

TITLE: Gloving technique and intraoperative bacterial contamination

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## INTRODUCTION

Surgical site infections threaten all surgical procedures; there is currently a national initiative to decrease surgical site infections. Surgical team members' gloves are in direct contact with the surgical instruments and the surgical wound. The objective of this study is to determine whether certain glove donning techniques affect the rate of intraoperative bacterial contamination.

## METHODS

We observed the gloving technique of OR personnel for clean, non-contaminated, elective surgical cases. Surgical team members followed standardized scrubbing procedures and their glove donning technique was recorded. A closed gloving method involves keeping the hand completely inside the gown cuff while donning the glove. With an open gloving method the fingers or entire hand extend beyond the gown cuff while glove donning. We also recorded whether the subject gloved themselves or were gloved by the scrub staff. Cultures of the gloved palm and gown sleeve were taken before the case began using D/E Neutralizing Rodac agar plates. The plates were incubated for 48 hours at 37°C and checked for the presence of bacteria.

## RESULTS

We found that scrub staff assisted gloving using a closed technique resulted in significantly less bacterial contamination (2/173, 1.1%) than scrub staff assisted gloving using an open technique (40/504, 7.9%,  $p \leq 0.004$ ). The closed assisted gloving technique also had significantly less contamination than that observed with a closed self gloving technique (26/303, 8.5%,  $p < 0.003$ ).

## DISCUSSION and CONCLUSION

A closed scrub staff assisted gloving technique should be employed by as many members of the operating team as possible. Open gloving should be avoided. Efforts to minimize the contamination rates observed with the self gloving technique seem prudent. Although the closed technique is slightly more difficult to perform, it appears to significantly reduce intraoperative bacterial contamination and may reduce the incidence of perioperative infections.