



# Are Forced Air Warmers Safe to Use Outside of the OR, ED, PACU, and ICU?



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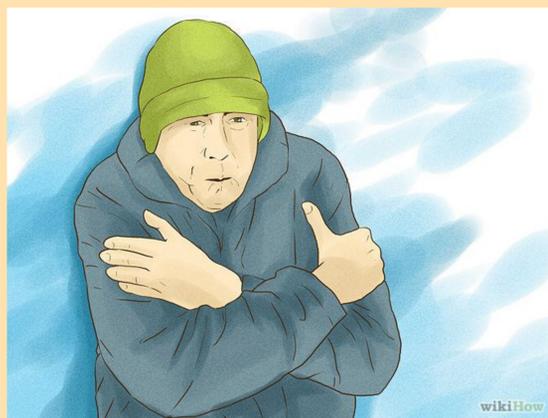


### CLINICAL SITUATION

A patient had an physician's order for a Bair Hugger (forced air warmer) to be placed due to hypothermia (T<35C) on an inpatient unit. The nurse working with the patient was unfamiliar with the use of a Bair Hugger. In an effort to practice within safety guidelines the nurse looked for a policy for Bair Hugger use. A hospital policy was not found. The operating manual for the device was found which stated to follow hospital policy for the use of the device.

### PURPOSE

The purpose of this project was to develop a policy for the use of forced air warmers on patients on inpatient units (outside the operating room, ED, ICU, and PACU).



### METHODS

A literature search was conducted of PubMed using the keywords

- ⊙ Forced air warmer
- ⊙ Rewarming
- ⊙ Hypothermia
- ⊙ Complications

Search text used was "Rewarming"[Mesh] AND #"Hypothermia/ complications"[Mesh]#

### SEARCH RESULTS

- The search revealed 73 articles.
- All articles were set in intensive care settings: operating room, intensive care unit, and emergency department.
- Patients with accidental cold exposure needing rewarming are cared for in ED or ICU settings.
- According to the Bair Hugger manufacturer, there are over 170 published clinical studies that support forced air warmer use to maintain normothermia *during surgery*.

**No research was found to support using forced air warming in inpatient settings. The units discussed in the research were OR, PACU, ICU, and ED.**

### REWARMING COMPLICATIONS

- Hypotension: from vasodilation
- Burns: cold, vasoconstricted skin is susceptible to burns
- Hypovolemia
- Increased intracranial pressure
- Hyperaggregation of platelets
- Arrhythmias

### STAGES OF HYPOTHERMIA: CLINICAL FEATURES

MILD Body Temperature: 32.2C-35C	MODERATE Body Temperature: 28C- 32.2C	SEVERE Body Temperature: <28C
<ul style="list-style-type: none"> <li>• Initial phase to combat cold</li> <li>• Hypertension</li> <li>• Shivering</li> <li>• Tachycardia</li> <li>• Tachypnea</li> <li>• Vasoconstriction</li> <li>• After time and fatigue</li> <li>• Ataxia</li> <li>• Hypovolemia</li> <li>• Impaired judgment</li> </ul>	<ul style="list-style-type: none"> <li>• Atrial dysrhythmias</li> <li>• Decreased heart rate</li> <li>• Decreased level of consciousness</li> <li>• Decreased respiratory rate</li> <li>• Dilated pupils</li> <li>• Diminished gag reflex</li> <li>• Extinction on shivering</li> <li>• Hypotension</li> <li>• J wave</li> <li>• Hyporeflexia</li> </ul>	<ul style="list-style-type: none"> <li>• Apnea</li> <li>• Coma</li> <li>• Nonreactive pupils</li> <li>• Oliguria</li> <li>• Pulmonary edema</li> <li>• Ventricular dysrhythmias/ asystole</li> <li>• Decreased or no activity on EEG</li> </ul>

### RECOMMENDED CARDIAC CARE

Continuous EKG monitoring both during and after rewarming

Monitor for:

- ⊙ Atrial dysrhythmias (most common a-fib)
- ⊙ Atropine resistant bradycardia

### DISCUSSION

There was a lack of research about the safety and use of forced air warmers outside of the settings of the OR, PACU, ED, and ICU.

The sources and complications of hypothermia are serious and need to be explored for each patient with hypothermia.

### RECOMMENDATIONS

Because no research was found discussing the use of forced air warmers in non-OR, PACU or ED settings, we recommended stopping the use of forced air warmers on inpatient units. We additionally recommended that sources of hypothermia need to be explored. The recommendations were passed by our nursing leadership and Critical Care Committees, and our hospital-wide shared governance Practice Council is developing a hospital-wide policy.

### REFERENCES

- Beattie, S. (2006). In From the Cold. RN, 69(11), 22-28.
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- Schubert, A. (1995). Side Effects of Mild Hypothermia. Journal of Neurosurgical Anesthesiology, 7(2), 139-147.

*Additional References Available Upon Request*