

01-93000-29

Original Effective Date: 02/15/00

Reviewed: 07/25/24

Revised: 08/15/24

Subject: Thoracic Electrical Bioimpedance (TEB)

THIS MEDICAL COVERAGE GUIDELINE IS NOT AN AUTHORIZATION, CERTIFICATION, EXPLANATION OF BENEFITS, OR A GUARANTEE OF PAYMENT, NOR DOES IT SUBSTITUTE FOR OR CONSTITUTE MEDICAL ADVICE. ALL MEDICAL DECISIONS ARE SOLELY THE RESPONSIBILITY OF THE PATIENT AND PHYSICIAN. BENEFITS ARE DETERMINED BY THE GROUP CONTRACT, MEMBER BENEFIT BOOKLET, AND/OR INDIVIDUAL SUBSCRIBER CERTIFICATE IN EFFECT AT THE TIME SERVICES WERE RENDERED. THIS MEDICAL COVERAGE GUIDELINE APPLIES TO ALL LINES OF BUSINESS UNLESS OTHERWISE NOTED IN THE PROGRAM EXCEPTIONS SECTION.

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| Position Statement | Billing/Coding | Reimbursement | Program Exceptions | Definitions | Related Guidelines |
| Other | References | Updates | | | |

DESCRIPTION:

Thoracic electrical bioimpedance (TEB) devices, a form of plethysmography, monitors cardiac output by non-invasively measuring hemodynamic parameters, including stroke volume, systemic vascular resistance, and thoracic fluid status.

POSITION STATEMENT:

Thoracic electrical bioimpedance (TEB) **meets the definition of medical necessity** for the following indications, when the treating physician has determined that TEB hemodynamic data are necessary for appropriate management:

- Differentiation of cardiogenic from pulmonary causes of acute dyspnea when medical history, physical examination, and standard assessment tools provide insufficient information
- Optimization of atrioventricular (A/V) interval for individuals with A/V sequential cardiac pacemakers when medical history, physical examination, and standard assessment tools provide insufficient information
- Monitoring of continuous [inotropic therapy](#) for individuals with terminal congestive heart failure, when those individuals have chosen to die with comfort at home, or for those waiting at home for a heart transplant
- Evaluation for rejection in individuals with a heart transplant as predetermined alternative to a myocardial biopsy
- Optimization of fluid management in individuals with congestive heart failure when medical history, physical examination, and standard assessment tools provide insufficient information
- Management of drug-resistant hypertension (defined as failure to achieve goal blood pressure in those who are adhering to full doses of an appropriate three (3) drug regimen that includes a diuretic)

Thoracic electrical bioimpedance is **experimental or investigational** for all other indications, and specifically for the following conditions:

- Proven or suspected disease involving severe regurgitation of the aorta
- With minute ventilation (MV) sensor function pacemakers (the device may adversely affect the functioning of that type of pacemaker)
- During cardiac bypass surgery
- The management of all forms of hypertension, *except* drug-resistant hypertension as described above

For the above experimental or investigational indications, data in published medical literature are inadequate to permit scientific conclusions on long-term and net health outcomes.

BILLING/CODING INFORMATION:

CPT Coding:

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| 93701 | Bioimpedance derived physiologic cardiovascular analysis |
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ICD-10 Diagnosis Codes That Support Medical Necessity:

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| I01.0 – I01.9 | Rheumatic fever with heart involvement |
| I05.0 – I05.9 I06.0 – I06.9 I07.0 – I07.9 I08.0 – I08.9 I09.0 – I09.2 I09.81 I09.89 I09.9 | Chronic rheumatic heart diseases |
| I11.0 | Hypertensive heart disease with heart failure |
| I13.0 – I13.2 | Hypertensive heart and chronic kidney disease |
| I20.0 – I20.9 | Angina pectoris |
| I21.01 – I21.09 I21.11 – I21.19 I21.21 – I21.29 I21.3 I21.4 | ST elevation (STEMI) and non-ST elevation (NSTEMI) myocardial infarction |
| I22.0 – I22.9 | Subsequent ST elevation (STEMI) and non-ST elevation (NSTEMI) myocardial infarction |
| I24.0 – I24.9 | Other acute ischemic heart diseases |
| I25.10 I25.110 – I25.119 I25.2 – I25.3 I25.41 – I25.42 I25.5 I25.6 I25.700 – I25.709 I25.710 – I25.719 | Chronic ischemic heart disease |

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| I25.720 – I25.729 I25.730 – I25.739 I25.750 – I25.759 I25.790 – I25.799 I25.810 – I25.812 I25.82 – I25.89 I25.9 | |
| I26.01 – I26.09 I26.90 – I26.99 | Pulmonary embolism |
| I27.0 – I27.2 I27.81 – I27.89 I27.9 | Other pulmonary heart diseases |
| I30.0 – I30.9 | Acute pericarditis |
| I31.0 – I32 | Other diseases of pericardium |
| I32.0 – I31.9 I32 | Acute and subacute endocarditis |
| I33.0 | Acute and subacute infective endocarditis |
| I33.9 | Acute and subacute endocarditis |
| I34.0 – I34.9 | Nonrheumatic mitral valve disorders |
| I36.0 – I36.9 | Nonrheumatic tricuspid valve disorders |
| I37.0 – I37.9 | Nonrheumatic pulmonary valve disorders |
| I39 | Endocarditis and heart valve disorders in diseases classified elsewhere |
| I40.0 – I40.9 | Acute myocarditis |
| I41 | Myocarditis in diseases classified elsewhere |
| I42.0 – I42.9 | Cardiomyopathy |
| I43 | Cardiomyopathy in diseases classified elsewhere |
| I50.1 – I50.9 | Rheumatic mitral valve diseases |
| I51.7 | Cardiomegaly |
| I51.81 | Takotsubo syndrome |
| I60.00 – I60.9 | Nontraumatic subarachnoid hemorrhage |
| I97.0 I97.110 – I97.111 I97.120 – I97.121 I97.130 – I97.131 I97.190 – I97.191 | Intraoperative and postprocedural complications and disorders of circulatory system, not elsewhere classified |
| J81.0 | Acute pulmonary edema |
| J95.84 | Transfusion-related acute lung injury (TRALI) |
| R06.00 – R06.09 | Dyspnea |
| T86.20 – T86.23 T86.290 – T86.298 | Complications of heart transplant |
| T86.30 – T86.39 | Complications of heart-lung transplant |
| Z45.010 – Z45.018 | Encounter for checking and testing of cardiac pacemaker |
| Z94.1 | Heart transplant status |

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| Z95.0 | Presence of cardiac pacemaker |
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REIMBURSEMENT INFORMATION:

Refer to [POSITION STATEMENT](#).

PROGRAM EXCEPTIONS:

Federal Employee Program (FEP): Follow FEP guidelines.

State Account Organization (SAO): Follow SAO guidelines.

Medicare Advantage products: The following National Coverage Determination (NCD) was reviewed on the last guideline reviewed date: Cardiac Output Monitoring by Thoracic Electrical Bioimpedance (TEB) (20.16) located at cms.gov.

If this Medical Coverage Guideline contains a step therapy requirement, in compliance with Florida law 627.42393, members or providers may request a step therapy protocol exemption to this requirement if based on medical necessity. The process for requesting a protocol exemption can be found at [Coverage Protocol Exemption Request](#).

DEFINITIONS:

Bioimpedance: the electrical resistance of tissue to the flow of current.

Cardiac output: equals the stroke volume multiplied by the heart rate.

Inotropic therapy: cardiotoxic; increases the tonicity of the heart using various drugs (i.e., digitalis).

Plethysmography: recording of the changing of the size of a part as modified by the circulation of the blood in it.

RELATED GUIDELINES:

None applicable.

OTHER:

None applicable.

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COMMITTEE APPROVAL:

This Medical Coverage Guideline (MCG) was approved by the Florida Blue Medical Policy and Coverage Committee on 07/25/24.

GUIDELINE UPDATE INFORMATION:

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| 02/15/00 | New Medical Coverage Guideline. |
| 01/01/02 | HCPCS Coding changes. |
| 02/15/03 | Reviewed; no changes. |
| 03/15/04 | Annual review. References updated. MCG name changed to Thoracic Electrical Bioimpedance (TEB). Changes to coverage criteria. MCG changed to Active but no longer scheduled for routine review. |
| 05/15/08 | Review and revision of guideline consisting of references. |
| 06/15/09 | Scheduled review; no change in position statement. |
| 01/01/10 | Annual HCPCS coding update: revise description for CPT 93701. |
| 10/15/10 | Revision; related ICD-10 codes added. |
| 06/15/11 | Scheduled review; Position Statement unchanged; references updated. |
| 01/01/12 | Annual HCPCS coding update: reference to CPT codes 93720, 93721, and 93722 replaced with new code 94726. |
| 05/15/14 | Revision; Program Exceptions section updated. |
| 10/01/15 | Revision; updated ICD9 and ICD10 coding section. |
| 11/01/15 | Revision: ICD-9 Codes deleted. |
| 03/15/19 | Scheduled review. Revised description, position statement, Medicare program exception, and index terms. Updated references. |
| 11/15/20 | Scheduled review. Revised description, maintained position statement, and updated references. |
| 08/15/22 | Scheduled review. Maintained position statement and updated references. |
| 05/22/23 | Update to Program Exceptions section. |
| 08/15/24 | Scheduled review. Maintained position statement and updated references. |

