Thoracic Electrical Bioimpedance Cardiac Output Monitoring

Policy Number: HS-106

Original Effective Date: 5/22/2009

APPLICATION STATEMENT

The application of the Clinical Coverage Guideline is subject to the benefit determinations set forth by the Centers for Medicare and Medicaid Services (CMS) National and Local Coverage Determinations and state-specific Medicaid mandates, if any.

DISCLAIMER

The Clinical Coverage Guideline (CCG) is intended to supplement certain standard WellCare benefit plans. The terms of a member’s particular Benefit Plan, Evidence of Coverage, Certificate of Coverage, etc., may differ significantly from this Coverage Position. For example, a member’s benefit plan may contain specific exclusions related to the topic addressed in this CCG. When a conflict exists between the two documents, the Member’s Benefit Plan always supersedes the information contained in the CCG. Additionally, CCGs relate exclusively to the administration of health benefit plans and are NOT recommendations for treatment, nor should they be used as treatment guidelines. The application of the CCG is subject to the benefit determinations set forth by the Centers for Medicare and Medicaid Services (CMS) National and Local Coverage Determinations and state-specific Medicaid mandates, if any. All links are current at time of approval by the Medical Policy Committee (MPC). Lines of business (LOB) are subject to change without notice; current LOBs can be found at www.wellcare.com – select the Provider tab, then “Tools” and “Clinical Guidelines”.

BACKGROUND

Transthoracic electric bioimpedance (TEB), also called plethysmography or impedance cardiography (ICG), has been investigated as a noninvasive method for the measurement of cardiac output. Bioimpedance is performed by applying a small electrical current to the chest, and through electrodes placed on the neck and sides. The pulsatile flow of blood causes fluctuations in the current, and the device calculates cardiac output from the impedance waveform. Changes in the impedance of the transthoracic electric current are measured electronically, processed by a computer to calculate blood flow, and displayed in real time. The computer software typically displays cardiac
data collected over the preceding seconds or minutes, which allows continuous monitoring of alterations in heart rate, cardiac output, and other cardiovascular functions.

The principal advantages of electrical bioimpedance for measurement of cardiac output are that it allows continuous monitoring and is noninvasive, without the small but definite risk associated with catheterization during thermodilution catheterization (TDC). Compared with bioimpedance cardiography, catheterization takes longer to initiate and it requires more highly skilled personnel. Cardiac output measurements are often important in critical situations, such as in hospital emergency rooms and intensive care units, where the difference in time to start bioimpedance monitoring offers a significant advantage over TDC.

**POSITION STATEMENT**

**Applicable To:**
- Medicaid
- Medicare

**Exclusions**

TEB is considered NOT medically necessary and NOT a covered benefit for members:

1. With proven or suspected disease involving severe regurgitation of the aorta; OR,
2. With minute ventilation (MV) sensor function pacemakers, since the device may adversely affect the functioning of that type of pacemaker; OR,
3. During cardiac bypass surgery; OR,
4. In the management of all forms of hypertension

**Coverage**

Thoracic Electrical Bioimpedance (TEB) for cardiac output monitoring is considered medically necessary in the following circumstances:

1. Differentiation of cardiogenic from pulmonary causes of acute dyspnea when medical history, physical examination, and standard assessment tools provide insufficient information, and the treating physician has determined that TEB hemodynamic data are necessary for appropriate management of the member; OR,
2. Optimization of atrioventricular (A/V) interval for members with A/V sequential cardiac pacemakers when medical history, physical examination, and standard assessment tools provide insufficient information, and the treating physician has determined that TEB hemodynamic data are necessary for appropriate management of the member; OR,
3. Monitoring of continuous inotropic therapy for members with terminal congestive heart failure, when those members have chosen to die with comfort at home, or for members waiting at home for a heart transplant; OR,
4. Evaluation for rejection in members with a heart transplant as a predetermined alternative to a myocardial biopsy. Medical necessity must be documented should a biopsy be performed after TEB; OR,
5. Optimization of fluid management in members with congestive heart failure when medical history, physical examination, and standard assessment tools provide insufficient information, and the treating physician has determined that TEB hemodynamic data are necessary for appropriate management of the member.

**CODING**

**Covered CPT® Code**
93701  Bio-impedance, thoracic, electrical

**HCPCS® Code** – No applicable codes.
ICD-10-PCS (Inpatient Only)
Refer to the following ICD-10-PCS tables for specific code assignment based on physician documentation.

NOTE: Per ICD-10-PCS Coding Guidelines, "ICD-10-PCS codes are composed of seven characters. Each character is an axis of classification that specifies information about the procedure performed. Within a defined code range, a character specifies the same type of information in that axis of classification. " One of 34 possible values can be assigned to each axis of classification in the seven-character code".

4A0 Measurement & Monitoring; Physiological Systems; Measurement

Covered ICD-10-CM Diagnosis Codes
I09.81 Rheumatic heart failure (code also type of heart failure)
I50.20-I50.9 Heart failure
R06.3 Other respiratory abnormalities
R06.00 Dyspnea, unspecified
R06.09 Other forms of dyspnea
T86.20-T86.39 Heart transplant rejection
Z45.010 Encounter for checking and testing of cardiac pacemaker pulse generator [battery]
Z45.018 Encounter for adjustment and management of other part of cardiac pacemaker
Z48.21 Encounter for aftercare following heart transplant
Z48.280 Encounter for aftercare following heart-lung transplant
Z94.1 Heart transplant status
Z94.3 Heart and lungs transplant status
Z95.0 Presence of cardiac pacemaker

Non-Covered ICD-10-CM Diagnosis Codes
I10 Essential (primary) hypertension
I35.0 – I35.9 Nonrheumatic aortic valve disorders
Q23.1 Congenital insufficiency of aortic valve


REFERENCES

MEDICAL POLICY COMMITTEE HISTORY AND REVISIONS

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