

3M Science.
Applied to Life.™

Trust in science.

Clinical evidence is critical in
every decision you make.



Claims vs. Facts

As the most utilized patient warming system in the country, the safety and efficacy of the 3M™ Bair Hugger™ system has been studied far more than any other warming modality – resulting in a wealth of clinical research that not only demonstrates its safety and effectiveness, but also reinforces its reputation as the best-in-class system for patient warming.

3M believes that clinical evidence is critical in every decision you make, but understands it's not always easy to separate misleading data from clinically backed science. Below, please find information that helps clarify erroneous claims about the Bair Hugger system.

For a comprehensive summary of the published research involving the Bair Hugger system, please view the [3M™ Bair Hugger™ System Research Compendium](#).

CLAIM:

Air-flow paths of 3M™ Bair Hugger™ units are contaminated with bacteria.

FACT:

- Studies performed on patients in real surgical settings found that forced-air warming does not contaminate the sterile field or increase bacterial counts.^{i,ii,iii}
- Tests demonstrate that airflow from the Bair Hugger system has no significant effect on operating room airflow.^{v,vi,vii} [VIEW VIDEO](#)
- The downward stream of laminar air flow effectively reduces particle concentrations around the operative site, regardless of whether forced-air warming (FAW) is in use.^{viii}

CLAIM:

Waste hot air convection currents transport contaminated air into the surgical site.

FACT:

- When tested in actual surgical conditions, research shows that FAW does not increase the bacterial count at the surgical site and may decrease it.^{ix,x,xi}
- The Bair Hugger system does not create “waste hot air convection currents.” The warm air released through the perforations of the Bair Hugger blanket quickly dissipates when it mixes into the cooler operating room air and does not continue to rise.
- The air released from the perforations in the Bair Hugger blanket is isolated from the surgical site by the surgical drape, the anesthesia curtain, and taping of the Bair Hugger blanket.

CLAIM:

One facility demonstrated 74% reduction in deep joint infections after switching from forced-air warming to conductive electric warming.

FACT:

- In a guidance article examining claims of a link between FAW and surgical site infections (SSIs), the ECRI Institute stated that the study in question “has serious limitations such that its findings on PJI rates cannot be considered conclusive.”^{xii} [READ ARTICLE](#)
- The authors acknowledged that “This study does not establish a causal basis for this association...the data are observational and may be confounded by other infection control measures instituted by the hospital.”^{xiii}
- One study author revealed an additional eight significant changes that were made as part of a facility-wide SSI reduction effort that was not disclosed in the study.^{xiv}
- Test conditions were not well controlled between historical and test periods. Importantly, changes were made to the antibiotic and thromboprophylaxis protocols used during the study.^{xv}

CLAIM:

An International Orthopedic Consensus (ICC) Statement declares, “We recognize the theoretical risk posed by forced-air warming blankets.”

FACT:

• The findings of the International Orthopedic Consensus Meeting on Periprosthetic Joint Infection in 2013 conference have been misrepresented. With 89 percent consensus among voting members (6% abstained from voting), the ICC statement reads: “We recognize the theoretical risk posed by FAW blankets and that no studies have shown an increase in SSI related to the use of these devices.”^{xvi} [VIEW VIDEO](#) [READ ICC REPORT](#)

CLAIM:

The ECRI Institute released guidance that the convection currents created by forced-air warming were “especially concerning” during orthopedic implant surgery.

FACT:

• In 2013, the ECRI Institute systematically examined more than 180 published studies and found insufficient evidence to establish that the use of FAW systems leads to an increase in SSIs compared to other warming methods.^{xvii}
 • After learning that this claim was being widely propagated, ECRI added the following editor’s note to the article: “ECRI Institute states that it did not participate in or approve of the above-mentioned materials, and warns that they should not be construed as representing our opinion or judgment.”^{xviii} [READ ARTICLE](#)

References

- i. Huang JK, Shah EF, Vinodkumar N, Hegarty MA, Greatorex RA. The Bair Hugger patient warming system in prolonged vascular surgery: an infection risk? *Crit Care*. Jun 2003;7(3):R13-16.
- ii. Zink RS, I aizzo PA. Convective warming therapy does not increase the risk of wound contamination in the operating room. *Anesth Analg*. Jan 1993;76(1):50-53.
- iii. Moretti B, Larocca AM, Napoli C, et al. Active warming systems to maintain perioperative normothermia in hip replacement surgery: a therapeutic aid or a vector of infection? *J. Hosp. Infect*. Sep 2009;73(1):58-63.
- v. Sharp RJ, et al. Do warming blankets increase bacterial counts in the operating field in a laminar-flow theatre? *J Bone Joint Sur B*2002;84-B:486–8.
- vi. Sessler DI, Olmsted RN, Kuelpmann R. Forced-Air Warming Does Not Worsen Air Quality in Laminar Flow Operating Rooms. *Anesth Analg*. 113 (6): 1416-1421. 2011.
- vii. Memarzadeh F, Active warming systems to maintain perioperative normothermia in hip replacement surgery. *J Hosp Infect*. 2010; doi:10.1016/j.jhin.2010.02.006.
- viii. Memarzadeh F, Active warming systems to maintain perioperative normothermia in hip replacement surgery. *J Hosp Infect*. 2010; doi:10.1016/j.jhin.2010.02.006.
- ix. Huang JK, Shah EF, Vinodkumar N, Hegarty MA, Greatorex RA. The Bair Hugger patient warming system in prolonged vascular surgery: an infection risk? *Crit Care*. Jun 2003;7(3):R13-16.
- x. Zink RS, I aizzo PA. Convective warming therapy does not increase the risk of wound contamination in the operating room. *Anesth Analg*. Jan 1993;76(1):50-53.
- xi. Moretti B, Larocca AM, Napoli C, et al. Active warming systems to maintain perioperative normothermia in hip replacement surgery: a therapeutic aid or a vector of infection? *J. Hosp. Infect*. Sep 2009;73(1):58-63.
- xii. ECRI Institute. Forced-air Warming and Surgical Site Infections. *Health Devices Journal* April 2013.
- xiii. McGovern et al. Forced-air warming and ultra-clean ventilation do not mix. *J Bone Joint Sur-Br*. 2011;93(11):1537-1544.
- xiv. *Clinical Services Journal*, Nov. 2011.
- xv. McGovern et al. Forced-air warming and ultra-clean ventilation do not mix. *J Bone Joint Sur-Br*. 2011;93(11):1537-1544.
- xvi. Parvizi J, Gehrke T. Proceedings of the International Consensus Meeting on Periprosthetic Joint Infection: Final Report. www.msis-na.org/internationalconsensus. Accessed May 7, 2015.
- xvii. ECRI Institute. Forced-air Warming and Surgical Site Infections. *Health Devices Journal* April 2013.
- xviii. ECRI Institute. Forced-air Warming and Surgical Site Infections. *Health Devices Journal* April 2013.

