

**HACKETTSTOWN REGIONAL MEDICAL CENTER
CARDIO PULMONARY POLICY MANUAL
BIO Z-ICG-IMPEDANCE CARDIOGRAPHY**

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Effective Date: June 2010
Cross Referenced:
Reviewed Date: 02/16
Revised Date: 12/12

Policy No: 8B.010
Origin: Cardio Pulmonary
Authority: Cardio/Pulmonary Manager
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Purpose:

1. To provide a mobile solution for noninvasive hemodynamic monitoring anywhere in the hospital setting.
2. Establish baseline to aid initial assessment and diagnosis.
3. Identify and institute targeted treatment.
4. Determine responsiveness to treatment.
5. Monitor and optimize drug titration.
 - a. diuretics
 - b. volume expanders
 - c. vasodialators
 - d. inotropes
6. Determine stability for transfer to lower acuity or discharge.

Procedure:

1. Patient prep and sensor placement
 - a. Place patient in supine position.
 - b. Locate, clean and dry sensor sites.
 - c. Attach four (4) dual sensors to patient.
 - d. Use the root of the neck as a reference for vertically locating the rectangular shaped detecting sensor with the corresponding circular shaped transmitting sensor being positioned directly superior and inline with the ear lobe. Use the xiphoid process as a reference for vertically locating the rectangular shaped detecting sensor with the corresponding circular shaped transmitting sensor being positioned directly inferior and along the mid-axillary line.
 - e. Identify left and right branches of the patient cables (with respect to the patient) and connect the respective leads in the following orders: blue, purple, green and orange.
 - f. If automatic blood pressure cuff will be used, place the cuff on the patient's arm with the lower edge of the cuff approximately one (1) inch above the bend of the elbow.
 - g. Verify a secure patient cable connecting the BioZ.com.
2. System Operation
 - a. Verify BioZ.com is connected to an electrical outlet or is battery-charged. If using an external keyboard or printer, connect to the appropriate port on rear panel. (Note: You must have these connections secure prior to turning on the device.)
 - b. Turn the power switch (located on back panel) to the "on" position. It will take approximately one (1) minute to load the program. (Note: The "soft keys" are beneath the monitoring screen and the "hard keys" are to the right of the monitoring screen. The F1 through F5 keys on the keyboard correspond to the five soft keys.)
 - c. When presented with the Welcome Screen, press START MONITOR soft key.
 - d. If monitoring a patient for the first time, use the keypad or keyboard to enter patient data directly into the data fields. Press the up and down arrow soft keys to scroll through the fields. When all required fields have been entered, highlight the START MONITORING line. Press START MONITOR soft key.
 - e. If re-monitoring a patient, pres STORED PATIENT INFO soft key and use the up and down arrow soft keys to scroll through the patient records to select desired patient. To append data to the existing patient file, press ADD TO FILE soft key.

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- f. To create a new data file for the patient, press NEW FILE soft key. Press START MONITOR or the up arrow soft key to make changes. If manual entry is selected for the BP method, enter a current BP. The system will display the Monitoring Screen. After a short delay, patient parameters will be displayed.
 - g. Press PREVIOUS SCREEN or NEXT SCREEN hard keys to scroll through each screen.
 - h. Press TAKE NEW BP soft key to update BP, manually or with the automatic BP cuff.
 - i. To print while monitoring, make sure printer is on and connected to printer port located on rear panel of the BioZ.com. Press PRINT hard key. Select the report type soft key and follow instructions displayed on the screen to print the report.
 - j. When finished monitoring, press STOP MONITORING hard key.
 - k. Disconnect patient cable from sensors. Remove sensors from patient.
3. Signal Status Indicators
- a. The BioZ.com uses an auto gain feature to ensure the best possible ECG signal. The more consistent the amplitude of the ECG signals, the better the quality of the ECG signal. (Note: The ECG Status Indicator is not an indication of ECGT detection and/or acceptance for a given heart beat.)
 - b. Impedance Signal Status Indicator
 1. The BioZ.com only processes impedance waveforms that meet acceptance criteria. The higher the number of acceptable beats, the better the quality of the impedance signal. (Note: The impedance signal status is not an indication of the accuracy of the values displayed.)
 - c. Battery Status Indicator- (Note: Full capacity is defined as thirty (30) minutes of continuous operation on battery power.)
4. Troubleshooting
- a. If you experience a problem receiving an acceptable ECG or impedance waveform, perform the following: (Note: The following items are not required to be performed in sequence.)
 1. Verify that the sensor placement is correct and that each sensor is attached securely to the skin.
 2. Change the ECG Vector by pressing CHANGE ECG VECTOR soft key. Wait at least twenty-five (25) seconds. If signal strength has not increased, select another ECG vector.
 3. Verify that the patient cable is attached to the BioZ.com, the right and left cable branches are correct, and the sensors are placed properly as per instructions in Section 1 of this policy.
 - b. If you need additional assistance, call CardioDynamics Technical Service at 800-778-4824/858-535-2020, extension 3. Please have the model and serial number (located on the back of the device) available when you make the call. In an after hours emergency, you may page an on-call Technical Service Representative at 800-545-5449.
5. Reviewing/Printing from Patient File
- a. From the Welcome Screen, press REVIEW RECORDS soft key.
 - b. To scroll through the patient records, use the NEXT SCREEN or PREVIOUS SCREEN hard keys, up and down arrow soft keys. Press Enter hard key to access the file.
 - c. Press VIEW RECORD soft key to display the patient data sets.
 - d. Use NEXT SCREEN or PREVIOUS SCREEN hard keys, up and down arrow soft keys, MORE, and BACK soft keys to scroll through patient data sets.

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- e. To view screen displays of the record, press ENTER hard key. Press PREVIOUS SCREEN or NEXT SCREEN hard keys to scroll through each screen as desired.
 - f. To print, confirm the printer is turned on and connected to the printer port on the back panel of the BioZ.com. Press PRINT hard key. Select the report type soft key and follow the onscreen instructions to print the report.
 - g. Press EXIT soft key and use the onscreen soft keys to direct your next step.
6. Precautions
- a. Signal interference caused by other equipment may occur if cables and/or power cords of the BioZ.com and other equipment cross each other. Conditions that may limit the accuracy of data are listed below:
 - 1. Severe aortic valve regurgitation.
 - 2. Patient heights measuring below 48 inches (120 cm) or above 90 inches (230 cm).
 - 3. Patient weights measuring below 67 pounds (30 kg) or greater than 341 pounds (155 kg).
7. Intended Use/Indications
- a. The BioZ.com allow for assessment of a patient's hemodynamic status and ventricular function by determining 12 hemodynamic parameters.
 - b. Heart rate must be greater than 40 bpm and less than 250 bpm.
 - c. The BioZ.com is designed for use with an adult in a resting position.
 - d. For hygienic purposes, single use patient sensors are specified when using device.
8. Contraindications
- a. The BioZ.com should not be used concurrently on patients with Minute Ventilation Pacemakers when the MV function is activated.