

Should we be prepping the foot? Stockinette use and drape contamination during hip arthroplasty.

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Background: Prosthetic joint infection is a catastrophic complication of joint arthroplasty and measures are therefore taken during surgery to optimize surgical field sterility. A frequent technique of preparing the operative field during hip arthroplasty utilises a sterile stockinette over an unprepped foot and lower leg. However, there is potential for airborne particle contamination from the foot to the surgical site with this technique. This study aims to assess the degree of surgical site contamination when draping for hip arthroplasty without disinfecting the foot and lower leg. The secondary aim is to assess whether wrapping the foot in a smaller drape prior to stockinette application helps to reduce contamination.

Methods: In this study, contamination during draping was assessed using UV fluorescent powder as a surrogate for microbial presence on the foot. Powder was applied to a healthy volunteer's foot to the level where antiseptic wash would routinely stop. The leg was then draped by two surgeons according to three different methods and each trial repeated five times: directly with stockinette only as per the manufacturer's guidelines, wrapping the foot without using a sticky seal followed by stockinette, and wrapping the foot first with use of the sticky seal followed by stockinette. UV light was then used to assess proximal spread of the powder after draping and the location of the spread.

Results: Contamination of the sterile field was found with all methods of draping. Spread was particularly noted in the groin region, posterior to the thigh and on the drapes distal to mid-thigh. Wrapping the foot in a small drape without using the sticky seal prior to stockinette application was associated with significantly greater contamination when compared with use of the sticky seal ($p=0.04$).

Conclusion: The authors recommend routine formal prepping of the foot during hip arthroplasty to reduce the risk of surgical site contamination. Surgeons who select not to prep the foot should make use of the sticky seal prior to stockinette application.