

New and/or Updated Clinical Policies




7/7/2023

PA Health & Wellness (PHW) is adding and/or revising one or more Clinical Policies that are becoming more restrictive and will provide guidelines for use in determining coverage criteria for a well-defined set of specific and clinically appropriate services. The applicable treatment plan as identified in the policy document provides guidance on how claims for certain services are managed. These guidelines are to be used only when there is no other policy, criteria, or coverage statement, as it allows the Plan to control costs. PHW will not supersede the PA State Fee Schedule determination (i.e. - If an item is determined non-experimental and paid for on the State MA fee Schedule it is part of the benefit plan, and the item will be reimbursed at least at that rate.) The policies that dictate the coding and billing rules applied are based on industry standards and guidelines as published and defined in the Current Procedural Terminology (CPT), Centers for Medicare and Medicaid Services (CMS), and public domain specialty society edits, unless specifically addressed in the fee-for-service provider manual published by the State of Pennsylvania or regulations.

To ensure accurate reimbursement, the updated policies will provide the clinically based rule content used to evaluate claims. This is in addition to all other reimbursement processes that PA Health & Wellness currently employs.

The effective date of the change(s) for each policy is 60-days from the date of this document. These policies apply to all PA Health & Wellness products, unless otherwise noted.

The new/updated policies documents can be found embedded on the chart below.

Policy Number	Policy Name	Line of Business (LOB)
PA.CP.MP.242	Pulmonary Function Testing  PA.CP.MP.242 Pulmonary Function T	Medicaid
PA.CP.MP.243	Implantable Loop Recorder  PA.CP.MP.243 Implantable Loop Rec	Medicaid
PA.CP.MP.48	Neuromuscular and Peroneal Nerve Electrical Stimulation (NMES)  PA.CP.MP.48 Neuromuscular and P	Medicaid

Clinical Policy: Pulmonary Function Testing

Reference Number: PA.CP.MP.242

Date of Last Revision: 11/2/22

[Coding Implications](#)

[Revision Log](#)

Description

Pulmonary function tests (PFTs), also known as lung function tests, include a variety of tests to check how well the lungs are working. This policy describes the medical necessity guidelines for pulmonary function testing.

Policy/Criteria

- I. It is the policy of health plans affiliated with PA Health & Wellness[®] that pulmonary function testing is **medically necessary** for members/enrollees aged three years and above when meeting the following:
 - A. Spirometry, one of the following:⁴
 1. Evaluation of symptoms, signs of impaired lung function or abnormal laboratory tests, including any of the following:
 - a. Symptoms: unexplained dyspnea, wheezing, orthopnea, cough or phlegm production;
 - b. Signs: unexplained decreased breath sounds, over-inflation, cyanosis, chest deformity, wheezing or unexplained adventitial sounds;
 - c. Abnormal laboratory tests: hypoxemia, hypercapnia, polycythemia or abnormal chest radiographs;
 2. Indirect assessment of the effect of systemic disease on pulmonary function (e.g., neuromuscular disease and connective tissue disease);
 3. Assessment of preoperative risk in those with history of known or suspected airway dysfunction;
 4. Assessment of prognosis (lung transplant, etc.);
 5. Assessment of therapeutic interventions, any of the following:
 - a. Bronchodilator therapy;
 - b. Steroid treatment for asthma, interstitial lung disease, etc.;
 - c. Other, such as the utility of antibiotics in cystic fibrosis or screening for graft vs. host disease in an organ transplant patient;
 - d. Monitoring for adverse reactions to drugs with known pulmonary toxicity;
 6. Post-bronchodilator spirometry studies when at least one of the following conditions is present and documented in the medical record:
 - a. Signs or symptoms that may be explained by bronchospasm;
 - b. Spirometry without bronchodilator is abnormal;
 - c. Reversibility of bronchospasm in response to bronchodilator therapy, or lack thereof, has not yet been demonstrated;
 - B. Lung volume tests for any of the following:⁴
 1. Evaluation of the pulmonary patient, especially during the initial evaluation;
 2. Distinguishing restrictive disease from chronic obstructive pulmonary disease, or assessing for the presence of concurrent restrictive and obstructive disease;
 3. Evaluating bullous diseases and interpreting the data from other lung function tests;
 4. Assessment of therapeutic interventions, such as lobectomy or chemotherapy;
 - C. Diffusion capacity (DLCO) tests for any of the following:⁴

1. Distinguishing between an intrinsic pulmonary process, such as interstitial lung disease or emphysema, and an extrapulmonary process, such as chest wall disorders or neuromuscular disorders;
 2. Assessment of pulmonary vascular disease and interstitial disease, even if vital capacity is normal;
- D. Lung compliance studies when all other PFTs give equivocal results or results which must be confirmed by additional lung compliance testing;⁴
- E. Pulmonary studies during exercise testing, one of the following:⁵
1. Simple pulmonary stress testing for one of the following:
 - a. Measuring the degree of hypoxemia or desaturation that occurs with exertion;
 - b. Optimizing titration of supplemental oxygen for the correction of hypoxemia;
 2. Complex pulmonary studies during exercise testing protocol for any of the following:
 - a. Distinguishing between cardiac and pulmonary causes for dyspnea;
 - b. Determination of the need for and dose of ambulatory oxygen;
 - c. Assisting in developing a safe exercise prescription for patients with cardiovascular or pulmonary disease;
 - d. Predicting the morbidity of lung resection;
 - e. Titration of optimal settings in selected patients who have physiologic pacemakers.

Background

Pulmonary function tests (PFTs) are indicated for evaluation of respiratory symptoms such as cough, wheezing, dyspnea, and chest pain, response to bronchodilator therapy, effect of workplace exposure to dust or chemicals, and pulmonary disability. They can also be used to assess severity and progression of lung diseases, such as asthma, and chronic obstructive lung disease.² PFTs can measure obstructive, restrictive, and diffusion defects and respiratory muscle function as well as aid in preoperative assessment or monitoring of disease progression and prognosis.³ Normal test values are calculated based on age, height and gender.¹

Common terminology pertaining to PFTs includes the following:²

- Vital capacity (VC): The maximum volume of air exhaled after maximum inspiration. VC can be measured during forced exhalation (FVC) or slow exhalation (SVC);
- Functional residual capacity (FRC): The volume of air remaining in chest at the end of a tidal volume breath;
- Residual volume (RV): The volume of air remaining in chest after maximal exhalation.
- Expiratory reserve volume (ERV): The volume of air exhaled from end-tidal volume (FRC) to point of maximal exhalation (RV), thus $RV + ERV = FRC$;
- Inspiratory capacity (IC): The maximum inspiration from end-tidal volume (FRC) to total lung capacity;
- Inspiratory reserve volume (IRV): The volume of air inhaled during tidal breathing from end-inhalation to total lung capacity;
- Total lung capacity (TLC): volume of air in lungs at end of maximal inspiration (usually calculated by $RV + VC$ or $FRC + IC$).

The main types of pulmonary function tests include spirometry, spirometry before and after bronchodilator, lung volumes, and diffusing capacity. Additional tests include flow-volume loops, and pulmonary studies during exercise testing.

Spirometry

Spirometry is the most readily available pulmonary function test. It measures lung volumes by measuring the amount of exhaled air at specific time points during forceful and complete exhalation and is a key determinant when diagnosing and monitoring asthma, COPD, chronic cough, neuromuscular diseases affecting breathing, and other causes of airflow obstruction.²

Spirometry can be performed before and after bronchodilator use to determine the degree of reversibility of airflow restriction. Administration of albuterol by a metered-dose inhaler is indicated if baseline spirometry demonstrates airway obstruction or if asthma or COPD is suspected.²

Lung volume tests

Lung volume tests are more precise than spirometry as they are able to measure the total amount of air in the lungs, including the air that remains at the end of a normal breath.¹ Body plethysmography is considered the gold standard for lung volumes measurements, particularly in the setting of significant airflow obstruction. Additional testing methods include helium dilution, nitrogen washout, and measurements based on chest imaging.²

Diffusion capacity tests

A diffusing capacity (DLCO) test measures how easily oxygen enters the bloodstream.¹ This test is useful in the evaluation of restrictive and obstructive lung disease, as well as pulmonary vascular disease.²

Flow volume loops

A flow-volume loop is a plot of inspiratory and expiratory flow (on the Y-axis) against volume (on the X-axis) during the performance of maximally forced inspiratory and expiratory maneuvers.⁸ This test is useful in the presence of stridor and when evaluating unexplained dyspnea. Airway obstruction located in the pharynx, larynx, or trachea can be difficult to detect from standard FVC maneuvers and changes in the contour of the test's loop can aid in the diagnosis and localization of airway obstruction.^{2,8}

Pulmonary studies during exercise testing

Pulmonary studies during exercise testing help to evaluate the causes of shortness of breath. Testing is often conducted in a pulmonary function laboratory and does not require the resources needed for a maximal cardiopulmonary exercise test. Three commonly used tests are the six-minute walk test, the incremental shuttle walk test, and the endurance shuttle walk test.²

Coding Implications

This clinical policy references Current Procedural Terminology (CPT®). CPT® is a registered trademark of the American Medical Association. All CPT codes and descriptions are copyrighted 2021, American Medical Association. All rights reserved. CPT codes and CPT descriptions are from the current manuals and those included herein are not intended to be all-inclusive and are included for informational purposes only. Codes referenced in this clinical policy are for informational purposes only. Inclusion or exclusion of any codes does not guarantee coverage.

Providers should reference the most up-to-date sources of professional coding guidance prior to the submission of claims for reimbursement of covered services.

CPT®* Codes⁶⁻⁷	Description
94010	Spirometry, including graphic record, total and timed vital capacity, expiratory flow rate measurement(s), with or without maximal voluntary ventilation
94060	Bronchodilation responsiveness, spirometry as in 94010, pre- and post-bronchodilator administration
94070	Bronchospasm provocation evaluation, multiple spirometric determinations as in 94010, with administration of agents (eg, antigen[s], cold air, methacholine)
94200	Maximum breathing capacity, maximal voluntary ventilation
94375	Respiratory flow volume loop
94450	Breathing response to hypoxia (hypoxia response curve)
94617	Exercise test for bronchospasm, including pre- and post-spirometry and pulse oximetry; with electrocardiographic recording(s)
94618	Pulmonary stress testing (eg, 6-minute walk test) including measurement of heart rate, oximetry, and oxygen titration, when performed
94619	Exercise test for bronchospasm, including pre- and post-spirometry and pulse oximetry; without electrocardiographic recording(s)
94621	Cardiopulmonary exercise testing, including measurements of minute ventilation, CO ₂ production, O ₂ uptake, and electrocardiographic recordings
94680	Oxygen uptake, expired gas analysis; rest and exercise, direct, simple
94681	Oxygen uptake, expired gas analysis; including CO ₂ output, percentage oxygen extracted
94690	Oxygen uptake, expired gas analysis; rest, indirect (separate procedure)
94726	Plethysmography for determination of lung volumes and, when performed, airway resistance
94727	Gas dilution or washout for determination of lung volumes and, when performed, distribution of ventilation and closing volumes
94728	Airway resistance by oscillometry
+94729	Diffusing capacity (eg, carbon monoxide, membrane)

ICD-10-CM Diagnosis Codes that Support Coverage Criteria

ICD-10 Table 1 The following ICD-10-CM codes support medical necessity for CPT codes: 94010, 94060, 94200, 94375, 94450, 94617, 94618, 94619, 94621, 94680, 94681, 94690, 94726, 94727, 94728 and 94729:⁶

ICD-10-CM CODE	Description
A15.0	Tuberculosis of lung
A15.4	Tuberculosis of intrathoracic lymph nodes
A15.5	Tuberculosis of larynx, trachea and bronchus
A15.6	Tuberculous pleurisy
A15.7	Primary respiratory tuberculosis
A15.8	Other respiratory tuberculosis

ICD-10-CM CODE	Description
A15.9	Respiratory tuberculosis unspecified
A31.0	Pulmonary mycobacterial infection
A42.0	Pulmonary actinomycosis
A43.0	Pulmonary nocardiosis
A80.39	Other acute paralytic poliomyelitis
B37.1	Pulmonary candidiasis
B38.0	Acute pulmonary coccidioidomycosis
B38.1	Chronic pulmonary coccidioidomycosis
B38.2	Pulmonary coccidioidomycosis, unspecified
B39.1	Chronic pulmonary histoplasmosis capsulati
B39.2	Pulmonary histoplasmosis capsulati, unspecified
B40.0	Acute pulmonary blastomycosis
B40.1	Chronic pulmonary blastomycosis
B40.2	Pulmonary blastomycosis, unspecified
B40.7	Disseminated blastomycosis
B40.89	Other forms of blastomycosis
B42.0	Pulmonary sporotrichosis
B42.7	Disseminated sporotrichosis
B42.89	Other forms of sporotrichosis
B45.0	Pulmonary cryptococcosis
B45.7	Disseminated cryptococcosis
B45.8	Other forms of cryptococcosis
B46.0	Pulmonary mucormycosis
B46.4	Disseminated mucormycosis
B47.1	Actinomycetoma
B58.3	Pulmonary toxoplasmosis
B59	Pneumocystosis
B67.1	Echinococcus granulosus infection of lung
B77.81	Ascariasis pneumonia
B90.9	Sequelae of respiratory and unspecified tuberculosis
B91	Sequelae of poliomyelitis
B95.3	Streptococcus pneumoniae as the cause of diseases classified elsewhere
B96.0	Mycoplasma pneumoniae [m. Pneumoniae] as the cause of diseases classified elsewhere
C33	Malignant neoplasm of trachea
C34.00	Malignant neoplasm of unspecified main bronchus
C34.01	Malignant neoplasm of right main bronchus
C34.02	Malignant neoplasm of left main bronchus
C34.10	Malignant neoplasm of upper lobe, unspecified bronchus or lung
C34.11	Malignant neoplasm of upper lobe, right bronchus or lung
C34.12	Malignant neoplasm of upper lobe, left bronchus or lung
C34.2	Malignant neoplasm of middle lobe, bronchus or lung

ICD-10-CM CODE	Description
C34.30	Malignant neoplasm of lower lobe, unspecified bronchus or lung
C34.31	Malignant neoplasm of lower lobe, right bronchus or lung
C34.32	Malignant neoplasm of lower lobe, left bronchus or lung
C34.80	Malignant neoplasm of overlapping sites of unspecified bronchus and lung
C34.81	Malignant neoplasm of overlapping sites of right bronchus and lung
C34.82	Malignant neoplasm of overlapping sites of left bronchus and lung
C34.90	Malignant neoplasm of unspecified part of unspecified bronchus or lung
C34.91	Malignant neoplasm of unspecified part of right bronchus or lung
C34.92	Malignant neoplasm of unspecified part of left bronchus or lung
C37	Malignant neoplasm of thymus
C38.0	Malignant neoplasm of heart
C38.1	Malignant neoplasm of anterior mediastinum
C38.2	Malignant neoplasm of posterior mediastinum
C38.3	Malignant neoplasm of mediastinum, part unspecified
C38.4	Malignant neoplasm of pleura
C38.8	Malignant neoplasm of overlapping sites of heart, mediastinum and pleura
C39.0	Malignant neoplasm of upper respiratory tract, part unspecified
C39.9	Malignant neoplasm of lower respiratory tract, part unspecified
C45.0	Mesothelioma of pleura
C45.2	Mesothelioma of pericardium
C45.9	Mesothelioma, unspecified
C46.51	Kaposi's sarcoma of right lung
C46.52	Kaposi's sarcoma of left lung
C7A.090	Malignant carcinoid tumor of the bronchus and lung
C7A.091	Malignant carcinoid tumor of the thymus
C78.00	Secondary malignant neoplasm of unspecified lung
C78.01	Secondary malignant neoplasm of right lung
C78.02	Secondary malignant neoplasm of left lung
C78.1	Secondary malignant neoplasm of mediastinum
C78.2	Secondary malignant neoplasm of pleura
C78.39	Secondary malignant neoplasm of other respiratory organs
C81.12	Nodular sclerosis hodgkin lymphoma, intrathoracic lymph nodes
C81.22	Mixed cellularity hodgkin lymphoma, intrathoracic lymph nodes
C81.32	Lymphocyte depleted hodgkin lymphoma, intrathoracic lymph nodes
C81.42	Lymphocyte-rich hodgkin lymphoma, intrathoracic lymph nodes
C81.72	Other hodgkin lymphoma, intrathoracic lymph nodes
C81.92	Hodgkin lymphoma, unspecified, intrathoracic lymph nodes
C82.02	Follicular lymphoma grade i, intrathoracic lymph nodes

ICD-10-CM CODE	Description
C82.12	Follicular lymphoma grade ii, intrathoracic lymph nodes
C82.22	Follicular lymphoma grade iii, unspecified, intrathoracic lymph nodes
C82.32	Follicular lymphoma grade iiia, intrathoracic lymph nodes
C82.42	Follicular lymphoma grade iiib, intrathoracic lymph nodes
C82.52	Diffuse follicle center lymphoma, intrathoracic lymph nodes
C82.62	Cutaneous follicle center lymphoma, intrathoracic lymph nodes
C82.82	Other types of follicular lymphoma, intrathoracic lymph nodes
C82.92	Follicular lymphoma, unspecified, intrathoracic lymph nodes
C83.02	Small cell b-cell lymphoma, intrathoracic lymph nodes
C83.12	Mantle cell lymphoma, intrathoracic lymph nodes
C83.32	Diffuse large b-cell lymphoma, intrathoracic lymph nodes
C83.52	Lymphoblastic (diffuse) lymphoma, intrathoracic lymph nodes
C83.82	Other non-follicular lymphoma, intrathoracic lymph nodes
C83.92	Non-follicular (diffuse) lymphoma, unspecified, intrathoracic lymph nodes
C84.02	Mycosis fungoides, intrathoracic lymph nodes
C84.12	Sezary disease, intrathoracic lymph nodes
C84.42	Peripheral T-cell lymphoma, not classified, intrathoracic lymph nodes
C84.62	Anaplastic large cell lymphoma, ALK-positive, intrathoracic lymph nodes
C84.72	Anaplastic large cell lymphoma, ALK-negative, intrathoracic lymph nodes
C84.A2	Cutaneous t-cell lymphoma, unspecified, intrathoracic lymph nodes
C84.Z2	Other mature T/NK-cell lymphomas, intrathoracic lymph nodes
C85.12	Unspecified B-cell lymphoma, intrathoracic lymph nodes
C85.22	Mediastinal (thymic) large B-cell lymphoma, intrathoracic lymph nodes
C85.82	Other specified types of non-Hodgkin lymphoma, intrathoracic lymph nodes
C85.92	Non-hodgkin lymphoma, unspecified, intrathoracic lymph nodes
C88.0	Waldenstrom macroglobulinemia
C96.5	Multifocal and unisystemic Langerhans-cell histiocytosis
C96.6	Unifocal Langerhans-cell histiocytosis
D02.20	Carcinoma in situ of unspecified bronchus and lung
D02.21	Carcinoma in situ of right bronchus and lung
D02.22	Carcinoma in situ of left bronchus and lung
D14.2	Benign neoplasm of trachea
D14.30	Benign neoplasm of unspecified bronchus and lung
D14.31	Benign neoplasm of right bronchus and lung
D14.32	Benign neoplasm of left bronchus and lung
D15.0	Benign neoplasm of thymus

ICD-10-CM CODE	Description
D15.2	Benign neoplasm of mediastinum
D18.1	Lymphangioma, any site
D19.0	Benign neoplasm of mesothelial tissue of pleura
D38.1	Neoplasm of uncertain behavior of trachea, bronchus and lung
D38.2	Neoplasm of uncertain behavior of pleura
D38.3	Neoplasm of uncertain behavior of mediastinum
D38.4	Neoplasm of uncertain behavior of thymus
D38.5	Neoplasm of uncertain behavior of other respiratory organs
D49.1	Neoplasm of unspecified behavior of respiratory system
D57.1	Sickle-cell disease without crisis
D68.61	Antiphospholipid syndrome
D75.1	Secondary polycythemia
D86.0	Sarcoidosis of lung
D86.1	Sarcoidosis of lymph nodes
D86.2	Sarcoidosis of lung with sarcoidosis of lymph nodes
D86.3	Sarcoidosis of skin
D86.82	Multiple cranial nerve palsies in sarcoidosis
D86.85	Sarcoid myocarditis
D86.87	Sarcoid myositis
D86.89	Sarcoidosis of other sites
D86.9	Sarcoidosis, unspecified
E66.01	Morbid (severe) obesity due to excess calories
E66.2	Morbid (severe) obesity with alveolar hypoventilation
E74.02	Pompe disease
E84.0	Cystic fibrosis with pulmonary manifestations
E84.19	Cystic fibrosis with other intestinal manifestations
E84.8	Cystic fibrosis with other manifestations
E84.9	Cystic fibrosis, unspecified
E85.4	Organ-limited amyloidosis
E88.89	Other specified metabolic disorders
F51.8	Other sleep disorders not due to a substance or known physiological condition
G12.0	Infantile spinal muscular atrophy, type I [Werdnig-Hoffman]
G12.1	Other inherited spinal muscular atrophy
G12.20	Motor neuron disease, unspecified
G12.21	Amyotrophic lateral sclerosis
G12.22	Progressive bulbar palsy
G12.23	Primary lateral sclerosis
G12.24	Familial motor neuron disease
G12.25	Progressive spinal muscle atrophy
G12.29	Other motor neuron disease
G12.8	Other spinal muscular atrophies and related syndromes
G12.9	Spinal muscular atrophy, unspecified
G14	Postpolio syndrome

ICD-10-CM CODE	Description
G61.0	Guillain-Barre syndrome
G65.0	Sequelae of Guillain-Barre syndrome
G70.00	Myasthenia gravis without (acute) exacerbation
G70.01	Myasthenia gravis with (acute) exacerbation
G70.80	Lambert-Eaton syndrome, unspecified
G70.81	Lambert-Eaton syndrome in disease classified elsewhere
G71.01	Duchenne or Becker muscular dystrophy
G71.02	Facioscapulohumeral muscular dystrophy
G71.09	Other specified muscular dystrophies
G71.11	Myotonic muscular dystrophy
G71.29	Other congenital myopathy
G73.1	Lambert-Eaton syndrome in neoplastic disease
G80.9	Cerebral palsy, unspecified
G82.51	Quadriplegia, C1-C4 complete
G82.52	Quadriplegia, C1-C4 incomplete
G82.53	Quadriplegia, C5-C7 complete
G82.54	Quadriplegia, C5-C7 incomplete
G83.81	Brown-Sequard syndrome
G83.82	Anterior cord syndrome
G83.83	Posterior cord syndrome
G83.84	Todd's paralysis (postepileptic)
G83.89	Other specified paralytic syndromes
I26.01	Septic pulmonary embolism with acute cor pulmonale
I26.02	Saddle embolus of pulmonary artery with acute cor pulmonale
I26.09	Other pulmonary embolism with acute cor pulmonale
I26.90	Septic pulmonary embolism without acute cor pulmonale
I26.92	Saddle embolus of pulmonary artery without acute cor pulmonale
I26.94	Multiple subsegmental pulmonary emboli without acute cor pulmonale
I26.99	Other pulmonary embolism without acute cor pulmonale
I27.0	Primary pulmonary hypertension
I27.1	Kyphoscoliotic heart disease
I27.20	Pulmonary hypertension, unspecified
I27.21	Secondary pulmonary arterial hypertension
I27.22	Pulmonary hypertension due to left heart disease
I27.23	Pulmonary hypertension due to lung diseases and hypoxia
I27.24	Chronic thromboembolic pulmonary hypertension
I27.29	Other secondary pulmonary hypertension
I27.81	Cor pulmonale (chronic)
I27.82	Chronic pulmonary embolism
I27.83	Eisenmenger's syndrome
I27.89	Other specified pulmonary heart diseases
I27.9	Pulmonary heart disease, unspecified
I28.1	Aneurysm of pulmonary artery

ICD-10-CM CODE	Description
I28.88	Other diseases of pulmonary vessels
I34.0	Nonrheumatic mitral (valve) insufficiency
I34.2	Nonrheumatic mitral (valve) stenosis
I35.0	Nonrheumatic aortic (valve) stenosis
I35.1	Nonrheumatic aortic (valve) insufficiency
I35.8	Other nonrheumatic aortic valve disorders
I36.1	Nonrheumatic tricuspid (valve) insufficiency
I37.0	Nonrheumatic pulmonary valve stenosis
I37.1	Nonrheumatic pulmonary valve insufficiency
I37.2	Nonrheumatic pulmonary valve stenosis with insufficiency
I37.8	Other nonrheumatic pulmonary valve disorders
I37.9	Nonrheumatic pulmonary valve disorder, unspecified
I42.9	Cardiomyopathy, unspecified
I50.1	Left ventricular failure, unspecified
I50.20	Unspecified systolic (congestive) heart failure
I50.21	Acute systolic (congestive) heart failure
I50.22	Chronic systolic (congestive) heart failure
I50.23	Acute on chronic systolic (congestive) heart failure
I50.30	Unspecified diastolic (congestive) heart failure
I50.31	Acute diastolic (congestive) heart failure
I50.32	Chronic diastolic (congestive) heart failure
I50.33	Acute on chronic diastolic (congestive) heart failure
I50.40	Unspecified combined systolic (congestive) and diastolic (congestive) heart failure
I50.41	Acute combined systolic (congestive) and diastolic (congestive) heart failure
I50.42	Chronic combined systolic (congestive) and diastolic (congestive) heart failure
I50.43	Acute on chronic combined systolic (congestive) and diastolic (congestive) heart failure
I50.810	Right heart failure, unspecified
I50.811	Chronic right heart failure
I50.812	Chronic right heart failure
I50.813	Acute on chronic right heart failure
I50.814	Right heart failure due to left heart failure
I50.82	Biventricular heart failure
I50.83	High output heart failure
I50.84	End stage heart failure
I50.89	Other heart failure
I50.9	Heart failure, unspecified
J12.81	Pneumonia due to sars-associated coronavirus
J12.82	Pneumonia due to coronavirus disease 2019
J12.89	Other viral pneumonia
J12.9	Viral pneumonia, unspecified

ICD-10-CM CODE	Description
J13	Pneumonia due to streptococcus pneumoniae
J15.1	Pneumonia due to pseudomonas
J15.6	Pneumonia due to other gram-negative bacteria
J15.7	Pneumonia due to mycoplasma pneumoniae
J15.8	Pneumonia due to other specified bacteria
J15.9	Unspecified bacterial pneumonia
J16.0	Chlamydial pneumonia
J16.8	Pneumonia due to other specified infectious organisms
J18.0	Bronchopneumonia, unspecified organism
J18.1	Lobar pneumonia, unspecified organism
J18.2	Hypostatic pneumonia, unspecified organism
J18.8	Other pneumonia, unspecified organism
J18.9	Pneumonia, unspecified organism
J20.0	Acute bronchitis due to mycoplasma pneumoniae
J20.1	Acute bronchitis due to hemophilus influenzae
J20.2	Acute bronchitis due to streptococcus
J20.3	Acute bronchitis due to coxsackievirus
J20.4	Acute bronchitis due to parainfluenza virus
J20.5	Acute bronchitis due to respiratory syncytial virus
J20.6	Acute bronchitis due to rhinovirus
J20.7	Acute bronchitis due to echovirus
J20.8	Acute bronchitis due to other specified organisms
J20.9	Acute bronchitis, unspecified
J21.0	Acute bronchiolitis due to respiratory syncytial virus
J21.1	Acute bronchiolitis due to human metapneumovirus
J21.8	Acute bronchiolitis due to other specified organisms
J21.9	Acute bronchiolitis, unspecified
J22	Unspecified acute lower respiratory infection
J39.8	Other specified diseases of upper respiratory tract
J39.9	Disease of upper respiratory tract, unspecified
J40	Bronchitis, not specified as acute or chronic
J41.0	Simple chronic bronchitis
J41.1	Mucopurulent chronic bronchitis
J41.8	Mixed simple and mucopurulent chronic bronchitis
J42	Unspecified chronic bronchitis
J43.0	Unilateral pulmonary emphysema [macleod's syndrome]
J43.1	Panlobular emphysema
J43.2	Centrilobular emphysema
J43.8	Other emphysema
J43.9	Emphysema, unspecified
J44.0	Chronic obstructive pulmonary disease with (acute) lower respiratory infection
J44.1	Chronic obstructive pulmonary disease with (acute) exacerbation
J44.9	Chronic obstructive pulmonary disease, unspecified

ICD-10-CM CODE	Description
J45.20	Mild intermittent asthma, uncomplicated
J45.21	Mild intermittent asthma with (acute) exacerbation
J45.22	Mild intermittent asthma with status asthmaticus
J45.30	Mild persistent asthma, uncomplicated
J45.31	Mild persistent asthma with (acute) exacerbation
J45.32	Mild persistent asthma with status asthmaticus
J45.40	Moderate persistent asthma, uncomplicated
J45.41	Moderate persistent asthma with (acute) exacerbation
J45.50	Severe persistent asthma, uncomplicated
J45.51	Severe persistent asthma with (acute) exacerbation
J45.52	Severe persistent asthma with status asthmaticus
J45.901	Unspecified asthma with (acute) exacerbation
J45.902	Unspecified asthma with status asthmaticus
J45.909	Unspecified asthma, uncomplicated
J45.990	Exercise induced bronchospasm
J45.991	Cough variant asthma
J45.998	Other asthma
J47.0	Bronchiectasis with acute lower respiratory infection
J47.1	Bronchiectasis with (acute) exacerbation
J47.9	Bronchiectasis, uncomplicated
J60	Coalworker's pneumoconiosis
J61	Pneumoconiosis due to asbestos and other mineral fibers
J62.0	Pneumoconiosis due to talc dust
J62.8	Pneumoconiosis due to other dust containing silica
J63.0	Aluminosis (of lung)
J63.1	Bauxite fibrosis (of lung)
J63.2	Berylliosis
J63.3	Graphite fibrosis (of lung)
J63.4	Siderosis
J63.5	Stannosis
J63.6	Pneumoconiosis due to other specified inorganic dusts
J64	Unspecified pneumoconiosis
J65	Pneumoconiosis associated with tuberculosis
J66.0	Byssinosis
J66.1	Flax-dressers' disease
J66.2	Cannabinosis
J66.8	Airway disease due to other specific organic dusts
J67.0	Farmer's lung
J67.1	Bagassosis
J67.2	Bird fancier's lung
J67.3	Suberosis
J67.4	Maltworker's lung
J67.5	Mushroom-worker's lung
J67.6	Maple-bark-stripper's lung

ICD-10-CM CODE	Description
J67.7	Air conditioner and humidifier lung
J67.8	Hypersensitivity pneumonitis due to other organic dusts
J67.9	Hypersensitivity pneumonitis due to unspecified organic dust
J68.0	Bronchitis and pneumonitis due to chemicals, gases, fumes and vapors
J68.1	Pulmonary edema due to chemicals, gases, fumes and vapors
J68.2	Upper respiratory inflammation due to chemicals, gases, fumes and vapors, not elsewhere classified
J68.3	Other acute and subacute respiratory conditions due to chemicals, gases, fumes and vapors
J68.4	Chronic respiratory conditions due to chemicals, gases, fumes and vapors
J68.8	Other respiratory conditions due to chemicals, gases, fumes and vapors
J68.9	Unspecified respiratory condition due to chemicals, gases, fumes and vapors
J69.0	Pneumonitis due to inhalation of food and vomit
J69.1	Pneumonitis due to inhalation of oils and essences
J69.8	Pneumonitis due to inhalation of other solids and liquids
J70.0	Acute pulmonary manifestations due to radiation
J70.1	Chronic and other pulmonary manifestations due to radiation
J70.2	Acute drug-induced interstitial lung disorders
J70.3	Chronic drug-induced interstitial lung disorders
J70.4	Drug-induced interstitial lung disorders, unspecified
J70.5	Respiratory conditions due to smoke inhalation
J70.8	Respiratory conditions due to other specified external agents
J70.9	Respiratory conditions due to unspecified external agent
J80	Acute respiratory distress syndrome
J81.0	Acute pulmonary edema
J81.1	Chronic pulmonary edema
J82.81	Chronic eosinophilic pneumonia
J82.82	Acute eosinophilic pneumonia
J82.83	Eosinophilic asthma
J82.89	Other pulmonary eosinophilia, not elsewhere classified
J84.01	Alveolar proteinosis
J84.02	Pulmonary alveolar microlithiasis
J84.03	Idiopathic pulmonary hemosiderosis
J84.09	Other alveolar and parieto-alveolar conditions
J84.10	Pulmonary fibrosis, unspecified
J84.111	Idiopathic interstitial pneumonia, not otherwise specified
J84.112	Idiopathic pulmonary fibrosis
J84.113	Idiopathic non-specific interstitial pneumonitis
J84.114	Acute interstitial pneumonitis
J84.115	Respiratory bronchiolitis interstitial lung disease

ICD-10-CM CODE	Description
J84.116	Cryptogenic organizing pneumonia
J84.117	Desquamative interstitial pneumonia
J84.170	Interstitial lung disease with progressive fibrotic phenotype in diseases classified elsewhere
J84.178	Other interstitial pulmonary diseases with fibrosis in diseases classified elsewhere
J84.2	Lymphoid interstitial pneumonia
J84.81	Lymphangioliomyomatosis
J84.82	Adult pulmonary langerhans cell histiocytosis
J84.83	Surfactant mutations of the lung
J84.848	Other interstitial lung diseases of childhood
J84.89	Other specified interstitial pulmonary diseases
J84.9	Interstitial pulmonary disease, unspecified
J85.0	Gangrene and necrosis of lung
J85.1	Abscess of lung with pneumonia
J85.2	Abscess of lung without pneumonia
J85.3	Abscess of mediastinum
J86.0	Pyothorax with fistula
J86.9	Pyothorax without fistula
J90	Pleural effusion, not elsewhere classified
J91.0	Malignant pleural effusion
J91.8	Pleural effusion in other conditions classified elsewhere
J92.0	Pleural plaque with presence of asbestos
J92.9	Pleural plaque without asbestos
J94.0	Chylous effusion
J94.1	Fibrothorax
J94.2	Hemothorax
J94.8	Other specified pleural conditions
J94.9	Pleural condition, unspecified
J95.02	Infection of tracheostomy stoma
J95.1	Acute pulmonary insufficiency following thoracic surgery
J95.2	Acute pulmonary insufficiency following nonthoracic surgery
J95.3	Chronic pulmonary insufficiency following surgery
J95.4	Chemical pneumonitis due to anesthesia
J95.5	Postprocedural subglottic stenosis
J95.84	Transfusion-related acute lung injury (TRALI)
J96.00	Acute respiratory failure, unspecified whether with hypoxia or hypercapnia
J96.01	Acute respiratory failure with hypoxia
J96.02	Acute respiratory failure with hypercapnia
J96.10	Chronic respiratory failure, unspecified whether with hypoxia or hypercapnia
J96.11	Chronic respiratory failure with hypoxia
J96.12	Chronic respiratory failure with hypercapnia

ICD-10-CM CODE	Description
J96.20	Acute and chronic respiratory failure, unspecified whether with hypoxia or hypercapnia
J96.21	Acute and chronic respiratory failure with hypoxia
J96.22	Acute respiratory failure with hypercapnia
J96.90	Respiratory failure, unspecified, unspecified whether with hypoxia or hypercapnia
J96.91	Respiratory failure, unspecified with hypoxia
J96.92	Respiratory failure, unspecified with hypercapnia
J98.01	Acute bronchospasm
J98.09	Other diseases of bronchus, not elsewhere classified
J98.11	Atelectasis
J98.19	Other pulmonary collapse
J98.2	Interstitial emphysema
J98.3	Compensatory emphysema
J98.4	Other disorders of lung
J98.59	Other diseases of mediastinum, not elsewhere classified
J98.6	Disorders of diaphragm
J98.8	Other specified respiratory disorders
J99	Respiratory disorders in diseases classified elsewhere
M05.10	Rheumatoid lung disease with rheumatoid arthritis of unspecified site
M05.111	Rheumatoid lung disease with rheumatoid arthritis of right shoulder
M05.112	Rheumatoid lung disease with rheumatoid arthritis of left shoulder
M05.121	Rheumatoid lung disease with rheumatoid arthritis of right elbow
M05.122	Rheumatoid lung disease with rheumatoid arthritis of left elbow
M05.131	Rheumatoid lung disease with rheumatoid arthritis of right wrist
M05.132	Rheumatoid lung disease with rheumatoid arthritis of left wrist
M05.141	Rheumatoid lung disease with rheumatoid arthritis of right hand
M05.142	Rheumatoid lung disease with rheumatoid arthritis of left hand
M05.151	Rheumatoid lung disease with rheumatoid arthritis of right hip
M05.152	Rheumatoid lung disease with rheumatoid arthritis of left hip
M05.161	Rheumatoid lung disease with rheumatoid arthritis of right knee
M05.162	Rheumatoid lung disease with rheumatoid arthritis of left knee
M05.171	Rheumatoid lung disease with rheumatoid arthritis of right ankle and foot
M05.172	Rheumatoid lung disease with rheumatoid arthritis of left ankle and foot
M05.19	Rheumatoid lung disease with rheumatoid arthritis of multiple sites
M06.1	Adult-onset still's disease
M06.39	Rheumatoid nodule, multiple sites
M08.1	Juvenile ankylosing spondylitis
M30.0	Polyarteritis nodosa

ICD-10-CM CODE	Description
M30.1	Polyarteritis with lung involvement [churg-strauss]
M31.0	Hypersensitivity angiitis
M31.2	Lethal midline granuloma
M31.30	Wegener's granulomatosis without renal involvement
M31.31	Wegener's granulomatosis with renal involvement
M31.8	Other specified necrotizing vasculopathies
M31.9	Necrotizing vasculopathy, unspecified
M32.0	Drug-induced systemic lupus erythematosus
M32.10	Systemic lupus erythematosus, organ or system involvement unspecified
M32.13	Lung involvement in systemic lupus erythematosus
M32.8	Other forms of systemic lupus erythematosus
M32.9	Systemic lupus erythematosus, unspecified
M33.00	Juvenile dermatomyositis, organ involvement unspecified
M33.01	Juvenile dermatomyositis with respiratory involvement
M33.11	Other dermatomyositis with respiratory involvement
M33.20	Polymyositis, organ involvement unspecified
M33.21	Polymyositis with respiratory involvement
M33.91	Dermatopolymyositis, unspecified with respiratory involvement
M34.1	CR(E)ST syndrome
M34.81	Systemic sclerosis with lung involvement
M34.9	Systemic sclerosis, unspecified
M35.00	Sjogren syndrome, unspecified
M35.02	Sjogren syndrome with lung involvement
M35.1	Other overlap syndromes
M35.89	Other specified systemic involvement of connective tissue
M35.9	Systemic involvement of connective tissue, unspecified
M36.0	Dermato(poly)myositis in neoplastic disease
M40.03	Postural kyphosis, cervicothoracic region
M40.04	Postural kyphosis, thoracic region
M40.05	Postural kyphosis, thoracolumbar region
M40.292	Other kyphosis, cervical region
M40.293	Other kyphosis, cervicothoracic region
M40.294	Other kyphosis, thoracic region
M40.295	Other kyphosis, thoracolumbar region
M40.30	Flatback syndrome, site unspecified
M40.35	Flatback syndrome, thoracolumbar region
M40.45	Postural lordosis, thoracolumbar region
M41.112	Juvenile idiopathic scoliosis, cervical region
M41.113	Juvenile idiopathic scoliosis, cervicothoracic region
M41.114	Juvenile idiopathic scoliosis, thoracic region
M41.115	Juvenile idiopathic scoliosis, thoracolumbar region
M41.122	Adolescent idiopathic scoliosis, cervical region
M41.123	Adolescent idiopathic scoliosis, cervicothoracic region

ICD-10-CM CODE	Description
M41.124	Adolescent idiopathic scoliosis, thoracic region
M41.125	Adolescent idiopathic scoliosis, thoracolumbar region
M41.22	Other idiopathic scoliosis, cervical region
M41.23	Other idiopathic scoliosis, cervicothoracic region
M41.24	Other idiopathic scoliosis, thoracic region
M41.25	Other idiopathic scoliosis, thoracolumbar region
M41.34	Thoracogenic scoliosis, thoracic region
M41.35	Thoracogenic scoliosis, thoracolumbar region
M45.0	Ankylosing spondylitis of multiple sites in spine
M45.2	Ankylosing spondylitis of cervical region
M45.3	Ankylosing spondylitis of cervicothoracic region
M45.4	Ankylosing spondylitis of thoracic region
M45.5	Ankylosing spondylitis of thoracolumbar region
M47.12	Other spondylosis with myelopathy, cervical region
M47.13	Other spondylosis with myelopathy, cervicothoracic region
M47.14	Other spondylosis with myelopathy, thoracic region
M47.15	Other spondylosis with myelopathy, thoracolumbar region
O29.011	Aspiration pneumonitis due to anesthesia during pregnancy, first trimester
O29.012	Aspiration pneumonitis due to anesthesia during pregnancy, second trimester
O29.013	Aspiration pneumonitis due to anesthesia during pregnancy, third trimester
O29.019	Aspiration pneumonitis due to anesthesia during pregnancy, unspecified trimester
O29.021	Pressure collapse of lung due to anesthesia during pregnancy, first trimester
O29.022	Pressure collapse of lung due to anesthesia during pregnancy, second trimester
O29.023	Pressure collapse of lung due to anesthesia during pregnancy, third trimester
O29.029	Pressure collapse of lung due to anesthesia during pregnancy, unspecified trimester
O29.091	Other pulmonary complications of anesthesia during pregnancy, first trimester
O29.092	Other pulmonary complications of anesthesia during pregnancy, second trimester
O29.093	Other pulmonary complications of anesthesia during pregnancy, third trimester
O29.099	Other pulmonary complications of anesthesia during pregnancy, unspecified trimester
O99.511	Diseases of the respiratory system complicating pregnancy, first trimester

ICD-10-CM CODE	Description
O99.512	Diseases of the respiratory system complicating pregnancy, second trimester
O99.513	Diseases of the respiratory system complicating pregnancy, third trimester
O99.519	Diseases of the respiratory system complicating pregnancy, unspecified trimester
Q22.0	Pulmonary valve atresia
Q22.1	Congenital pulmonary valve stenosis
Q22.2	Congenital pulmonary valve insufficiency
Q22.3	Other congenital malformations of pulmonary valve
Q24.8	Other specified congenital malformations of heart
Q24.89	Congenital malformation of heart, unspecified
Q25.6	Stenosis of pulmonary artery
Q25.71	Coarctation of pulmonary artery
Q25.72	Congenital pulmonary arteriovenous malformation
Q25.79	Other congenital malformations of pulmonary artery
Q31.5	Congenital laryngomalacia
Q32.0	Congenital tracheomalacia
Q32.1	Other congenital malformations of trachea
Q32.2	Congenital bronchomalacia
Q32.3	Congenital stenosis of bronchus
Q32.4	Other congenital malformations of bronchus
Q33.0	Congenital cystic lung
Q33.1	Accessory lobe of lung
Q33.3	Agenesis of lung
Q33.4	Congenital bronchiectasis
Q33.5	Ectopic tissue in lung
Q33.6	Congenital hypoplasia and dysplasia of lung
Q33.8	Other congenital malformations of lung
Q33.9	Congenital malformation of lung, unspecified
Q34.0	Anomaly of pleura
Q34.1	Congenital cyst of mediastinum
Q34.8	Other specified congenital malformations of respiratory system
Q34.9	Congenital malformation of respiratory system, unspecified
Q67.5	Congenital deformity of spine
Q67.6	Pectus excavatum
Q67.8	Other congenital deformities of chest
Q76.3	Congenital scoliosis due to congenital bony malformation
Q76.412	Congenital kyphosis, cervical region
Q76.413	Congenital kyphosis, cervicothoracic region
Q76.414	Congenital kyphosis, thoracic region
Q76.415	Congenital kyphosis, thoracolumbar region
Q76.425	Congenital lordosis, thoracolumbar region
Q76.8	Other congenital malformations of bony thorax

ICD-10-CM CODE	Description
Q76.9	Congenital malformation of bony thorax, unspecified
R04.2	Hemoptysis
R04.89	Hemorrhage from other sites in respiratory passages
R05.1	Acute cough
R05.2	Subacute cough
R05.3	Chronic cough
R05.4	Cough syncope
R05.8	Other specified cough
R06.00	Dyspnea, unspecified
R06.01	Orthopnea
R06.02	Shortness of breath
R06.03	Acute respiratory distress
R06.09	Other forms of dyspnea
R06.1	Stridor
R06.2	Wheezing
R06.3	Periodic breathing
R06.4	Hyperventilation
R06.82	Tachypnea, not elsewhere classified
R06.89	Other abnormalities of breathing
R06.9	Unspecified abnormalities of breathing
R07.1	Chest pain on breathing
R09.01	Asphyxia
R09.02	Hypoxemia
R09.1	Pleurisy
R09.89	Other specified symptoms and signs involving the circulatory and respiratory systems
R23.0	Cyanosis
R79.81	Abnormal blood-gas level
R91.1	Solitary pulmonary nodule
R91.8	Other nonspecific abnormal finding of lung field
R94.2	Abnormal results of pulmonary function studies
T50.0X1A - T50.0X5S	Poisoning by mineralocorticoids and their antagonists, accidental (unintentional), initial encounter - adverse effect of mineralocorticoids and their antagonists, sequela
T50.1X1A - T50.1X5S	Poisoning by loop [high-ceiling] diuretics, accidental (unintentional), initial encounter - adverse effect of loop [high-ceiling] diuretics, sequela
T50.2X1A - T50.2X5S	Poisoning by carbonic-anhydrase inhibitors, benzothiadiazides and other diuretics, accidental (unintentional), initial encounter - adverse effect of carbonic-anhydrase inhibitors, benzothiadiazides and other diuretics, sequela
T50.3X1A - T50.3X5S	Poisoning by electrolytic, caloric and water-balance agents, accidental (unintentional), initial encounter - adverse effect of electrolytic, caloric and water-balance agents, sequela

ICD-10-CM CODE	Description
T50.905A - T50.905S	Adverse effect of unspecified drugs, medicaments and biological substances, initial encounter - adverse effect of unspecified drugs, medicaments and biological substances, sequela
T53.0X1A - T53.7X4S	Toxic effect of carbon tetrachloride, accidental (unintentional), initial encounter - toxic effect of other halogen derivatives of aromatic hydrocarbons, undetermined, sequela
T57.3X1A - T57.3X4S	Toxic effect of hydrogen cyanide, accidental (unintentional), initial encounter - toxic effect of hydrogen cyanide, undetermined, sequela
T58.01XA - T58.2X4S	Toxic effect of carbon monoxide from motor vehicle exhaust, accidental (unintentional), initial encounter - toxic effect of carbon monoxide from incomplete combustion of other domestic fuels, undetermined, sequela
T59.0X1A - T59.94XS	Toxic effect of nitrogen oxides, accidental (unintentional), initial encounter - toxic effect of unspecified gases, fumes and vapors, undetermined, sequela
T86.810	Lung transplant rejection
T86.811	Lung transplant failure
T86.812	Lung transplant infection
T86.818	Other complications of lung transplant
T86.819	Unspecified complication of lung transplant
Z22.7	Latent TB infection
Z48.24	Encounter for aftercare following lung transplant
Z76.82	Awaiting organ transplant status
Z79.3	Long term (current) use of hormonal contraceptives
Z79.51	Long term (current) use of inhaled steroids
Z79.891	Long term (current) use of opiate analgesic
Z79.899	Other long term (current) drug therapy
Z85.118	Personal history of other malignant neoplasm of bronchus and lung
Z86.16	Personal history of COVID-19
Z86.711	Personal history of pulmonary embolism
Z87.01	Personal history of pneumonia (recurrent)
Z87.09	Personal history of other diseases of the respiratory system
Z90.2	Acquired absence of lung [part of]
Z94.1	Heart transplant status
Z94.2	Lung transplant status
Z94.3	Heart and lungs transplant status

ICD-10 Table 2 The following ICD-10-CM codes support medical necessity for CPT codes 94617, 94618, 94619 and 94621 in addition to the codes in ICD-10 Table 1:⁷

ICD-10-CM Code	Description
I43	Cardiomyopathy in diseases classified elsewhere
Q21.0 – Q21.9	Congenital malformations of cardiac septa
Q22.0 – Q22.9	Congenital malformations of pulmonary and tricuspid valves

ICD-10-CM Code	Description
Q23.0 – Q23.9	Congenital malformations of aortic and mitral valves
Q24.0 – Q24.9	Other congenital malformations of heart
Q25.0 – Q25.9	Congenital malformations of great arteries
Q26.0 – Q26.9	Congenital malformations of great veins
Q27.0 – Q27.9	Other congenital malformations of peripheral vascular system
Q28.0 – Q28.9	Other congenital malformations of circulatory system

ICD-10 Table 3 The following ICD-10-CM codes support medical necessity for CPT code: 94070.⁶

ICD-10-CM Code	Description
J44.0	Chronic obstructive pulmonary disease with (acute) lower respiratory infection
J44.1	Chronic obstructive pulmonary disease with (acute) exacerbation
J44.9	Chronic obstructive pulmonary disease, unspecified
J45.20	Mild intermittent asthma, uncomplicated
J45.21	Mild intermittent asthma with (acute) exacerbation
J45.22	Mild intermittent asthma with status asthmaticus
J45.30	Mild persistent asthma, uncomplicated
J45.31	Mild persistent asthma with (acute) exacerbation
J45.32	Mild persistent asthma with status asthmaticus
J45.40	Moderate persistent asthma, uncomplicated
J45.41	Moderate persistent asthma with (acute) exacerbation
J45.42	Moderate persistent asthma with status asthmaticus
J45.50	Severe persistent asthma, uncomplicated
J45.51	Severe persistent asthma with (acute) exacerbation
J45.52	Severe persistent asthma with status asthmaticus
J45.901	Unspecified asthma with (acute) exacerbation
J45.902	Unspecified asthma with status asthmaticus
J45.909	Unspecified asthma, uncomplicated
J45.990	Exercise induced bronchospasm
J45.991	Cough variant asthma
J45.998	Other asthma
J95.84	Transfusion-related acute lung injury (TRALI)
J98.4	Other disorders of lung
R05.1	Acute cough
R05.2	Subacute cough
R05.3	Chronic cough
R05.4	Cough syncope
R05.8	Other specified cough
R06.02	Shortness of breath
R06.1	Stridor
R06.2	Wheezing

Reviews, Revisions, and Approvals	Revision Date	Approval Date
Policy developed	03/22	03/22
Added to the medical necessity statement in I. that PFTs are medically necessary for members/enrollees 3 years of age and above. Removed demarcation of spirometry indications as diagnostic or for monitoring purposes. In B.2, noted that the indication also includes assessing for concurrent restrictive and obstructive disease. Minor rewording of other criteria with no clinical significance. Added multiple additional codes as medically necessary in ICD-10 Table 1. Added 96417-96419 and 96421 as applicable to ICD-10 Table 1. Changed order of ICD-10 Tables 2 and 3 so that Table 3 now applies to 94070. Removed codes duplicative with ICD-10 Table 1 in ICD-10 Table 2. Removed R06.83 in Table 2. Removed reference to “coverage” from all ICD-10 coding tables. Updated with additional references. Reviewed by multiple specialists.	06/22	06/22
Changed I28.88 to I28.8 in ICD-10 Table 1.	07/22	
New PHW Plan Specific Policy	11/2/2022	2/28/2023

References

1. Lung function tests. American Lung Association. <https://www.lung.org/lung-health-diseases/lung-procedures-and-tests/lung-function-tests>. Published May 27, 2020. Accessed October 25, 2021.
2. Kaminsky, DA. Overview of pulmonary function testing in adults. UpToDate. www.uptodate.com. Published August 11, 2021. Accessed October 15, 2021.
3. Rosen DM, Colin AA. Overview of pulmonary function testing in children. UpToDate. www.uptodate.com. Published April 8, 2020. Updated October 15, 2021.
4. Local coverage determination: pulmonary function testing (L35360). Centers for Medicare and Medicaid Services Web site. <http://www.cms.hhs.gov/mcd/search.asp>. Published October 1, 2015 (revised July 1, 2020). Accessed February 21, 2022.
5. Local coverage determination: pulmonary function testing (L34247). Centers for Medicare and Medicaid Services Web site. <http://www.cms.hhs.gov/mcd/search.asp>. Published October 1, 2015 (revised October 1, 2019). Accessed February 21, 2022.
6. Local coverage article: pulmonary function testing (A57320). Centers for Medicare and Medicaid Services Web site. <http://www.cms.hhs.gov/mcd/search.asp>. Published October 1, 2019 (revised October 1, 2021). Accessed February 22, 2022.
7. Local coverage article: pulmonary function testing (A57216). Centers for Medicare and Medicaid Services Web site. <http://www.cms.hhs.gov/mcd/search.asp>. Published October 1, 2019 (revised October 1, 2021). Accessed February 22, 2022.
8. Aboussouan LS, Stoller JK. Flow-loop volumes. UpToDate. www.uptodate.com. Published August 11, 2021. Accessed March 1, 2022.
9. Reddel HK, Taylor DR, Bateman ED, et al. An official American Thoracic Society/European Respiratory Society statement: asthma control and exacerbations: standardizing endpoints for

clinical asthma trials and clinical practice. *Am J Respir Crit Care Med.* 2009;180(1):59-99.
doi:10.1164/rccm.200801-060ST

10. Kaminsky, DA. Cardiopulmonary exercise testing in the evaluation of dyspnea. UpToDate. www.uptodate.com. Published June 2, 2021. Accessed June 24, 2022.

Clinical Policy: Implantable Loop Recorder

Reference Number: PA.CP.MP.243

Effective Date: 01/01/2023

Date of Last Revision: NEW

[Coding Implications](#)

[Revision Log](#)

Description

An implantable loop recorder (ILR), also referred to as an insertable or implantable cardiac monitor (ICM), is a subcutaneous monitoring device for the detection of cardiac arrhythmias. It is implanted in the left pectoral region and is MRI-conditional. The device stores events when activated automatically according to programmed criteria or triggered by the patient. Depending on the manufacturer and the specific device, the battery longevity of ILR can range between two to four years.⁷ Several ILRs have received FDA approval (e.g., Reveal LINQ, Reveal XT, Confirm Rx™ and BioMonitor).² This policy addresses the medical necessity criteria for an ILR/ICM.

Policy/Criteria

- I. It is the policy of PA Health & Wellness (PHW)[®] that an implantable loop recorder/implantable cardiac monitor is considered **medically necessary** for any of the following indications:
 - A. Suspected silent atrial fibrillation (AF) in the setting of cryptogenic stroke, when 30-day external ambulatory monitoring is inconclusive or contraindicated;
 - B. Suspected or known ventricular arrhythmia when 30-day external ambulatory monitoring is inconclusive or contraindicated;
 - C. History of structural or infiltrative heart disease (e.g., valvular aortic stenosis, hypertrophic cardiomyopathy, cardiac sarcoidosis, congenital heart disease) and both of the following:
 1. High risk for arrhythmias (e.g., family history, symptoms, anatomy of structural heart disease);
 2. 30-day external ambulatory monitoring (e.g., external loop recorder) is inconclusive or contraindicated;
 - D. Recurrent, unexplained syncope or presyncope and both of the following:
 1. Cardiac arrhythmia is suspected and external ambulatory monitoring (e.g., 30-day external loop recorder) is inconclusive or contraindicated;
 2. Symptoms are infrequent (e.g., less than once per month).

- II. It is the policy of PA Health & Wellness (PHW) that an implantable loop recorder/implantable cardiac monitor may be considered medically necessary following mandatory secondary medical director review when meeting all of the following:
 - A. Presenting condition meets one of the following:
 1. Single, abrupt episode of unexplained syncope without prodrome (e.g., sense of warmth, dizziness, pallor, diaphoresis, abdominal pain, changes in vision, or nausea) resulting in injury/trauma and
 2. Significant, recurrent and unexplained palpitations;
 - B. Serious cardiac arrhythmia is suspected;
 - C. 30-day external ambulatory monitoring (e.g., external loop recorder) is inconclusive or contraindicated;
 - D. Symptoms are infrequent (e.g., less than once per month).

Background

Ambulatory electrocardiography (ECG) is the most frequently employed technology in the evaluation of symptoms suggestive of a cardiac arrhythmia or conduction abnormality.⁷ Accurate and timely characterization of arrhythmias is crucial to direct therapies that can have an important impact on diagnosis, prognosis or patient symptom status. The cardiac rhythm information derived from the large variety of ambulatory ECG recording systems often leads to patient-specific medical and interventional management.⁵

Frequency of symptoms should dictate the type of recording; longer term ECG monitoring is required for more infrequent events. Correlation (or lack) of symptoms and arrhythmias is key. The most appropriate clinical workflow may include continuous (short-term- 24 hours to up to 7 days) ambulatory ECG monitoring, which if unsuccessful is followed by intermittent external loop recording (long-term-from weeks to months). For those patients remaining undiagnosed after prolonged, noninvasive monitoring, ILR may be necessary.⁵

Syncope is a symptom that can be due to various causes, ranging from benign to life-threatening conditions- cardiovascular causes are common. The presence of significant cardiovascular diseases, often associated with the cardiovascular causes of syncope, portends a poor prognosis. As such, cardiovascular testing can be a critical element in the evaluation and management of selected patients with syncope.¹ Those at high risk for concerning arrhythmias, known to be associated with the development of ventricular tachycardia, include:

- Palpitations that are sustained, poorly tolerated, or associated with syncope or presyncope;
- Organic heart disease (e.g., scar formation from myocardial infarction, dilated cardiomyopathy of any cause, clinically significant valvular heart disease, hypertrophic cardiomyopathy);
- A personal or family history of arrhythmia, syncope, sudden death, cardiomyopathy, or long QT syndrome.¹¹

An implantable loop recorder (ILR) or insertable or implantable cardiac monitor (ICM) is commonly utilized in the evaluation of palpitations or syncope of undetermined etiology, particularly when symptoms are infrequent (e.g., less than once per month) and/or other ambulatory monitoring (e.g., Holter and event monitoring) has been unrevealing or inconclusive.^{8,9}

Several randomized controlled trials (RCTs) and observational studies have demonstrated a benefit of the ILR/ICM in establishing a diagnosis in syncope of unclear etiology. In a prospective study of 60 patients with syncope of unknown origin, the diagnosis (primarily bradyarrhythmia) was made in 55% with ICM, compared with a 19% diagnostic yield with conventional testing (external loop recorder, followed by tilt table testing and electrophysiological study [EPS]).¹³ These findings are consistent with other studies, which generally have shown that patients who underwent the ILR/ICM approach experienced higher rates of diagnosis than those of patients who underwent the conventional approach.¹⁴⁻¹⁶

The cause of ischemic stroke remains unknown in 20 to 40% of patients, leading to a diagnosis of cryptogenic stroke. Prolonged ECG monitoring with an ICM in these patients (age >40 years) has the advantage of increasing the likelihood of detecting silent atrial fibrillation (AF) that would escape detection with short-term monitoring.² A recent RCT established the superiority of an implantable cardiac monitor over conventional monitoring for detecting silent AF, a finding with major clinical ramifications for these patients.¹⁷

Palpitations are very common, and although usually benign, occasionally are a manifestation of a concerning or potentially life-threatening arrhythmia. The cause of palpitations can be determined in the majority of patients. Common causes include cardiac disorders, medical conditions including endocrine and metabolic abnormalities, psychiatric disorders, medication effects, and drug or other substance use effects.¹² ICMs may have a role for palpitations that are sustained, poorly tolerated, or associated with syncope or presyncope, when other methods have failed to document the cause of palpitations and a concerning or potentially life-threatening arrhythmia is suspected.

American College of Cardiology/American Heart Association Task Force/ Heart Rhythm Society
Syncope

- The choice of a specific cardiac monitor should be determined on the basis of the frequency and nature of syncope events. (Class I)¹
- To evaluate selected ambulatory patients with syncope of suspected arrhythmic etiology, an ICM can be useful.(Class IIa)¹

Atrial Fibrillation

- In patients with cryptogenic stroke (i.e., stroke of unknown cause) in whom external ambulatory monitoring is inconclusive, implantation of a cardiac monitor (loop recorder) is reasonable to optimize detection of silent AF. (Class IIa recommendation)²

Ventricular Arrhythmias and Prevention of Sudden Cardiac Death

- Electrocardiographic monitoring is useful to evaluate whether symptoms, including palpitations, presyncope, or syncope, are caused by ventricular arrhythmias. (Class I recommendation)⁶
- In patients with sporadic symptoms (including syncope) suspected to be related to ventricular arrhythmia, an ICM can be useful. (Class II a recommendation)⁶

American Heart Association/American Stroke Association

In patients with cryptogenic stroke who do not have a contraindication to anticoagulation, long-term rhythm monitoring with mobile cardiac outpatient telemetry, ILR or other approach is reasonable to detect intermittent AF. (Class 2a recommendation)¹⁹

European Society of Cardiology
Syncope

- ILR is indicated in an early phase of evaluation in patients with recurrent syncope of uncertain origin, absence of high-risk criteria, and a high likelihood of recurrence within the battery life of the device. (Class I recommendation)⁷

- ILR is indicated in patients with high-risk criteria, in whom a comprehensive evaluation did not demonstrate a cause of syncope or lead to a specific treatment, and who do not have conventional indications for primary prevention ICD or pacemaker indication. (Class I recommendation)⁷
- ILR should be considered in patients with suspected or certain reflex syncope presenting with frequent or severe syncopal episodes. (Class IIa recommendation)⁷

Atrial Fibrillation

In selected stroke patients without previously known AF, additional ECG monitoring using long-term non-invasive ECG monitors or ICMs should be considered to detect AF. (Class IIa recommendation)²⁰

Coding Implications

This clinical policy references Current Procedural Terminology (CPT®). CPT® is a registered trademark of the American Medical Association. All CPT codes and descriptions are copyrighted 2021, American Medical Association. All rights reserved. CPT codes and CPT descriptions are from the current manuals and those included herein are not intended to be all-inclusive and are included for informational purposes only. Codes referenced in this clinical policy are for informational purposes only. Inclusion or exclusion of any codes does not guarantee coverage. Providers should reference the most up-to-date sources of professional coding guidance prior to the submission of claims for reimbursement of covered services.

CPT® Codes	Description
33285	Insertion, subcutaneous cardiac rhythm monitor, including programming
33286	Removal, subcutaneous cardiac rhythm monitor
93285	Programming device evaluation (in person) with iterative adjustment of the implantable device to test the function of the device and select optimal permanent programmed values with analysis, review and report by a physician or other qualified health care professional; subcutaneous cardiac rhythm monitor system
93291	Interrogation device evaluation (in person) with analysis, review and report by a physician or other qualified health care professional, includes connection, recording and disconnection per patient encounter; subcutaneous cardiac rhythm monitor system, including heart rhythm derived data analysis
93298	Interrogation device evaluation(s), (remote) up to 30 days; subcutaneous cardiac rhythm monitor system, including analysis of recorded heart rhythm data, analysis, review(s) and report(s) by a physician or other qualified health care professional

HCPCS Codes	Description
C1764	Event recorder, cardiac (implantable)
E0616	Implantable cardiac event recorder with memory, activator, and programmer
G2066	Interrogation device evaluation(s), (remote) up to 30 days; implantable cardiovascular physiologic monitor system, implantable loop recorder system, or subcutaneous cardiac rhythm monitor system, remote data acquisition(s), receipt of transmissions and technician review, technical support and distribution of results

ICD-10-CM Diagnosis Codes that Support Coverage Criteria

+ Indicates a code requiring an additional character

ICD-10-CM Code	Description
I47.2	Ventricular tachycardia
I49.9	Cardiac arrhythmia, unspecified
I63.9	Cerebral infarction, unspecified
R00.2	Palpitations
R06.02	Shortness of breath
R07.9	Chest pain, unspecified
R42	Dizziness and giddiness
R55	Syncope and collapse
R94.31	Abnormal electrocardiogram [ECG] [EKG]
Z86.73	Personal history of transient ischemic attack (TIA), and cerebral infarction without residual deficits

Reviews, Revisions, and Approvals	Revision Date	Approval Date
Policy developed and reviewed by specialist.	04/22	04/22
New Plan specific policy developed	12/19/2023	1/6/2023

References

1. Shen WK, Sheldon RS, Benditt DG, et al. 2017 ACC/AHA/HRS Guideline for the Evaluation and Management of Patients With Syncope: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society [published correction appears in *Circulation*. 2017 Oct 17;136(16):e271-e272]. *Circulation*. 2017;136(5):e60-e122. doi:10.1161/CIR.0000000000000499
2. January CT, Wann LS, Calkins H, et al. 2019 AHA/ACC/HRS Focused Update of the 2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society in Collaboration With the Society of Thoracic Surgeons [published correction appears in *Circulation*. 2019 Aug 6;140(6):e285]. *Circulation*. 2019;140(2):e125-e151. doi:10.1161/CIR.0000000000000665
3. Ommen SR, Mital S, Burke MA, et al. 2020 AHA/ACC Guideline for the Diagnosis and Treatment of Patients With Hypertrophic Cardiomyopathy: Executive Summary: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Circulation*. 2020;142(25):e533-e557. doi:10.1161/CIR.0000000000000938
4. Kusumoto FM, Schoenfeld MH, Barrett C, et al. 2018 ACC/AHA/HRS Guideline on the Evaluation and Management of Patients With Bradycardia and Cardiac Conduction Delay: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society [published correction appears in *Circulation*. 2019 Aug 20;140(8):e506-e508]. *Circulation*. 2019;140(8):e382-e482. doi:10.1161/CIR.0000000000000628

5. Steinberg JS, Varma N, Cygankiewicz I, et al. 2017 ISHNE-HRS expert consensus statement on ambulatory ECG and external cardiac monitoring/telemetry [published correction appears in *Heart Rhythm*. 2018 Mar 28;:] [published correction appears in *Heart Rhythm*. 2018 Aug;15(8):1276]. *Heart Rhythm*. 2017;14(7):e55-e96. doi:10.1016/j.hrthm.2017.03.038
6. Al-Khatib SM, Stevenson WG, Ackerman MJ, et al. 2017 AHA/ACC/HRS Guideline for Management of Patients With Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society [published correction appears in *J Am Coll Cardiol*. 2018 Oct 2;72(14):1760]. *J Am Coll Cardiol*. 2018;72(14):e91-e220. doi:10.1016/j.jacc.2017.10.054
7. Brignole M, Moya A, de Lange FJ, et al. 2018 ESC Guidelines for the diagnosis and management of syncope [2018 ESC Guidelines for the diagnosis and management of syncope]. *Kardiol Pol*. 2018;76(8):1119-1198. doi:10.5603/KP.2018.0161
8. Madias C. Ambulatory ECG monitoring. UpToDate. www.uptodate.com. Published August 20, 2020. Accessed March 3, 2022.
9. Benditt D. Reflex syncope in adults and adolescents: Clinical presentation and diagnostic evaluation. UpToDate. www.uptodate.com. Published December 6, 2021. Accessed March 7, 2021.
10. Benditt D. Syncope in adults: Epidemiology, pathogenesis, and etiologies. UpToDate. www.uptodate.com. Published March 8, 2021. Accessed March 9, 2022.
11. Kumar K. Overview of atrial fibrillation. UpToDate. www.uptodate.com. Published January 21, 2022. Accessed March 7, 2022.
12. Zimetbaum PJ. Evaluation of palpitations in adults. UpToDate. www.uptodate.com. Published September 23, 2021. Accessed March 7, 2022.
13. Krahn AD, Klein GJ, Yee R, Skanes AC. Randomized assessment of syncope trial: conventional diagnostic testing versus a prolonged monitoring strategy. *Circulation*. 2001;104(1):46-51. doi:10.1161/01.cir.104.1.46
14. Farwell DJ, Freemantle N, Sulke N. The clinical impact of implantable loop recorders in patients with syncope. *Eur Heart J*. 2006;27(3):351-356. doi:10.1093/eurheartj/ehi602
15. Podoleanu C, DaCosta A, Defaye P, et al. Early use of an implantable loop recorder in syncope evaluation: a randomized study in the context of the French healthcare system (FRESH study). *Arch Cardiovasc Dis*. 2014;107(10):546-552. doi:10.1016/j.acvd.2014.05.009
16. Sulke N, Sugihara C, Hong P, Patel N, Freemantle N. The benefit of a remotely monitored implantable loop recorder as a first line investigation in unexplained syncope: the EaSyAS II trial. *Europace*. 2016;18(6):912-918. doi:10.1093/europace/euv228
17. Sanna T, Diener HC, Passman RS, et al. Cryptogenic stroke and underlying atrial fibrillation. *N Engl J Med*. 2014;370(26):2478-2486. doi:10.1056/NEJMoa1313600
18. Buck BH, Hill MD, Quinn FR, et al. Effect of Implantable vs Prolonged External Electrocardiographic Monitoring on Atrial Fibrillation Detection in Patients With Ischemic Stroke: The PER DIEM Randomized Clinical Trial. *JAMA*. 2021;325(21):2160-2168. doi:10.1001/jama.2021.6128
19. Kleindorfer DO, Towfighi A, Chaturvedi S, et al. 2021 Guideline for the Prevention of Stroke in Patients With Stroke and Transient Ischemic Attack: A Guideline From the American Heart Association/American Stroke Association [published correction appears in

- Stroke*. 2021 Jul;52(7):e483-e484]. *Stroke*. 2021;52(7):e364-e467. doi:10.1161/STR.0000000000000375
20. Hindricks G, Potpara T, Dagres N, et al. 2020 ESC Guidelines for the diagnosis and management of atrial fibrillation developed in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS): The Task Force for the diagnosis and management of atrial fibrillation of the European Society of Cardiology (ESC) Developed with the special contribution of the European Heart Rhythm Association (EHRA) of the ESC [published correction appears in *Eur Heart J*. 2021 Feb 1;42(5):507] [published correction appears in *Eur Heart J*. 2021 Feb 1;42(5):546-547] [published correction appears in *Eur Heart J*. 2021 Oct 21;42(40):4194]. *Eur Heart J*. 2021;42(5):373-498. doi:10.1093/eurheartj/ehaa612
 21. Bisignani A, De Bonis S, Mancuso L, Ceravolo G, Bisignani G. Implantable loop recorder in clinical practice. *J Arrhythm*. 2018;35(1):25-32. Published 2018 Nov 20. doi:10.1002/joa3.12142
 22. Vilcant V, Kousa O, Hai O. Implantable Loop Recorder. In: *StatPearls*. Treasure Island (FL): StatPearls Publishing; October 11, 2021.
 23. Assaf A, Sakhi R, Michels M, et al. Implantable loop recorders in patients with heart disease: comparison between patients with and without syncope. *Open Heart*. 2021;8(2):e001748. doi:10.1136/openhrt-2021-001748
 24. Radovanović NN, Pavlović SU, Kirčanski B, et al. Diagnostic value of implantable loop recorders in patients with unexplained syncope or palpitations. *Ann Noninvasive Electrocardiol*. 2021;26(5):e12864. doi:10.1111/anec.12864

Clinical Policy: Neuromuscular and Peroneal Nerve Electrical Stimulation (NMES)

Reference Number: PA.CP.MP.48

Effective Date: 01/01/2023

Date of Last Revision: 07/22

[Coding Implications](#)

[Revision Log](#)

Description

This policy describes the medical necessity requirements for the use of neuromuscular electrical stimulation (NMES) and functional electrical stimulation (FES).

Policy/Criteria

- I. It is the policy of PA Health & Wellness (PHW)[®] that neuromuscular electrical stimulation is **medically necessary** when used as one component of a comprehensive rehab program for the treatment of disuse atrophy when the nerve supply to the atrophied muscle is intact and has any of the following atrophy indications:
 - A. Contractures due to burn scarring;
 - B. Previous casting or splinting of a limb;
 - C. Major knee surgery with failure to respond to physical therapy;
 - D. Recent hip replacement until physical therapy begins.

- II. It is the policy of PA Health & Wellness (PHW) that functional neuromuscular stimulation is **medically necessary** for spinal cord injury (SCI) when all of the following criteria are met:
 - A. Intact lower motor units (L1 and below, including both muscle and peripheral nerve);
 - B. Muscle and joint stability adequate for weight bearing at upper and lower extremities and can demonstrate balance and control to maintain an upright support posture independently;
 - C. Brisk muscle contraction to stimulation and sensory perception of electrical stimulation sufficient for muscle contraction;
 - D. Transfers independently and demonstrates independent standing tolerance for at least three minutes;
 - E. Demonstrates hand and finger function to manipulate controls;
 - F. At least six months post recovery from spinal cord injury and restorative surgery;
 - G. No hip and knee degenerative disease and no history of long bone fracture secondary to osteoporosis;
 - H. Highly motivated, committed, and the cognitive ability to use such devices for walking;
 - I. Successfully completed a training program consisting of at least 32 physical therapy sessions with the device over a 3-month period;
 - J. Demonstrates a willingness to use the device long-term;
 - K. None of the following contraindications:
 1. Cardiac pacemaker;
 2. Severe scoliosis or severe osteoporosis;
 3. Skin disease or cancer at area of stimulation;
 4. Irreversible contracture;
 5. Autonomic dysflexia.

- III. It is the policy of PA Health & Wellness (PHW) that peroneal nerve stimulators (e.g., NESS L300, NESS L300 Plus, L300 Go System, WalkAide, ODFS Dropped Foot Stimulator) are medically necessary for incomplete spinal cord injury.

- IV.** It is the policy of PA Health & Wellness (PHW) that peroneal nerve stimulators (e.g., NESS L300, NESS L300 Plus, L300 Go System, WalkAide, ODFS Dropped Foot Stimulator) have not been proven safe and effective for any indication other than incomplete spinal cord injury, including, but not limited to: foot drop in cerebral palsy, multiple sclerosis, traumatic brain injury, or stroke.
- V.** It is the policy of PA Health & Wellness (PHW) that neuromuscular electrical stimulation for any other indication (e.g., idiopathic scoliosis, heart failure) is not proven safe and effective.

Background

Neuromuscular electrical stimulation (NMES) involves the use of a device which transmits an electrical impulse to the skin over selected muscle groups by way of electrodes.^{1,5} There are two broad categories of NMES. One type of device stimulates the muscle when the patient is in a resting state to treat muscle atrophy.¹ The second type, known as functional electrical stimulation (FES), is used to enhance functional activity of neurologically impaired patients.¹ NMES can be performed at low, medium, or high intensity to elicit mild, moderate, or strong muscle contractions. When used at very low intensity to stimulate barely perceptible contractions, this technique is referred to as threshold NMES or threshold electrical stimulation (TES).^{1,4} Regardless of the intensity of NMES, patients are encouraged to exercise the affected muscles voluntarily to maintain and improve their strength and function. For chronic disorders, this exercise may be in the form of regular participation in sports activities. For acute conditions, such as rehabilitation shortly after surgery or a stroke, patients must often undergo intensive physical and occupational therapy.^{1,4}

FES is the application of electrical stimulation that can be used to activate muscles of the upper or lower limbs to produce functional movement patterns, such as standing and walking, in patients with paraplegia.^{1,4} FES has been shown to strengthen muscles, improve circulation, heal tissue, slow muscle atrophy, and reduce pain and spasticity.⁴ The only settings where skilled therapists can provide NMES services are inpatient hospitals, outpatient hospitals, comprehensive outpatient rehabilitation facilities, and outpatient rehabilitation facilities. The physical therapy needed to perform these services requires that the patient be in a one-on-one training program.¹

Coding Implications

This clinical policy references Current Procedural Terminology (CPT®). CPT® is a registered trademark of the American Medical Association. All CPT codes and descriptions are copyrighted 2020, American Medical Association. All rights reserved. CPT codes and CPT descriptions are from the current manuals and those included herein are not intended to be all-inclusive and are included for informational purposes only. Codes referenced in this clinical policy are for informational purposes only. Inclusion or exclusion of any codes does not guarantee coverage. Providers should reference the most up-to-date sources of professional coding guidance prior to the submission of claims for reimbursement of covered services.

HCPCS ^{®*} Codes	Description
E0745	Neuromuscular stimulator, electronic shock unit
E0764	Functional neuromuscular stimulation, transcutaneous stimulation of sequential muscle groups of ambulation with computer control, used for walking by spinal cord injured, entire system, after completion of training program
E0770	Functional electrical stimulator, transcutaneous stimulation of nerve and/or muscle groups, any type, complete system, not otherwise specified

HCPCS codes that do not support coverage criteria

HCPCS Codes	Description
E0744	Neuromuscular stimulator for scoliosis

ICD-10-CM Diagnosis Codes that Support Coverage Criteria

+ Indicates a code(s) requiring an additional character

ICD-10-CM Code	Description
M62.50 through M62.59	Muscle wasting and atrophy, not elsewhere classified
S14.0xxA through S14.0xxS	Concussion and edema of cervical spinal, cord
S14.101A through S14.109S	Unspecified injury of cervical spinal cord
S24.101A through S24.109S	Unspecified injury at unspecified level of thoracic spinal cord
S34.101A through S34.109S	Unspecified injury to unspecified level to lumbar spinal cord
S34.131A through S34.139S	Unspecified injury to sacral spinal cord

Reviews, Revisions, and Approvals	Revision Date	Approval Date
Original approval date 09/11. References reviewed and updated. Template update and approved 12/11. References reviewed and updated. Approved with no changes 9/12-9/14.	09/11	09/11
References reviewed and updated. Approved by MPC. Coding update only.	09/15	09/15
References reviewed and updated. Approved by MPC. No changes.	09/16	09/16
References reviewed and updated. Approved by MPC. No changes.	07/17	07/17
References reviewed and updated. Approved by MPC. No changes.	07/18	07/18
References reviewed and updated. Approved by MPC. No changes.	07/19	07/19
References reviewed and updated. Approved by MPC. No changes.	07/20	07/20

Reviews, Revisions, and Approvals	Revision Date	Approval Date
Transitioned to CNC template. Replaced “members” with “members/enrollees” in all instances.	12/20	
Annual review completed. References reviewed and updated. Changed “review date” in the header to “date of last revision” and “date” in the revision log header to “revision date.” Integrated NMES, FES, and peroneal stimulator criteria from PA.CP.MP.107 DME and Legacy WellCare Neuromuscular Electrical Stimulation (NMES) PA.CP.MP.48 policy. Renamed to “Neuromuscular and Peroneal Nerve Electrical Stimulation.” Added section III and IV criteria. Added code E0744 to “HCPCS codes that do not support coverage criteria.” Specialist reviewed.	07/21	07/21
Annual review. Criteria IV. verbiage updated for clarity. Background updated with no impact on criteria. References reviewed and updated. Specialist reviewed.	07/22	07/22
New Plan specific policy created	12/19/2022	1/19/2023

References

1. National coverage determination. Neuromuscular electrical stimulation (NMES) (160.12). Centers for Medicare and Medicaid Services website. <http://www.cms.hhs.gov/mcd/search.asp>. Published October 1, 2006. Accessed May 31, 2022.
2. Health Technology Assessment. Functional electrical stimulation for rehabilitation following spinal cord injury. Hayes. www.hayesinc.com. Published November 16, 2017 (annual review January 12, 2022). Accessed May 31, 2022.
3. Health Technology Assessment. Functional electrical stimulation (FES) for treatment of foot drop in multiple sclerosis patients. Hayes. www.hayesinc.com. Published November 17, 2021. Accessed June 01, 2022.
4. Doucet BM, Lam A, Griffin L. Neuromuscular electrical stimulation for skeletal muscle function. *Yale J Biol Med.* 2012;85(2):201-215.
5. Health Technology Assessment. Functional electrical stimulation for foot drop in acute or subacute phases of stroke recovery. Hayes. www.hayesinc.com. Published June 01, 2022. Accessed June 03, 2022.