

# Plethysmography (NCD 20.14)

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[➔ Terms and Conditions](#)

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<b>Related Medicare Advantage Reimbursement Policy</b>
<ul style="list-style-type: none"> <li><a href="#">Multiple Procedure Payment Reduction (MPPR) on Diagnostic Cardiovascular and Ophthalmology Procedures Policy</a></li> </ul>
<b>Related Medicare Advantage Coverage Summary</b>
<ul style="list-style-type: none"> <li><a href="#">Cardiovascular Diagnostic Procedures</a></li> </ul>

## Policy Summary

[➔ See Purpose](#)

### Overview

Plethysmography involves the measurement and recording (by one of several methods) of changes in the size of a body part as modified by the circulation of blood in that part. Plethysmography is of value as a noninvasive technique for diagnostic, preoperative, and postoperative evaluation of peripheral artery disease in the vascular surgery practice or internal medicine. Also it is a useful tool for the preoperative podiatric evaluation of the diabetic patient or other signs or symptoms indicative of peripheral vascular disease, or one who has intermittent claudication which have a bearing on the patient's candidacy for foot surgery.

A form of plethysmography is the venous occlusive pneumoplethysmography. In the setting of the hospital vascular laboratory, this technique is considered a reasonable and necessary procedure for the diagnostic evaluation of suspected peripheral arterial disease. It is unsuitable for routine use in the physician's office.

A number of other plethysmographic methods have been developed which make use of phenomena such as changes in electric impedance or changes in segmental blood pressure at constant volume to assess regional perfusion. Several of these methods have reached a level of development, which makes them clinically valuable.

### Guidelines

Medicare coverage is extended to those procedures listed in Category I below when used for the accepted medical indications mentioned above. The procedures in Category II are still considered experimental and are not covered.

#### Category I - Covered

- Segmental Plethysmography - Included under this procedure are services performed with a regional plethysmograph, pulse volume recorder, recording oscillometer, and a differential plethysmograph.
- Ultrasonic Measurement of Blood Flow (Doppler) - While not strictly a plethysmographic method, it is also a useful tool in the evaluation of suspected peripheral vascular disease or preoperative screening of podiatric patients with suspected peripheral vascular compromise.
- Electrical Impedance Plethysmography.
- Oculoplethysmography - See NCD 20.17 Noninvasive Tests of Carotid Function.

- Strain Gauge Plethysmography - This test is based on recording the non-pulsatile aspects of inflowing blood at various points on an extremity by a mercury-in-silastic strain gauge sensor. The instrument consists of a chart recorder, a recording manometer and an automatic cuff inflation and deflation system.

### Category II - Experimental

The following methods have not yet reached a level of development to allow their routine use in the evaluation of suspected peripheral vascular disease.

- Mechanical Oscillometry - This is a non-standardized method, which offers poor sensitivity and is not considered superior to the simple measurement of peripheral blood pressure.
- Photoelectric Plethysmography - This method is considered useful only in determining whether a pulse is present and does not provide reproducible measurements of blood flow.
- Inductance Plethysmography - This method is considered experimental and does not provide reproducible results.
- Capacitance Plethysmography - This method is considered experimental and does not provide reproducible results.

Differential plethysmography, is a system, which uses an impedance technique to compare pulse pressures at various points along a limb, with a reference pressure at the wrist level or mid-brachial. Usually performed in the physician's office, it is not clear whether this technique, meets the definition of plethysmography because quantitative measurements of blood flow are usually not made. The differential plethysmography system is a blood pulse recorder of undetermined value, which has the potential for significant overutilization. Reimbursement for studies done by techniques other than venous occlusive pneumoplethysmography should be denied, at least until additional data on these devices, including controlled clinical studies, become available.

## Applicable Codes

The following list(s) of procedure and/or diagnosis codes is provided for reference purposes only and may not be all inclusive. Listing of a code in this guideline does not imply that the service described by the code is a covered or non-covered health service. Benefit coverage for health services is determined by the member specific benefit plan document and applicable laws that may require coverage for a specific service. The inclusion of a code does not imply any right to reimbursement or guarantee claim payment. Other Policies and Guidelines may apply.

CPT Code	Description
94726	Plethysmography for determination of lung volumes and, when performed, airway resistance
94729	Diffusing capacity (e.g., carbon monoxide, membrane) (List separately in addition to code for primary procedure)
94750	Pulmonary compliance study (e.g., plethysmography, volume and pressure measurements)
<b>Codes Not Exclusive to this NCD</b>	
93922	Limited bilateral noninvasive physiologic studies of upper or lower extremity arteries, (e.g., for lower extremity: ankle/brachial indices at distal posterior tibial and anterior tibial/dorsalis pedis arteries plus bidirectional, Doppler waveform recording and analysis at 1-2 levels, or ankle/brachial indices at distal posterior tibial and anterior tibial/dorsalis pedis arteries plus volume plethysmography at 1-2 levels, or ankle/brachial indices at distal posterior tibial and anterior tibial/dorsalis pedis arteries with, transcutaneous oxygen tension measurement at 1-2 levels)
93923	Complete bilateral noninvasive physiologic studies of upper or lower extremity arteries, 3 or more levels (e.g., for lower extremity: ankle/brachial indices at distal posterior tibial and anterior tibial/dorsalis pedis arteries plus segmental blood pressure measurements with bidirectional Doppler waveform recording and analysis, at 3 or more levels, or ankle/brachial indices at distal posterior tibial and anterior tibial/dorsalis pedis arteries plus segmental volume plethysmography at 3 or more levels, or ankle/brachial indices at distal posterior tibial and anterior tibial/dorsalis pedis arteries plus segmental transcutaneous oxygen tension measurements at 3 or more level(s), or single level study with provocative functional maneuvers (e.g., measurements with postural provocative tests, or measurements with reactive hyperemia)

CPT Code	Description
<b>Codes Not Exclusive to this NCD</b>	
93924	Noninvasive physiologic studies of lower extremity arteries, at rest and following treadmill stress testing, (i.e., bidirectional Doppler waveform or volume plethysmography recording and analysis at rest with ankle/brachial indices immediately after and at timed intervals following performance of a standardized protocol on a motorized treadmill plus recording of time of onset of claudication or other symptoms, maximal walking time, and time to recovery) complete bilateral study

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Modifier	Description
TC	Technical component
26	Professional component

## References

### CMS National Coverage Determinations (NCDs)

[NCD 20.14 Plethysmography](#)

Reference NCDs: [NCD 220.5 Ultrasound Diagnostic Procedures](#)

[NCD 160.26 Cavernous Nerves by Electrical Stimulation with Penile Plethysmography](#)

[NCD 20.17 Noninvasive Tests of Carotid Function \(NCD 20.17\)](#)

[NCD 20.16 Cardiac Output Monitoring by Thoracic Electrical Bioimpedance \(TEB\)](#)

### CMS Local Coverage Determinations (LCDs) and Articles

LCD	Article	Contractor	Medicare Part A	Medicare Part B
<a href="#">L33627 Non-Invasive Vascular Studies</a>	<a href="#">A56758 Billing and Coding: Non-Invasive Vascular Studies</a>	NGS	CT, IL, MA, ME, MN, NH, NY, RI, VT, WI	CT, IL, MA, ME, MN, NH, NY, RI, VT, WI
<a href="#">L33696 Noninvasive Physiologic Studies of Upper or Lower Extremity Arteries</a>	<a href="#">A57126 Billing and Coding: Noninvasive Physiologic Studies of Upper or Lower Extremity Arteries</a>	First Coast	FL, PR, VI	FL, PR, VI
	<a href="#">A55863 Non-invasive physiologic studies of upper or lower extremity arteries revision to the Part A and Part B LCD</a>			
<a href="#">L33707 Pulmonary Diagnostic Services</a>	<a href="#">A57127 Billing and Coding: Pulmonary Diagnostic Services</a>	First Coast	FL, PR, VI	FL, PR, VI
	<a href="#">A58260 Pulmonary diagnostic services – revision to Part A and Part B LCD/billing and coding article</a>			
<a href="#">L34247 Pulmonary Function Testing</a>	<a href="#">A57216 Billing and Coding: Pulmonary Function Testing</a>	Noridian		AS, CA, GU, HI, MP, NV
<a href="#">L34045 Non-Invasive Vascular Studies</a>	<a href="#">A56697 Billing and Coding: Non-Invasive Vascular Studies</a>	CGS	KY, OH	KY, OH
<a href="#">L35360 Pulmonary Function Testing</a>	<a href="#">A57320 Billing and Coding: Pulmonary Function Testing</a>	Novitas	AR, CO, DC, DE, LA, MD, MS, NJ, NM, OK, PA, TX	AR, CO, DC, DE, LA, MD, MS, NJ, NM, OK, PA, TX

LCD	Article	Contractor	Medicare Part A	Medicare Part B
<a href="#">L35761 Non-Invasive Peripheral Arterial Vascular Studies</a>	<a href="#">A57593 Billing and Coding: Non-Invasive Peripheral Arterial Vascular Studies</a>	WPS	AK, AL, AR, AZ, CA, CO, CT, DE, FL, GA, HI, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY	IA, IN, KS, MI, MO, NE
<a href="#">L34149 Respiratory Care (Respiratory Therapy)</a>	<a href="#">A57224 Billing and Coding: Respiratory Care (Respiratory Therapy)</a>	Noridian	AS, CA, GU, HI, MP, NV	AS, CA, GU, HI, MP, NV
	<a href="#">A55984 Response to Comments: Respiratory Care (Respiratory Therapy)</a>			
<a href="#">L34430 Respiratory Therapy (Respiratory Care)</a>	<a href="#">A56717 Billing and Coding: Respiratory Therapy (Respiratory Care)</a>	Palmetto	AL, GA, TN, NC, SC, VA, WV	
<a href="#">L37293 Respiratory Care (Respiratory Therapy)</a>	<a href="#">A57225 Billing and Coding: Respiratory Care (Respiratory Therapy)</a>	Noridian	AK, ID, OR, WA, AZ, MT, ND, SD, UT, WY	AK, ID, OR, WA, AZ, MT, ND, SD, UT, WY
	<a href="#">A55988 Response to Comments: Respiratory Care (Respiratory Therapy)</a>			
L34219 Noninvasive Peripheral Arterial Studies) Retired 05/11/2020	A57223 Billing and Coding: Noninvasive Peripheral Arterial Studies Retired 05/11/2020	Noridian		AS, CA, GU, HI, MP, NV

## CMS Claims Processing Manual

[Chapter 32: § 130.1 Billing and Payment Requirements](#)

## Guideline History/Revision Information

Revisions to this summary document do not in any way modify the requirement that services be provided and documented in accordance with the Medicare guidelines in effect on the date of service in question.

Date	Summary of Changes
04/01/2021	<b>Template Update</b> <ul style="list-style-type: none"> <li>Reformatted policy; transferred content to new template</li> </ul>
11/11/2020	<b>Supporting Information</b> <ul style="list-style-type: none"> <li>Updated <i>References</i> section to reflect the most current information; no change to guidelines</li> <li>Archived previous policy version MPG250.05</li> </ul>

## Purpose

The Medicare Advantage Policy Guideline documents are generally used to support UnitedHealthcare Medicare Advantage claims processing activities and facilitate providers' submission of accurate claims for the specified services. The document can be used as a guide to help determine applicable:

- Medicare coding or billing requirements, and/or
- Medical necessity coverage guidelines; including documentation requirements.

UnitedHealthcare follows Medicare guidelines such as NCDs, LCDs, LCAs, and other Medicare manuals for the purposes of determining coverage. It is expected providers retain or have access to appropriate documentation when requested to support coverage. Please utilize the links in the [References](#) section below to view the Medicare source materials used to develop this resource document. This document is not a replacement for the Medicare source materials that outline Medicare coverage requirements. Where there is a conflict between this document and Medicare source materials, the Medicare source materials will apply.

## Terms and Conditions

The Medicare Advantage Policy Guidelines are applicable to UnitedHealthcare Medicare Advantage Plans offered by UnitedHealthcare and its affiliates.

These Policy Guidelines are provided for informational purposes, and do not constitute medical advice. Treating physicians and healthcare providers are solely responsible for determining what care to provide to their patients. Members should always consult their physician before making any decisions about medical care.

Benefit coverage for health services is determined by the member specific benefit plan document\* and applicable laws that may require coverage for a specific service. The member specific benefit plan document identifies which services are covered, which are excluded, and which are subject to limitations. In the event of a conflict, the member specific benefit plan document supersedes the Medicare Advantage Policy Guidelines.

Medicare Advantage Policy Guidelines are developed as needed, are regularly reviewed and updated, and are subject to change. They represent a portion of the resources used to support UnitedHealthcare coverage decision making. UnitedHealthcare may modify these Policy Guidelines at any time by publishing a new version of the policy on this website. Medicare source materials used to develop these guidelines include, but are not limited to, CMS National Coverage Determinations (NCDs), Local Coverage Determinations (LCDs), Medicare Benefit Policy Manual, Medicare Claims Processing Manual, Medicare Program Integrity Manual, Medicare Managed Care Manual, etc. The information presented in the Medicare Advantage Policy Guidelines is believed to be accurate and current as of the date of publication and is provided on an "AS IS" basis. Where there is a conflict between this document and Medicare source materials, the Medicare source materials will apply.

You are responsible for submission of accurate claims. Medicare Advantage Policy Guidelines are intended to ensure that coverage decisions are made accurately based on the code or codes that correctly describe the health care services provided. UnitedHealthcare Medicare Advantage Policy Guidelines use Current Procedural Terminology (CPT®), Centers for Medicare and Medicaid Services (CMS), or other coding guidelines. References to CPT® or other sources are for definitional purposes only and do not imply any right to reimbursement or guarantee claims payment.

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\*For more information on a specific member's benefit coverage, please call the customer service number on the back of the member ID card or refer to the [Administrative Guide](#).