

**Title: The Impact of Active Surveillance on Compliance with Normothermia and Antimicrobial Prophylaxis Timing in surgery**

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**Statement of Implication:** Combining educational reinforcement with an active surveillance can improve anaesthesiologists' compliance to best practice guidelines for antibiotic administration and prevention of hypothermia during laparotomies.

**Purpose:** Appropriate preoperative antimicrobial prophylaxis timing (0-60 minutes prior to skin incision), and perioperative maintenance of normothermia ( $\geq 36.0^{\circ}\text{C}$ ) are vital to prevent surgical site infections (SSIs). As both remain the most common challenges in best practice adherence, we wanted to determine the impact of active surveillance on compliance by anaesthesiologists.

**Methods:** Patients undergoing elective colorectal and hepatobiliary surgery were sequentially allocated to one of four phases (2 months each). We used educational reinforcement regarding best practices guidelines, and a technique known as active surveillance to determine compliance to guidelines. Active surveillance is the awareness of observational presence in the operating room by anaesthesiologists. The phases of this

study were: 0 (baseline); 1 (educational reinforcement); 2 (educational reinforcement with active surveillance by observer 1); and 3 (active surveillance with 1 month time lag after Phase 2, without further educational reinforcement).

**Results:** The rates of normothermia in phases 0-3 were 39.40%, 61.40%, 83.0%, and 53.1%, respectively ( $p < 0.001$ ). The rate of appropriate antimicrobial prophylaxis were 88.40%, 77.10%, 84.60%, and 87.50%, respectively ( $P = 0.488$ ). The rate at which both factors were met simultaneously in phases 0-3 were 36.40%, 44.30%, 71.70%, and 43.80%, respectively ( $P = 0.001$ ).

**Conclusion:** Active surveillance is an important tool which can be used with educational reinforcement, to gain compliance with best practices guidelines. A form of reinforcement is needed to change the cultures of practice, and has to be done for a longer period of time to avoid transient practice changes.