

OneStep Pacing

Transthoracic (External) pacing has been a standard resuscitation therapy for more than 20 years.¹ While used frequently, the individual clinician's exposure in using the therapy is often very low. As a result, errors in application are common. One frequent oversight involves forgetting to attach ECG leads to the patient.

ECG monitoring is required for external pacing. It gives one the ability to see the heart's intrinsic rhythm, determine electrical capture, and control pacer rate. Conventional defibrillator/pacemakers require separate ECG leads, as the residual energy from the pacing pulse would obscure the ECG detected by a standard hands-free electrode.

ZOLL® OneStep™ Pacing

The R Series™ defibrillator introduces ZOLL's exclusive OneStep pacing system. The OneStep Pacing and OneStep Complete Pads eliminate the need for a separate ECG cable by incorporating ECG electrodes into the anterior pad. The triangular-shaped anterior pad (Figure 1) incorporates a circular multifunction therapy electrode in the middle and three ECG electrodes at the end of each triangle axis. The therapy portion emits the pacing pulse, while the ECG electrodes acquire electrical signals from the heart and function as the monitoring element.



Figure 1: OneStep Pacing Anterior Pad (Therapy Surface Shown)

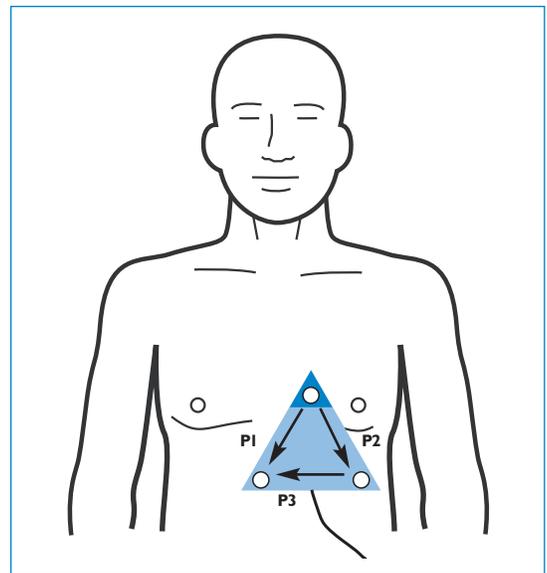


Figure 2: Position of Anterior OneStep Pacing Pad showing modified ECG vectors.

Different ECG Vectors

Movement of the ECG electrodes from the limbs to the anterior defibrillator pad changes the ECG vector (leads). When the OneStep Pacing and OneStep Complete Pads are used, the R Series will display and print the lead labels as P1, P2, and P3. Though different in orientation (Figure 2), these modified leads are sufficient to differentiate between atrial and ventricular rhythms, and discriminate between capture and non-captured rhythms. When pacing is selected, the R Series will default to the P3 lead. Operators have the ability to change leads or adjust gain (size) in order to get the best possible view. If standard leads are required, one can apply a separate cable with conventional ECG electrodes to view Standard Leads I, II, III.

1. Standards and guidelines for cardiopulmonary resuscitation (CPR) and emergency cardiac care (ECC). JAMA. 1986;255:2905-2984.

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Electrode Application

OneStep Pacing requires the use of the Anterior/Posterior placement scheme. Illustrations on the pads will guide you to the proper locations for each. Prepare each site as you would for standard electrodes by clipping excessive hair and ensuring the skin is dry.

Air pockets caught between the electrode and skin will reduce both the monitoring and therapeutic effectiveness of the OneStep pads. Minimize the potential for air pockets by rolling the pads onto the patient (Figure 3). Place the lower portion of the pad against the patient and roll towards the top while firmly wiping across the electrode to ensure optimal skin coupling.

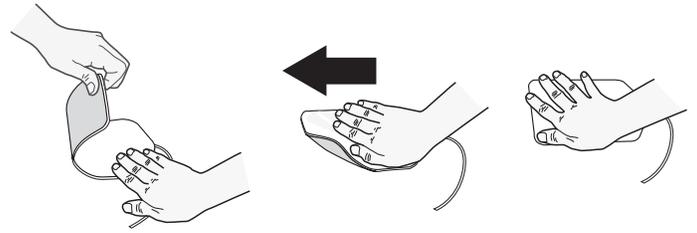
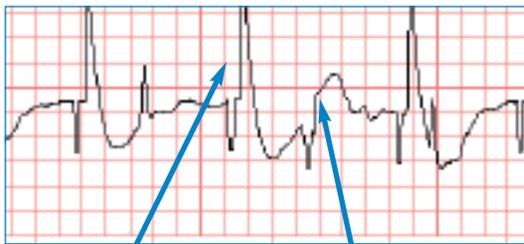


Figure 3: Roll the OneStep Pad into place to avoid air pockets

Determining Capture

Determining capture with the OneStep System is the same as with standard leads. Mechanical capture must be confirmed by taking a pulse on a femoral or right radial artery. Avoid assessing the pulse in the carotid and left radial arteries, because muscular contractions from the pacing pulse may cause misinterpretation. Electrical capture will be represented by large widened complexes at the selected pacing rate, and the absence of the intrinsic rhythm.

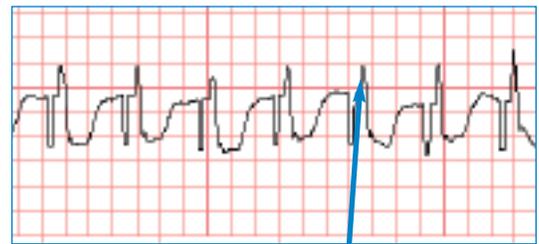
Stimulated Rhythm (Non-Captured)



Artifact

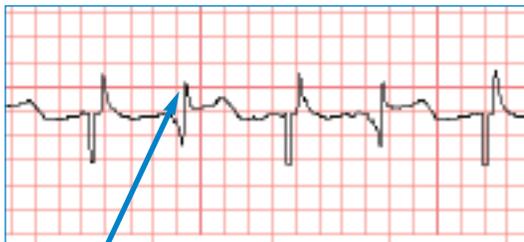
Intrinsic Rhythm

Stimulated Rhythm (Captured)



Widened QRS Complex Associated with each Pacing Stimulus

Stimulated Rhythm (Intermittent Capture)



Intrinsic Rhythm

Stimulated Rhythm (Captured)



Widened QRS Complex Associated with each Pacing Stimulus

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