Using a patient’s electrocardiographic (ECG) waveform for device positioning is not new. Neither are overcomplicated ways of delivering that capability to a clinician. With all of the challenges posed to a vascular access specialist during a procedure, obtaining and interpreting ECG waveforms shouldn’t be one.

Achieve catheter placements using the Celerity® PICC Tip Confirmation System, indicated for use as an alternative method to chest x-ray or fluoroscopy confirmation of PICC tip placement in adult patients.

INS Standards of Practice 2011: 35.8 “Tip location of CVAD shall be determined radiographically or by other approved technologies prior to initiation of infusion therapy.”

P-WAVE CORRELATES TO CATHETER PROXIMITY

Figure 1 No evident P-wave changes indicates a catheter is not in an acceptable position.
Figure 2 A P-wave at its maximum height will indicate the catheter is in the lower 1/3 of superior vena cava/ right atrial junction.
Figure 3 A downward deflection on the leading edge of the P-wave indicates the catheter entering the right atrium.
Figure 4 A biphasic P-wave indicates the catheter is within the right atrium.
Figure 5 An inverted P-wave indicates a catheter is approaching the right ventricle.

GUIDELINES REGARDING CATHETER TIP LOCATION

<table>
<thead>
<tr>
<th>Organization</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Association for Vascular Access (1998)</td>
<td>Lower one-third of the superior vena cava (SVC) near its junction with the right atrium.</td>
</tr>
<tr>
<td>Infusion Nurses Society (2011)</td>
<td>Central venous access devices (CVAD) shall have the tip dwelling within the SVC near its junction with the right atrium.</td>
</tr>
</tbody>
</table>

LIMITATIONS

In general, devices that utilize ECG technique to observe P-wave are limited, but not contraindicated for patients where cardiac rhythms may change presentation of the P-wave, including:
- Atrial fibrillation
- Atrial flutter
- Severe tachycardia
- Pacemaker-driven rhythm
- Chronic obstructive pulmonary disorder (COPD)

Such patients are easily identified prior to PICC insertion. Use of an additional confirmation method is necessary to confirm catheter tip location.

IMPORTANT RISK INFORMATION

CELEBRITY PICC TIP CONFIRMATION SYSTEM

Refer to instructions provided with product for all contraindications, warnings and potential complications.

INDICATIONS FOR USE: The Celerity System is intended to provide real-time tip location information of a central venous catheter by utilization of ECG to observe P-wave changes as the tip approaches the right atrium of the heart via the superior vena cava.

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CAUTION: Federal Law (USA) restricts this device to sale by or on the order of a physician.

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