 <p>CLINICAL PRACTICE GUIDELINE</p>	Practice Guideline: ECG (Electrocardiogram) Electrode Placement: Staple Method	
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	Approval By: Professional Advisory Committee Standards Committee	Supercedes: <i>N/A</i>

1. PURPOSE AND INTENT:

- 1.1. To obtain a cardiac rhythm tracing on a patient where conventional methods such as disposable adhesive electrode buttons are not effective or contraindicated (e.g. major burns)

2. BACKGROUND

- 2.1. The placement of traditional adhesive electrodes can be difficult in major burns or burn surgery due to lack of adequate intact skin or the desired placement is within the operative site. Alternative ECG monitoring using surgical staples and alligator clips is a readily adaptable method to obtain cardiac rhythm tracing where conventional electrode buttons are not effective or contraindicated.

3. GUIDELINES


- 3.1. Staple method is used to monitor cardiac rhythm upon written order of a physician for burn patients.

4. COMPONENTS

- 4.1. Staple gun (conductive, single use)
- 4.2. Alligator clips (metal)
- 4.3. Cardiac monitor
- 4.4. ECG cables
- 4.5. Local anesthetic (optional)

5. PROCEDURE

- 5.1. Perform hand hygiene before direct patient contact and subsequently as indicated. Don appropriate personal protective equipment (PPE) based on the patient's need for isolation precautions.
- 5.2. Turn on cardiac monitor and ensure ECG cable is connected.
- 5.3. Assist physician in the placement of staples to the chest wall or limbs if necessary. Refer to Clinical Practice Guideline [Cardiac Monitoring \(Adults\): Setup, Lead Placement, ST-Segment Monitoring and Alarm Management](#) for location for staple placement. **NOTE:** Local anesthetic is not used in an emergency, as injection time delays arrhythmia recognition and possible treatment.

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- 5.4. Attach the button end of the alligator clips to the ECG cable. Clip the alligator ends to the staples on the chest or limbs.



- 5.5. Assess cardiac rhythm tracing. Set ECG alarm limits based on patient condition and ensure they are enabled at all times.
- 5.6. Change surgical staples if no longer attached to the skin or discontinue when ECG monitoring no longer required.
- 5.7. Send alligator clips to medical device processing when ECG monitoring is no longer required.

6. DOCUMENTATION:

- 6.1. Refer to Clinical Practice Guideline [Cardiac Monitoring \(Adults\): Setup, Lead Placement, ST-Segment Monitoring and Alarm Management](#) for cardiac monitoring documentation guidelines.
- 6.2. Presence of surgical staples and assessment of surrounding skin in the Integrated Progress Note (IPN) or Unit Specific Nursing Documentation Tool every shift and as need with staple replacement.
- 6.3. Cardiac rhythm, heart rate, frequency and type of ectopic, and ST segments on the Intensive Care Flowsheet or Unit Specific Nursing Documentation Tool.
- 6.4. Mount and analyze an ECG rhythm strip on admission, at the beginning of every shift and as needed with significant rhythm changes on the ECG Rhythm Strip Record Sheet.

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7. REFERENCES:

- 7.1. Ravindran, R. S. (1997). A solution to monitoring the electrocardiograph in patients with extensive burn injury. *Anesthesiology*. 87(3), 711-712.
- 7.2. Sharar, S. R., & Olivar, O. (2020). Anesthesia for burn patients. In N. A. Nussmeier (Ed.), *UpToDate*. Retrieved from June 16, 2020, from https://www.uptodate.com/contents/anesthesia-for-burn-patients?search=extensive%20burn%20monitoring&source=search_result&selectedTitle=6~150&usage_type=default&display_rank=6.
- 7.3. Sofos S. S., Tehrani H., Shokrollahi K., & James M. I. (2013). Surgical staple as a transcutaneous transducer for ECG electrodes in burnt skin: Safe surgical monitoring in major burns. *Burns*. 39(4),818-819. <https://doi:10.1016/j.burns.2012.07.029>

8. RESOURCES:

- 8.1. [Clinical Practice Guideline Cardiac Monitoring \(Adults\): Setup, Lead Placement, ST-Segment Monitoring and Alarm Management](#)
- 8.2. [ST-Segment Learning Package – Clinical Conditions for ST-Segment Monitoring](#)