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Perspective

## Surgery site infections are not prevented by orthopedic operating room laminar airflow ventilation systems

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### Statistics

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### Abstract

Technologies that use Laminar Airflow (LAF) reduce pathogenic microorganisms to improve air quality and reduce Surgical Site Infections (SSIs). In certain clinical studies, LAF reduces SSIs, but not in others. The effectiveness of laminar airflow ventilation in lowering SSIs from orthopaedic surgery is examined in this study. According to the current meta-analysis, Surgical Site Infections (SSIs), airborne bacterial counts, or SSIs occurring in orthopaedic operating rooms do not significantly decrease as a result of the installation of LAF systems. As a result, it has been discovered that installing this technology in operating rooms is both costly and ineffective.

Keywords: Laminar Airflow (LAF) technologies, surgical site infections

## INTRODUCTION

Even though their goals differ, surgical operations in the fields of ophthalmology, brain, heart, and orthopaedics are often performed nowadays. The damaged tissues, organs, and obstructions are repaired, removed, and repositioned. Direct intraoperative trauma, perioperative infections, hematoma formation, and postoperative infection all increase the risk of surgery. Most surgical site infections are brought on by the microorganisms *Staphylococcus*, *Streptococcus*, and *Pseudomonas*. These infections, which can damage the skin, tissues, organs, or biomaterial introduced after surgery, can be moderate or severe. Shivering, fever, a rapid heartbeat, shortness of breath, confusion, severe pain, and disorientation are all symptoms of infections. If ignored, these symptoms might be lethal. Thus, among the 250 million operations

performed worldwide, death is 0.4% and morbidity is 3–17%. Therefore, the operating room must be sterile to avoid these diseases from compromising patients' health after surgery. Scrub suits, clean air suits, sterile dressings, and a laminar airflow ventilation system (LAF) can all be used to do this. An ultraclean zone is created surrounding the operating site by LAF using filtering equipment. Because their microbial sedimentation plates create a constant flow of microorganism-free air that enhances air quality by lowering infectious microorganisms, LAF systems are helpful for maintaining sterile conditions in the operating room. James et al. discovered that LAF theaters minimize the number of germs in operating room air in their review article. Liu et al. discovered that LAF systems reduce Surgical Site Infections (SSIs) by eradicating airborne pathogens in their systematic review and meta-analysis.