

# Guideline for electrosurgical safety.

Guideline ID: 2112

Published: 2020 Jul 29

## Association of periOperative Registered Nurses (AORN)

*Burlingame BL, Kyle E. Guideline for electrosurgical safety. In: 2021 guidelines for perioperative practice. Denver (CO): Association of periOperative Registered Nurses (AORN); 2020 Jul 29. p. 83-108. [158 references]*

[View Original Guideline](#)

## Overview

### Guideline Objective

To provide guidance to the perioperative team for the safe use of electrosurgical units (ESUs), electrocautery devices, and argon-enhanced coagulators (AECs)

### Patient Population

Any patient undergoing operative or other invasive procedures

## Recommendations

### Recommendation Statements

**Note:** The original guideline provides guidance to the perioperative team for the safe use of electrosurgical units (ESUs), electrocautery devices, and argon-enhanced coagulators.

The following subjects are outside the scope of this guideline: general fire safety; surgical smoke safety; selection of endoscopic distention fluid; procedure-related decisions (e.g., the amount of time the tissue is exposed to the active electrode); therapeutic diathermy; use of electrical dental equipment (e.g., battery-operated curing lights, ultrasonic baths, ultrasonic scalers, electric pulp testers, electric toothbrushes); and selection of electrosurgical devices. Refer to the AORN website [Guideline for Surgical Smoke Safety](#), [Guideline for Minimally Invasive Surgery](#), and [Guideline for a Safe Environment of Care](#).

Refer to the original guideline for additional recommendation statements.

## Injury Prevention

**1.1.** Assess the patient preoperatively for the presence of foreign bodies (e.g., implanted electromechanical device [IED], jewelry, prosthetic implants). **(Recommendation)**

## ESU Generator

**2.1.** Keep safety and warning alarms and activation indicators on the generator operational, audible, and visible at all times. **(Recommendation)**

## ESU Accessories

**3.1.** Use accessories that are compatible with the generator as specified in the manufacturers' instructions for use (IFU). **(Recommendation)**

## Minimally Invasive Surgery

**4.1.** Use conductive trocar systems when using electrosurgery during minimally invasive surgery. **(Recommendation)**

## Implanted Electronic Devices

**5.1.** When use of electrosurgery is possible for a patient with an IED, the anesthesia professional and the perioperative registered nurse (RN) should consult with the team managing the IED preoperatively to define interventions necessary for safe management of the device during the intraoperative and postoperative phases of care. **(Recommendation)**

**Note:** This recommendation or evidence is relevant to pediatric care.

# Argon-Enhanced Coagulation (AEC)

6.1. Follow all safety precautions for monopolar electrosurgery during use of AEC technology in addition to safety precautions described in the AEC manufacturer's IFU. **(Recommendation)**

## Education

7.1. Provide education and verify competency regarding precautions to be taken during use of an ESU, as applicable to the person's job responsibilities. **(Recommendation)**

**Note:** This recommendation or evidence is relevant to pediatric care.

## Evidence Rating Scheme

### AORN Hierarchy of Evidence

Research	I	<ul style="list-style-type: none"><li>• Systematic review – all studies randomized controlled trials (RCTs)</li><li>• RCT</li></ul>
	II	<ul style="list-style-type: none"><li>• Systematic review – all studies quasi-experimental or a combination of RCTs and quasi-experimental</li><li>• Quasi-experimental</li></ul>
	III	<ul style="list-style-type: none"><li>• Systematic review – all studies non-experimental or a combination of RCTs, quasi-experimental or a combination of RCTs and quasi-experimental and non-experimental; any or all studies qualitative</li><li>• Non-experimental</li><li>• Qualitative</li></ul>

<b>Non-research</b>	IV	<ul style="list-style-type: none"> <li>• Clinical practice guideline</li> <li>• Consensus or position statement</li> </ul>
	V	<ul style="list-style-type: none"> <li>• Literature review</li> <li>• Case reports</li> <li>• Expert opinion</li> <li>• Organizational experience</li> </ul>

## AORN Evidence Rating Model

	<b>High</b>	<b>Moderate</b>	<b>Low</b>
<b>Evidence Rating</b>	IA or IB IIA or IIB	IIIA or IIIB	IIIC, IIC, or IIC IVA, IVB, or IVC
	<ul style="list-style-type: none"> <li>• Wide range of studies with no major limitations</li> <li>• Little variation between studies</li> </ul>	<ul style="list-style-type: none"> <li>• Few studies and some have limitations but not major flaws</li> <li>• Some variation between studies</li> </ul>	<ul style="list-style-type: none"> <li>• Studies have major flaws or there are no rigorous studies</li> <li>• Important variation between studies</li> </ul>

## Recommendation Rating Scheme

### Recommendation Rating

## **Recommendation**

- Benefits clearly exceed harms
- Supported by high- to moderate-quality evidence
- May be based on low-quality evidence or expert opinion when
  - High-quality evidence is impossible to obtain
  - Supported by a guideline, position statement, or consensus statement

## **Conditional Recommendation**

- Benefits are likely to exceed harms
- May be supported by any level of evidence when
  - Indicated for a specific patient population or clinical situation
  - Impact of the intervention is difficult to separate from other simultaneously implemented interventions (e.g., "bundled" practices)
  - Benefit-harm assessment may change with further research or not be consistent
  - Benefit is most likely if used as a supplemental measure

## **No Recommendation**

- There is both a lack of evidence and an unclear balance between benefits and harms.

## **Implementation**

### **Regulatory Requirement**

- Perioperative team members "must" implement the recommendation in accordance with regulatory requirements.

## Recommendation

- Perioperative team members "should" implement the recommendation, unless a clear and compelling rationale for an alternative approach is present.

## Conditional Recommendation

- Perioperative team members "may" implement the recommendation.
- The degree of implementation may vary depending on the benefit-harm assessment for the specific setting.

## No Recommendation

- Perioperative team members will need to evaluate whether or not to implement the practice issue.

## Related Content

## Supporting Documents

- [AORN Guideline for Electrosurgical Safety Evidence Table; 2020.](#)
- [Guideline for Electrosurgical Safety Evidence Review and PRISMA.](#)
- [AORN Hierarchy of Evidence; 2015.](#)
- [AORN Non-research Evidence Appraisal Tool; 2015.](#)
- [AORN Research Evidence Appraisal Tool – Study; 2015.](#)
- [AORN Research Evidence Appraisal Tool – Summary; 2015.](#)
- [AORN Evidence Appraisal Companion Guide and Definitions.](#)

## Implementation Tools

- [Guideline Essentials.](#)

- [Clinical Resources](#).

## Patient Education

No patient education materials available.

### Disclaimer

If you desire to use content from the original clinical practice guideline cited herein, you must contact the guideline developer directly to obtain permission rights.

ECRI's Guideline Profiles are designed to provide information and assist decision-making. Variations in practice will inevitably, and appropriately, occur when clinicians take into account the needs and preferences of individual patients, available resources, and limitations unique to an institution or type of practice. Every healthcare professional using these Guideline Profiles is responsible for evaluating the appropriateness of applying them in a clinical setting.

# TRUST Scorecard

## Composition of Guideline Development Group (GDG)

Multidisciplinary GDG Members

Yes

Methodologist Involvement

Yes

Incorporation of Patient and Public Perspective



## Systematic Review of Evidence

Literature Search



Study Selection



Evidence Synthesis



## Foundations for Recommendations

Strength of Evidence Grade



Description of Benefits and Harms of Recommendations



Summary of Evidence Supporting Recommendations



Strength of Recommendations Rating



Clear Articulation of Recommendations



**Funding Source**

Yes

**Disclosure and Management of Financial Conflicts of Interests**



**External Review**



**Updating**

