

**Appendix 2c: Studies related to changing of gloves vs. retaining gloves - bacterial contamination as primary outcome\***

Author, year, reference	Country/ study period	Type of study/ Setting	Intervention	Comparator	Primary Outcome-	Results	Limitations
Ward 2014 (13)	USA Not specified	RCT <b>Clean orthopaedic surgery (n=251)</b>	Exchange of outer pair of gloves one hour into surgery (n=143).	No change of gloves (n=108).	<b>Bacterial contamination</b> of gloves (presence of bacterial CFUs vs. absence).	Positive glove contamination rate of 23% for surgeons retaining outer gloves one hour into surgery.  Positive glove contamination rate of 13% among surgeons exchanging their outer gloves.  <b>OR: 1.97; (95% CI: 1.02–3.80); P=0,04</b>	Study period unknown. Randomization method unknown. Blinding unknown. Allocation concealment unknown. No clear inclusion and exclusion criteria. No <i>a priori</i> sample size calculation.
Al Maiyah 2005 (7)	United Kingdom Not specified	RCT: randomization by pre-prepared sealed envelopes.  <b>Primary total hip arthroplasty (n=50)</b>	Change of outer gloves after draping, either at 20-minute intervals or immediately before cementation if this occurred before the end of a 20-minute interval. In addition, gloves were changed whenever a visible puncture was detected. (n=25).	Change of outer gloves after draping and before cementation of the components. In addition, gloves were changed whenever a visible puncture was detected. (n=25).	<b>Bacterial contamination</b> of gloves.	4.8% in the intervention group.  13.9% in the control group.  Significant difference reported by authors only.	Study period unknown. Blinding unknown. No <i>a priori</i> sample size calculation.

Author, year, reference		Country/ study period	Type of study/ Setting	Intervention	Comparator	Primary Outcome-	Results	Limitations
Zdanowski 2000 (14)		Sweden Unknown period	RCT  <b>Implantation of vascular graft (n=40)</b>	Change of gloves before contact with graft (n=20).	No change of gloves before contact with graft (n=20).	The growth of all bacterial species from graft segments and gloves was recorded.  Secondary outcome reported: superficial SSI Group 1:2/20 Group 2:5/20  <i>P</i> <0.02	Group “change of gloves” before contact with graft: 10% no growth, 70% with one bacterial species, 20% with ≥2 bacterial species. Group “no change of gloves” before contact with graft: 5% no growth, 50% with one bacterial species, 45% with ≥2 bacterial species. <b>(<i>P</i>=0.04)</b>	Study period unknown. Randomization unknown. Blinding unknown. Allocation concealment unknown. No clear inclusion and exclusion criteria. No <i>a priori</i> sample size calculation.

\*One RCT also reported on SSI.

SSI: surgical site infection; RCT: randomized control trial; CFUs: colony-forming units; OR: odds ratio; CI: confidence interval.