected subcutaneously once weekly <p>Note: Clinical description of PND score</p> <ul style="list-style-type: none"> Score 0 = No symptoms Score I = Sensory disturbances but preserved walking capability

Drug	Medical Necessity
	<ul style="list-style-type: none"> Score II = Impaired walking capacity but ability to walk without a stick or crutches Score IIIA = Walking with the help of one stick or crutch Score IIIB = Walking with the help of two sticks or crutches Score IV = Confined to a wheelchair or bedridden <p>Note: Clinical description of FAP stage</p> <ul style="list-style-type: none"> Stage 0 = No symptoms Stage 1 = Unimpaired ambulation Stage 2 = Assistance with ambulation required Stage 3 = Wheelchair-bound or bedridden
<p>Vyndamax (tafamidis), Vyndaqel (tafamidis meglumine) oral</p> <p>Managed under pharmacy benefit</p>	<p>Vyndamax (tafamidis) and Vyndaqel (tafamidis meglumine) may be considered medically necessary for the treatment of cardiomyopathy of wild type or hereditary transthyretin-mediated amyloidosis (ATTR-CM) when:</p> <ul style="list-style-type: none"> Individual is 18 years of age or older <p>AND</p> <ul style="list-style-type: none"> Documented wild type or hereditary transthyretin-mediated amyloidosis verified by genetic testing OR tissue biopsy showing amyloid deposition The individual has end-diastolic interventricular septal wall thickness exceeding 12 mm on echocardiography The individual has a history of heart failure, with at least one prior hospitalization for heart failure or clinical evidence of heart failure The individual has a baseline N-terminal pro b-type natriuretic peptide (NT-proBNP) of ≥ 600 pg/mL The individual does not have any of the following: <ul style="list-style-type: none"> New York Heart Association (NYHA) class IV heart failure Presence of light-chain amyloidosis History of liver or heart transplantation An implanted cardiac device <p>AND</p> <ul style="list-style-type: none"> Not used in combination with Amvuttra (vutrisiran), Onpattro (patisiran), Tegsedi (inotersen), or Wainua (eplontersen) <p>AND</p> <ul style="list-style-type: none"> Prescribed by or in consultation with a cardiologist

Drug	Medical Necessity
<p>Wainua (eplontersen) SC</p> <p>Managed under pharmacy and medical benefit</p>	<p>Wainua (eplontersen) may be considered medically necessary for the treatment of polyneuropathy of hereditary transthyretin-mediated amyloidosis when:</p> <ul style="list-style-type: none"> • Individual is 18 years of age or older <p>AND</p> <ul style="list-style-type: none"> • Documented transthyretin (TTR) mutation verified by genetic testing OR tissue biopsy showing amyloid deposition <p>AND</p> <ul style="list-style-type: none"> • Presence of symptoms consistent with polyneuropathy of hereditary transthyretin amyloidosis <ul style="list-style-type: none"> ○ Peripheral sensorimotor polyneuropathy (e.g., tingling or increased pain in the hands or feet, loss of feeling or numbness in the hands or feet, carpal tunnel syndrome, loss of ability to sense temperature, difficulty with fine motor skills, weakness in the legs, difficulty walking) <p>OR</p> <ul style="list-style-type: none"> ○ Autonomic neuropathy (e.g., postural hypotension, sexual dysfunction, recurrent urinary tract infection) <p>AND</p> <ul style="list-style-type: none"> • Polyneuropathy disability (PND) score IIIb or less or familial amyloid polyneuropathy (FAP) stage 2 or less <p>AND</p> <ul style="list-style-type: none"> • Not used in combination with the following: TTR stabilizers (e.g., tafamidis, tafamidis meglumine, diflunisal), Amvuttra (vutrisiran), Onpattro (patisiran), or Tegsedi (inotersen) <p>AND</p> <ul style="list-style-type: none"> • The individual does not have ANY of the following: <ul style="list-style-type: none"> ○ New York Heart Association (NYHA) class III or IV heart failure ○ Sensorimotor or autonomic neuropathy not related to hereditary transthyretin-mediated (hATTR) amyloidosis such as monoclonal gammopathy or an autoimmune disease ○ Prior liver transplantation <p>AND</p> <ul style="list-style-type: none"> • Prescribed by or in consultation with a neurologist <p>AND</p>

Drug	Medical Necessity
	<ul style="list-style-type: none"> Dose prescribed is 45 mg injected subcutaneously every 4 weeks <p>Note: Clinical description of PND score</p> <ul style="list-style-type: none"> Score 0 = No symptoms Score I = Sensory disturbances but preserved walking capability Score II = Impaired walking capacity but ability to walk without a stick or crutches Score IIIA = Walking with the help of one stick or crutch Score IIIB = Walking with the help of two sticks or crutches Score IV = Confined to a wheelchair or bedridden <p>Note: Clinical description of FAP stage</p> <ul style="list-style-type: none"> Stage 0 = No symptoms Stage 1 = Unimpaired ambulation Stage 2 = Assistance with ambulation required Stage 3 = Wheelchair-bound or bedridden

Drug	Investigational
Amvuttra (vutrisiran), Onpattro (patisiran), Tegsedi (inotersen), Vyndamax (tafamidis), Vyndaqel (tafamidis meglumine), Wainua (eplontersen)	All other uses of Amvuttra (vutrisiran), Onpattro (patisiran), Tegsedi (inotersen), Vyndamax (tafamidis), Vyndaqel (tafamidis meglumine), and Wainua (eplontersen) for conditions not outlined in this policy are considered investigational.

Approval	Criteria
Initial authorization	All drugs listed in policy may be approved up to 12 months.
Re-authorization criteria for Amvuttra, Onpattro, Tegsedi, and Wainua	<p>Continued therapy with Amvuttra, Onpattro, Tegsedi, or Wainua will be approved for periods of one year if the above drug specific criteria are met and the individual has shown and continues to show:</p> <ul style="list-style-type: none"> Efficacy documented in the medical record indicating positive clinical response (e.g., improved or stable motor, neurologic, cardiac function, or serum TTR levels) <p>AND</p>

Approval	Criteria
	<ul style="list-style-type: none"> Improvement or stability in one of the following from baseline: PND score or FAP stage AND <ul style="list-style-type: none"> Absence of treatment limiting toxicity
Re-authorization criteria for Vyndamax and Vyndaqel	Continued therapy with Vyndamax or Vyndaqel will be approved for periods of one year if the above Vyndamax and Vyndaqel criteria are met and the individual has shown and continues to show efficacy documented in the medical record indicating positive clinical response (e.g., 6-Minute Walk Test [6MWT], Kansas City Cardiomyopathy Questionnaire-Overall Summary [KCCQ-OS] score).

Documentation Requirements
<p>For Amvuttra, Onpattro, Tegsedi, or Wainua the individual's medical records submitted for review should document that medical necessity criteria are met. The records should include the following:</p> <ul style="list-style-type: none"> Office visit notes that contain the relevant history and physical evaluation information <p>AND</p> <ul style="list-style-type: none"> Documented TTR mutation verified by genetic testing <p>AND</p> <ul style="list-style-type: none"> Results of the PND score or FAP stage <p>AND</p> <ul style="list-style-type: none"> Dose and frequency of prescribed medication <p>For Vyndamax or Vyndaqel the individual's medical records submitted for review should document that medical necessity criteria are met. The records should include the following:</p> <ul style="list-style-type: none"> Office visit notes that contain the relevant history and physical evaluation information

Coding

Code	Description
HCPCS	
C9399	Unclassified drugs or biologicals (used to describe Wainua)



Code	Description
J0222	Injection, patisiran, (Onpattro) 0.1 mg
J0225	Injection, vutrisiran, (Amvuttra) 1 mg
J3490	Unclassified drugs(Use to report Tegsedi and Wainua)

Note: CPT codes, descriptions and materials are copyrighted by the American Medical Association (AMA). HCPCS codes, descriptions and materials are copyrighted by Centers for Medicare Services (CMS).

Related Information

Consideration of Age

Age limits specified in this policy are determined according to FDA-approved indications, where applicable.

Benefit Application

Pharmacy Benefit

Vyndaqel (tafamidis meglumine) and Vyndamax (tafamidis) are managed through the pharmacy benefit.

Medical Benefit

Onpattro (patisiran) and Amvuttra (vutrisiran) are managed through the medical benefit.

Medical and Pharmacy Benefit

Tegsedi (inotersen) and Wainua (eplontersen) is managed through both the pharmacy and medical benefit.

Description

Hereditary transthyretin amyloidosis (hATTR), formerly known as familial amyloidotic polyneuropathy (FAP), is a rare, progressive disorder characterized by the extracellular deposition of TTR protein. hATTR can affect multiple organs and body systems, such as the heart, nervous system, gastrointestinal (GI) tract, and kidney. Symptoms may include autonomic dysfunction, GI dysfunction, ocular manifestation, cardiac manifestation, compromised renal function, or carpal tunnel syndrome. The most common mutation associated with hATTR is Val30Met. Although some mutations are associated mainly with polyneuropathy or cardiomyopathy, most individuals have mixed clinical phenotypes. If untreated, death occurs about 10 years after onset of hATTR.

The disease course begins with unimpaired ambulation (FAP stage 1), then requiring ambulation (FAP stage 2), which proceeds to wheelchair confinement (FAP stage 3), where individuals experience life-impacting symptoms including burning neuropathic pain, loss of sensation in hands and feet, diarrhea/constipation, sexual impotence, and dizziness/fainting. The median survival for individuals with hATTR with polyneuropathy is reported as 5-15 years.

hATTR affects at least 10,000 people worldwide with about >120 TTR mutations being reported, with about 3,000-5,000 people in the U.S. However, symptoms of hATTR do not always start in one specific organ and the disease is often masked. As a result, these numbers may be underestimated due to under-diagnosis. Quantifying the disease burden in hATTR remains challenging since there is no single test that captures all the symptoms of the condition. Tests demonstrated that both mental and physical health in individuals with hATTR were substantially lower than an age-match controlled group of individuals not receiving treatment.

The protein TTR is synthesized and secreted by the liver, where it transports thyroxine and retinol. Mutations in TTR destabilize the protein, causing misfolding into a beta-pleated sheet configuration and forming insoluble amyloid fibrils. This mutation results in an autosomal dominant disorder primarily affecting the nerves and heart. With different mutations, symptomatic manifestations may vary even among family members.

Summary of Evidence

Amvuttra (vutrisiran)

Vutrisiran was studied in a multicenter, open-label, randomized, Phase 3 study, HELIOS-A.¹ The trial included 164 individuals with 122 randomized to vutrisiran and 42 to patisiran. Inclusion criteria were ages 18-85 years, hereditary transthyretin amyloidosis with polyneuropathy (hATTR-PN), Karnofsky performance status (KPS) $\geq 60\%$, polyneuropathy disability (PND) $\leq IIIb$, and Neuropathy Impairment Scale (NIS) 5-130 out of 244 (higher scores indicate greater disability). Exclusion criteria included individuals undergoing liver transplantation and those with New York Heart Association (NYHA) class III or IV heart failure (HF). Individuals were randomized to vutrisiran 25 mg SC every 3 months or patisiran 0.3 mg/kg IV q3 weeks for 18 months. The primary endpoint was change from baseline in Modified Neuropathy Impairment Scale +7 (mNIS+7) at Month 9. Of note, most comparisons including the primary endpoint compared the vutrisiran group to the placebo arm of the APOLLO trial. The APOLLO trial was a randomized, double-blind, placebo-controlled trial which randomized 225 individuals with hATTR-PN to patisiran or placebo for 18 months. While the inclusion criteria were similar in both trials, several baseline characteristics differed between HELIOS-A individuals and the APOLLO placebo group including mNIS+7, Norfolk quality of life in diabetic neuropathy (QoL-DN), and ten meter walk test (10-MWT). At Month 9, the least square (LS) mean change in mNIS+7 score was significantly less with vutrisiran (indicating less disability) than with the APOLLO placebo group (-2.24 vs 14.76). Of note, this difference was reported to be statistically significant; however, the p-value was not provided. At 18 months, the difference in LS mean change in mNIS+7 remained significant for vutrisiran (-0.46 vutrisiran vs 28.1 APOLLO placebo, $p=6.50 \times 10^{-20}$). Additionally, all other secondary outcomes also significantly favored vutrisiran (Norfolk QOL-DN, 10-MWT, modified body mass index [mBMI], and Rasch-built Overall Disability Scale [R-ODS]). Vutrisiran was compared to the HELIOS-A patisiran group for the secondary outcome of mean steady state transthyretin (TTR) reduction from baseline; vutrisiran was noninferior to patisiran at 18 months (median TTR difference 5.28%, 95% CI 1.17-9.25, lower limit of CI $> -10\%$).

Common adverse events occurring in $> 10\%$ of individuals were falls, pain in extremity, diarrhea, peripheral edema, urinary tract infection (UTI), arthralgia, dizziness. Arthralgia and pain in extremity occurred more frequently with vutrisiran than APOLLO placebo. Injection-site reactions occurred in 4.1% of individuals on vutrisiran. Serious AEs (SAEs) and severe AEs occurred numerically less frequently with vutrisiran than APOLLO placebo or patisiran (SAEs: 26% vutrisiran, 40% APOLLO placebo, 43% patisiran; severe AEs: 16%, 36%, 38%, respectively). Two SAEs (dyslipidemia and UTI) were considered related to vutrisiran. No hepatic, hematologic, or renal safety signals were considered related to vutrisiran. No discontinuations due to AEs were considered related to vutrisiran.



Onpattro (patisiran)

Fair quality evidence from the Phase 2 and APOLLO studies showed that patisiran 0.3 mg/kg intravenously (IV) every three weeks (Q3W) is effective in reducing transthyretin (TTR levels) and improving their modified neuropathy impairment scale+7 (mNIS+7) score, respectively, in adults diagnosed with hereditary transthyretin amyloidosis (hATTR) and neuropathy. The 0.3 mg/kg IV Q3W dosing regimen demonstrated the highest maximum TTR knockdown (KD) and TTR KD at nadir for both dose 1 (94.2% and 83.8%) and dose 2 (96.0% and 86.7%) compared to other dosing regimens (0.01, 0.05, 0.15, and 0.3 mg/kg every four weeks [Q4W]). Patisiran showed significant improvement in individuals' change in mNIS+7 scores from baseline compared to placebo (-6.03 vs. 27.96), suggesting improvement in autonomic function. This is further proven in the Phase 2 open-label extension (OLE) trial, where individuals were on patisiran for 24 months and had a change in mNIS+7 from baseline of -7.0. Secondary endpoints in the APOLLO trial saw improved scores as well, most notably in assessing quality of life using the Norfolk quality of life-diabetic neuropathy (QoL-DN) scale (-6.7 vs. 14.4).

Mild to moderate adverse events (AEs) were common in patisiran. Most AEs were infused-related reactions (IRRs), which occurred in 10.3% of individuals in the Phase 2 trial and 18.9% of subjects in the patisiran group from the APOLLO trial. The Phase 2 OLE trial demonstrated similar results as well with 22.2% of subjects experiencing IRRs. Researchers attempted to prevent IRRs by pre-medicating individuals with dexamethasone, acetaminophen, an H1 blocker, and an H2 blocker. As a result, pill burden may play a role in adherence and managing AEs. Another common AE was peripheral edema (29.7% in patisiran vs. 22.1% in placebo) which decreased over time with no individual needing to discontinue treatment. The Phase 2 trial reported one individual experiencing a urinary tract infection (UTI), sepsis, nausea, and vomiting. Another individual reported cellulitis, nausea, and vomiting. Because one individual experienced these symptoms, it is difficult to associate patisiran with these serious adverse events (SAEs). The APOLLO study had 36.5% of the patisiran group experience a SAE. The most common SAE found was diarrhea in 5.4% of individuals. No increase in observed frequency of events for patisiran compared to placebo group by SOC.

Tegsedi (inotersen)

In the Phase III trial NEURO-TTR trial, inotersen treatment slowed the progression of polyneuropathy relative to placebo and stabilized neuropathy-related quality of life (QOL). The statistically significant treatment difference in mNIS+7 reflected progression in the placebo



group and delayed progression in the inotersen group, though many inotersen individuals reported improved neuropathy scores. Open-label extension (OLE) data suggest sustained delay of progression of polyneuropathy, though neuropathy-related QOL gain may not be durable. Cardiac endpoints did not differ statistically between the inotersen group and placebo group after 15 months of intervention; however, the trial was not powered to detect differences in cardiac outcomes. A small single-arm open label study shows minimal worsening of left ventricular mass.

Five deaths were reported during the study, all of which occurred in the inotersen group, through 15 months of treatment. Four deaths were considered related to disease progression and one death was considered possibly inotersen-related. Safety data show two key concerns with inotersen treatment: thrombocytopenia and glomerulonephritis. Frequent platelet and renal monitoring implemented during the Phase III NEURO-TTR trial suggests thrombocytopenia and decreased renal function may be manageable through enhanced monitoring. Adverse events considered related to treatment were more frequently reported by inotersen individuals compared to placebo individuals. Anti-inotersen antibodies were reported in 30.4% of NEURO-TTR individuals. These antibodies typically develop after a median of 200 days of treatment and did not appear to affect drug efficacy, but individuals with such antibodies reported more injection site reactions.

Vyndamax and Vyndaqel

Tafamidis was studied in a large, multicenter, placebo-controlled, double-blind, 30-month, Phase 3 trial (ATTR-ACT trial) which randomized 441 individuals with transthyretin amyloid cardiomyopathy (ATTR-CM) to tafamidis 80 mg/day, tafamidis 20 mg/day, or placebo. The study included adults up to 90 years of age with confirmed amyloid transthyretin wild type (ATTRwt) or amyloid transthyretin due to a mutation (ATTRm) with amyloid cardiac involvement and heart failure (HF). The primary outcome measures were all-cause mortality and CV-related hospitalization which were assessed hierarchically. The study used the Finkelstein-Schoenfeld method to assess statistical significance. This method pairs each individual in a given strata with every other individual in that strata, assigning a +1 to the better individual and -1 to the worse individual based on all-cause mortality followed by cardiovascular (CV)-related hospitalization if both individuals remain alive. These values are summed to create the test statistic. According to the Finkelstein-Schoenfeld method, pooled tafamidis was superior to placebo over 30 months ($p < 0.001$) with a win ratio of 1.695 (95% CI 1.255-2.289). All-cause mortality was significantly decreased with pooled tafamidis compared to placebo with a 30% risk reduction (HR 0.7, 95% CI 0.51-0.96). The risk of CV-related hospitalization significantly decreased with pooled tafamidis



compared to placebo (RR 0.68, 95% CI 0.56-0.81). The least squares (LS) mean change from baseline to month 30 in the 6-minute walk test (6MWT) and the Kansas City Cardiomyopathy Questionnaire – overall summary (KCCQ-OS) both significantly favored pooled tafamidis (6MWT: -55 vs -131 tafamidis vs placebo, $p < 0.001$; KCCQ-OS -7 vs -21 respectively, $p < 0.001$). All assessments met criteria for clinical as well as statistical significance. Subgroup assessment found results favored tafamidis in all-cause mortality and CV-hospitalization except for CV-related hospitalization in New York Heart Association (NYHA) Class III individuals which significantly favored placebo. Of note, no difference in all-cause mortality was seen with the 20 mg dose of tafamidis compared to the 80 mg dose (26.1% vs 27.8%, respectively, statistical analysis not performed).

The prescribing information for tafamidis describes adverse events (AEs) seen with tafamidis as equivalent to placebo. In the ATTR-ACT trial, none of the AEs seen with tafamidis occurred with an incidence $\geq 4\%$ greater than the incidence seen with placebo. There are no contraindications or warnings. According to the prescribing information, in the 30-month placebo-controlled study, discontinuation due to AEs occurred in 7% of individuals on Vyndaqel 80 mg, 6% on Vyndaqel 20 mg, and 6% on placebo. Of note, the published ATTR-ACT trial lists discontinuation rates due to treatment-emergent AEs (TEAEs) as 21.2% with tafamidis and 28.8% with placebo and temporary discontinuation due to TEAE as 20.1% and 26%, respectively.

Wainua

Wainua is a TTR-directed antisense oligonucleotide (ASO). Wainua is indicated for the treatment of adults with hATTR-PN. Wainua is self-administered. The efficacy and safety of Wainua were studied in the Phase 3, randomized, open-label, multicenter NEURO-TTRansform trial in individuals with hATTR-PN. The approval of Wainua was based on results from the 35-week interim analysis of data from the Phase 3 NEURO-TTRansform trial, which showed treatment with Wainua significantly lowered serum transthyretin (TTR) concentration, lessened neuropathic impairment, and improved quality of life compared with placebo.

2020 Update

A literature search from 12/1/2019 through 6/30/2020 did not identify new information requiring change to the medical policy criteria.



2021 Update

Reviewed prescribing information for all drugs in policy and conducted a literature search on the management of the polyneuropathy and cardiomyopathy of hereditary transthyretin-mediated amyloidosis. No new information was identified that would require changes to the medical policy criteria.

2022 Update

Reviewed prescribing information for all drugs in policy and conducted a literature search on the management of transthyretin-mediated amyloidosis. No new information was identified that would require changes to the medical policy criteria.

2023 Update

Reviewed World Heart Federation Consensus on Transthyretin Amyloidosis Cardiomyopathy (ATTR-CM) guideline and conducted a literature search on management of transthyretin-mediated amyloidosis from 10/31/2022 through 11/1/2023. No new evidence was identified that would require changes to the medical policy criteria.

2024 Update

Added coverage criteria for Wainua (eplontersen) for the treatment of certain adults with polyneuropathy of hereditary transthyretin-mediated amyloidosis. Added requirement that Wainua (eplontersen) may not be used in combination with Amvuttra, Onpattro, or Tegsedi. Updated Amvuttra (vutrisiran), Onpattro (patisiran), and Tegsedi (inotersen) coverage criteria to allow confirmation of diagnosis by tissue biopsy or genetic testing as well as ensure the individual does not have any of the following: NYHA class III or IV heart failure, sensorimotor or autonomic neuropathy not related to hereditary transthyretin-mediated amyloidosis, or a prior liver transplantation. Updated Vyndamax/Vyndaqel (tafamidis) coverage criteria to allow confirmation of diagnosis by tissue biopsy or genetic testing, ensure the individual has end-diastolic interventricular septal wall thickness exceeding 12 mm on echocardiography, a history of heart failure, baseline NT-proBNP of ≥ 600 pg/mL, and does not have any of the following: NYHA class IV heart failure, presence of light-chain amyloidosis, history of heart or liver transplantation, or an implanted cardiac device.



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History



Date	Comments
04/01/19	New policy, approved March 12, 2019. Add to Prescription Drug section. Onpattro (patisiran) and Tegsedi (inotersen) may be considered medically necessary when criteria are met. They are considered investigational for all other uses.
10/01/19	Coding update, added HCPCS code J0222 (new code effective 10/1/19).
12/01/19	Interim Review, approved November 12, 2019. Added coverage criteria for Vyndamax (tafamidis) and Vyndaqel (tafamidis meglumine).
11/01/20	Annual Review, approved October 22, 2020. No change to policy statements. Removed HCPCS J3490.
01/01/22	Annual Review, approved December 2, 2021. No changes to policy statements.
06/01/22	Annual Review, approved May 9, 2022. No changes to policy statements.
08/01/22	Interim Review, approved July 12, 2022. Added coverage criteria for Amvuttra (vutrisiran) for the treatment of the polyneuropathy of hereditary transthyretin-mediated amyloidosis in adults. Updated criteria for Onpattro, Tegsedi, Vyndamax, and Vyndaqel documenting these drugs are not to be used in combination with Amvuttra.
01/01/23	Coding update. Added new HCPC code J0225 for Amvuttra™. Removed Amvuttra™ from HCPC code J3590.
02/01/23	Interim Review, approved January 10, 2023. Removed from Amvuttra the requirement to try and fail Onpattro or Tegsedi first. Changed the wording from "patient" to "individual" throughout the policy for standardization.
12/01/23	Annual Review, approved November 20, 2023. No changes to policy statements. Removed HCPCS code J3590 and added J3490 to report Tegsedi.
03/01/24	Annual Review, approved February 13, 2024. Added coverage criteria for Wainua (eplonotersen) for the treatment of certain adults with polyneuropathy of hereditary transthyretin-mediated amyloidosis. Added requirement that Wainua (eplonotersen) may not be used in combination with Amvuttra, Onpattro, or Tegsedi. Updated Amvuttra (vutrisiran), Onpattro (patisiran), and Tegsedi (inotersen) coverage criteria to allow confirmation of diagnosis by tissue biopsy or genetic testing as well as ensure the individual does not have any of the following: NYHA class III or IV heart failure, sensorimotor or autonomic neuropathy not related to hereditary transthyretin-mediated amyloidosis, or a prior liver transplantation. Updated Vyndamax/Vyndaqel (tafamidis) coverage criteria to allow confirmation of diagnosis by tissue biopsy or genetic testing, ensure the individual has end-diastolic interventricular septal wall thickness exceeding 12 mm on echocardiography, a history of heart failure, baseline NT-proBNP of ≥ 600 pg/mL, and does not have any of the following: NYHA class IV heart failure, presence of light-chain amyloidosis, history of heart or liver transplantation, or an implanted cardiac device.

Disclaimer: This medical policy is a guide in evaluating the medical necessity of a particular service or treatment. The Company adopts policies after careful review of published peer-reviewed scientific literature, national guidelines and



local standards of practice. Since medical technology is constantly changing, the Company reserves the right to review and update policies as appropriate. Member contracts differ in their benefits. Always consult the member benefit booklet or contact a member service representative to determine coverage for a specific medical service or supply. CPT codes, descriptions and materials are copyrighted by the American Medical Association (AMA). ©2024 Premera All Rights Reserved.

Scope: Medical policies are systematically developed guidelines that serve as a resource for Company staff when determining coverage for specific medical procedures, drugs or devices. Coverage for medical services is subject to the limits and conditions of the member benefit plan. Members and their providers should consult the member benefit booklet or contact a customer service representative to determine whether there are any benefit limitations applicable to this service or supply. This medical policy does not apply to Medicare Advantage.



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Language Assistance

ATENCIÓN: si habla español, tiene a su disposición servicios gratuitos de asistencia lingüística. Llame al 844-722-4661 (TTY: 711).

注意: 如果您使用繁體中文，您可以免費獲得語言援助服務。請致電 844-722-4661 (TTY: 711)。

CHÚ Ý: Nếu bạn nói Tiếng Việt, có các dịch vụ hỗ trợ ngôn ngữ miễn phí dành cho bạn. Gọi số 844-722-4661 (TTY: 711).

주의: 한국어를 사용하시는 경우, 언어 지원 서비스를 무료로 이용하실 수 있습니다. 844-722-4661 (TTY: 711) 번으로 전화해 주십시오.

ВНИМАНИЕ: Если вы говорите на русском языке, то вам доступны бесплатные услуги перевода. Звоните 844-722-4661 (телетайп: 711).

PAUNAWA: Kung nagsasalita ka ng Tagalog, maaari kang gumamit ng mga serbisyo ng tulong sa wika nang walang bayad. Tumawag sa 844-722-4661 (TTY: 711).

УВАГА! Якщо ви розмовляєте українською мовою, ви можете звернутися до безкоштовної служби мовної підтримки.

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注意事項: 日本語を話される場合、無料の言語支援をご利用いただけます。844-722-4661 (TTY: 711) まで、お電話にてご連絡ください。

ማስታወሻ: የሚናገሩት ቋንቋ ኣማርኛ ከሆነ የትርጉም ኣርዳታ ድርጅቶች፡ በኣኦ ሊያገዝዎት ተዘጋጅተዋል፡ ወደ ሚከተለው ቁጥር ይደውሉ 844-722-4661 (መስማት ለተሳናቸው: 711)፡፡

XIYYEEFFANNAA: Afaan dubbattu Oroomiffa, tajaajila gargaarsa afaanii, kanfaltiidhaan ala, ni argama. Bilbilaa 844-722-4661 (TTY: 711).

ملحوظة: إذا كنت تتحدث اذكر اللغة، فإن خدمات المساعدة اللغوية تتوافر لك بالمجان. اتصل برقم 844-722-4661 (رقم هاتف الصم والبكم: 711).

ਧਿਆਨ ਦਿਓ: ਜੇ ਤੁਸੀਂ ਪੰਜਾਬੀ ਬੋਲਦੇ ਹੋ, ਤਾਂ ਭਾਸ਼ਾ ਵਿੱਚ ਸਹਾਇਤਾ ਸੇਵਾ ਤੁਹਾਡੇ ਲਈ ਮੁਫਤ ਉਪਲਬਧ ਹੈ। 844-722-4661 (TTY: 711) 'ਤੇ ਕਾਲ ਕਰੋ।

ACHTUNG: Wenn Sie Deutsch sprechen, stehen Ihnen kostenlos sprachliche Hilfsdienstleistungen zur Verfügung. Rufnummer: 844-722-4661 (TTY: 711).

ໂປດຊາບ: ຖ້າວ່າ ທ່ານເວົ້າພາສາ ລາວ, ການບໍລິການຊ່ວຍເຫຼືອດ້ານພາສາ, ໂດຍບໍ່ຄ່າ, ຄ່າມີພ້ອມໃຫ້ທ່ານ. ໂທ 844-722-4661 (TTY: 711).

ATANSYON: Si w pale Kreyòl Ayisyen, gen sèvis èd pou lang ki disponib gratis pou ou. Rele 844-722-4661 (TTY: 711).

ATTENTION: Si vous parlez français, des services d'aide linguistique vous sont proposés gratuitement. Appelez le 844-722-4661 (ATS: 711).

UWAGA: Jeżeli mówisz po polsku, możesz skorzystać z bezpłatnej pomocy językowej. Zadzwoń pod numer 844-722-4661 (TTY: 711).

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توجہ: اگر بہ زبان فارسی گفتگو می کنید، تسهیلات زبانی بصورت رایگان برای شما فراهم می باشد. با 844-722-4661 (TTY: 711) تماس بگیرید.