GAVIN PUBLISHERS

Journal of Orthopedic Research and Therapy

Hosseini P, et al. J Orthop Res Ther 2016: JORT-e101.

DOI: 10.29011/JORT-E101.000E01

Editorial Article

Do Surgeons Need to Rescrub During Long Operations?

Pooria Hosseini[1*],Behrooz A Akbarnia[2], Gregory Mundis[3], Robert Eastlack[3]

[*1]San Diego Spine Foundation, San Diego, CA 92121, USA

[2]President and founder of San Diego Spine Foundation, CA 92121, USA

[3]Co-director of San Diego Spine Foundation, CA 92121, USA

***Corresponding author:** Hosseini P, San Diego Spine Foundation, 6190 Cornerstone Ct; Ste 212, San Diego, CA, 92121, USA; Tel: +(858) 246-6305; E-mail: phosseini@sandiegospinefoundation.org.

Citation: Hosseini P, Akbarnia BA, Mundis G, Eastlack R(2016) Do surgeons need to rescrub during long operations? J Orthop Res Ther 2016: JORT-e101. DOI: 10.29011/JORT-E101.000E01

Received Date: 17 November, 2016; **Accepted Date:** 17 November, 2016; **Published Date:** 27 November, 2016

About 150 years ago, Ignaz Semmelweis proposed the practice of hand washing with chlorinated lime. Becauseof the common notion "Doctors are gentlemen, and gentlemen's hands are clean" at that time, Semmelweis' proposal was rejected by his peers. However, after the introduction of germ theory by Alexander Fleming, and the work of Joseph Lister, hand washing and antiseptic technique became standard practice, which markedly decreased infection rates. Many other advances have also led to decreased infection risk, including improved sterilization methods, alternative surgical techniques, controlled operating room ventilation, antimicrobial chemoprophylaxis. Despite these measures, Surgical Site Infections (SSI) remain a substantial cause of morbidity and mortality, and they result in enormous cost burden for our society [1-3]

Although we have assumed that surgeon contamination of surgical sites had been eliminated through the use of techniques popularized by Semmelweis, including hand washing and surgical gloving, we now know that surgeons can, in fact, be a source of surgical site contamination. Recently, SSI was demonstrated to have occurred as a result of scrubbed health care providers despite the use of standard preparatory technique[4].

On the basis of concerns raised by above-mentioned case reports, as well as the known concerns over recolonization of skin flora from pores of the skin after several hours from scrubbing[5], we felt that current techniques for surgical scrubbing may not address the risk posed by surgeon contamination during longer surgeries. In a study conducted by the authors it was proposed that there may in fact, be a recolonization of the skin after a certain period of time following a surgeon's scrubbing[5]. In this study,swab samples from surgeons' hands were collected and cultured at three time points: pre-wash, post wash, and after various length spinal procedures. Interestingly, cultures showed that there was recontamination under the gloves after longer operations, and there wasalso a linear correlation between the duration of operation and the level of recontamination. It was also shown that recontamination becomes detectable at approximately 4-5 hours of uninterrupted operating.

It is not clear that the surgeon's skin contamination that recurs after approximately 4 hours of operating leads to increased SSI, but the occurrence represents a risk factor that we do have control in mitigating. Based on these findings, the authors recommend that surgeons rescrub after 4 hoursof operating. A very large multicenter randomized controlled trial would be necessary to address the causa Tory link between surgeon hand recontamination and SSI rates, but until such time, we would recommend a change in practice pattern to 'RESCRUBBING'.

References

1. Beiner JM, Grauer J, Kwon BK, Vaccaro AR (2003) Postoperative wound infections of the spine. Neurosurgical focus 15:E14.

2. Best M, Neuhauser D (2004) Ignaz Semmelweis and the birth of infection control. Quality & safety in health care 13:23323-23324.

3. Garibaldi RA (1988) Prevention of intraoperative wound contamination with chlorhexidine shower and scrub. The Journal of hospital infection 11:5-9.

4. Mermel LA, McKay M, Dempsey J, Parenteau S (2003) Pseudomonas surgical-site infections linked to a healthcare worker with onychomycosis. Infection control and hospital epidemiology 24:749-752.

5. Hosseini P, Mundis GM Jr, Eastlack R, Nourian A, Pawelek J, et al. (2016) Do Longer Surgical Procedures Result in Greater Contamination of Surgeons' Hands? Clinical orthopaedics and related research 474:1707-1713.