Assessing the Impact of Visible, Germicidal Light (Indigo-Clean) on Intraoperative Bacterial Transmission via OR PathTrac Analysis
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Problem: Intraoperative Bacterial Transmission

Literature Review: Intraoperative bacterial transmission causes surgical site infection.\(^1\) Visible, disinfecting, ambient lighting (Indigo-Clean, Kenosha, WI 53144) reduces operating room environmental contamination.\(^2\)

Hypothesis: Disinfecting lights will reduce intraoperative bacterial transmission.

Conceptual Framework: Environmental contamination is a potent transmission vehicle.

Methodology: Transmission of Staphylococcus was measured using OR PathTrac methodology (Fig.1.) among 35 observational units ( 22 units without lights and 13 units with lights).

Data Analysis: Comparisons were made via the Wilcoxon rank-sum test stratified by specialty, with exact P-values calculated.

Results:
Ambient, disinfecting lights reduced transmission of coagulase-negative staphylococci (P=0.0005) and may have reduced transmission of S. aureus isolates (P=0.062).

Conclusions: Use of disinfecting ambient lighting in the operating room reduced the spread of coagulase-negative staphylococci and may reduce the intraoperative spread of S. aureus.

Perioperative Nursing Implications: This is an important finding given that; 1) intraoperative bacterial transmission has been repeatedly associated with healthcare-associated infections and increased patient mortality \(^1,3,4\) and 2) These findings support the previously reported decrease in surgical site infections via use of this lighting technology.\(^5\)

Fig. 1. OR PathTrac Analysis of Intraoperative Bacterial Transmission

References:
1. Loftus et al. JAMA Open 2020, in press.