

A MESSAGE TO HEALTHCARE PROFESSIONALS

SCIENCE, GUIDELINES AND USERS AGREE: FORCED-AIR WARMING IS TECHNOLOGY YOU CAN TRUST

Forced-air warming is a clinically proven and trusted patient warming technology with 135 million patients warmed worldwide, a wealth of clinical research (including more than 170 published papers) and multiple international recommendations supporting its use. The evidence behind forced-air warming's safety and efficacy is overwhelming¹⁻⁶ and in more than 20 years of use, there has never been a report of a surgical site infection being linked to FAW therapy. Despite this, some manufacturers of electric blankets, pads and other conductive warming modalities are attempting to generate fears about the safety of forced-air warming. One has even claimed that the country's most widely used method of surgical warming may be contributing to surgical site infections (SSIs) by "blowing air" around the operating room, or disrupting laminar air flow.

Setting the Record Straight

Quality initiatives, including the Institute for Healthcare Improvement (IHI) and the Surgical Care Improvement Project (SCIP), and professional organizations such as the Association of PeriOperative Registered Nurses (AORN), the American Society of Anesthesiologists (ASA), the American Society of Peri-Anesthesia Nurses (ASPAN) and the Association for Professionals in Infection Control and Epidemiology (APIC) all note the important role of normothermia maintenance in SSI reduction.⁷⁻¹² Forced-air warming is specifically called out as a key means of maintaining normothermia.

Overseas, the UK's National Institute for Health and Clinical Excellence (NICE) extensively reviewed the science regarding forced-air warming and other warming modalities during the development of its Clinical Guideline 65: Management of inadvertent perioperative hypothermia in adults. After thorough consideration, this guideline cites forced-air warming as a proven tool for the reduction of SSIs,¹³ stating, "forced-air warming systems are naturally built to eliminate bacteria. Similarly, forced-air warming systems if properly used by following the manufacturer's instructions could prevent clinicians from causing any harm or injury to their patients."¹³

Published research papers show that the use of forced-air warming does not increase either the risk of wound contamination in the operating room or bacterial contamination of operating room.¹⁴⁻¹⁸ Research published in the September 2009 issue of the Journal of Hospital Infection found that warming with the forced-air warming system during orthopedic surgery does not present an infection risk.¹⁷ In fact, when tested during actual surgical conditions, data show a decrease in the bacterial counts around the patient and in the operating room when forced-air warming was used.^{16,17}

Rely on Evidence and Experience

Maintaining normothermia with forced-air warming has been demonstrated to reduce costly and serious complications associated with inadvertent hypothermia, including SSIs. The evidence is solid.

Companies offering conductive warming products have also recently made statements regarding forced-air warming's performance in laminar flow conditions. While simple logic makes it clear that forced-air warming has no impact on laminar conditions, science also supports this. A forced-air warming blanket delivers less than one percent of the airflow of a laminar flow system and therefore is unable to affect laminar flow ventilation systems. This is supported by the results of rigorous testing in actual laminar conditions which shows that forced-air warming does not diminish the protective effect of laminar flow.¹⁹

Lastly, a paper generated by associates of a conductive warming company suggests that forced-air warming filters may not meet certain standards of efficiency.²⁰ In fact, there are no filter efficiency standards for forced-air warming devices; however, IOB warming units come equipped with high efficiency 0.2-micron filters which, when used in laminar ORs, filter the already-filtered airflow. Additionally, most forced-air blankets are not designed to be sterile, nor do they enter the sterile field. Like most non-sterile OR equipment, random swabs are likely to identify the presence of microbes. The presence of microbes, however, does not mean they will become entrained in the air, particularly when a forced-air blanket is attached. The recent paper by the conductive company actually shows no correlation between particle counts and colony forming unit (CFU) counts, despite attempting to infer such a relationship.²⁰

When used properly and as intended, the filtered air flowing from a warming unit is gently and evenly dispersed throughout the attached warming blanket, which is isolated from the surgical site by an adhesive strip on the blanket and surgical barrier drapes. Lastly, because IOB warming blankets are single use, they cannot transmit infection from one patient to another.