

**P1131**

**Paper Poster Session**  
**Surgical site infection**

**What is the most effective surgical hand antisepsis technique for preventing surgical site infections? A systematic review**

Zeynep Kubilay<sup>1</sup>, Bassem Zayed<sup>2</sup>, Didier Pittet<sup>3</sup>, Joseph Solomkin<sup>4</sup>, Benedetta Allegranzi<sup>5</sup>

<sup>1</sup>*World Health Organization, Service Delivery Safety, Geneva, Switzerland*

<sup>2</sup>*World Health Organization, , Infection Prevention & Control, Service Delivery & Safety, Geneva, Switzerland*

<sup>3</sup>*Infection Control Programme and Who Collaborating Centre on Patient Safety, University of Geneva Hospitals and Faculty of Medicine, Geneva, Switzerland*

<sup>4</sup>*University of Cincinnati College of Medicine, Cincinnati, USA, Cincinnati, United States*

<sup>5</sup>*World Health Organization, Geneva, Switzerland*

**Background:** Surgical hand antisepsis (SHA) is considered a cornerstone for surgical site infection (SSI) prevention; however none of the current guidelines are based on systematic evaluation of the evidence. For the purpose of developing recommendations for the new World Health Organization (WHO) SSI prevention guidelines, a systematic literature review was conducted to investigate the effectiveness of surgical handrubbing with alcohol-based solutions compared to handscrubbing with either antimicrobial or plain soap in reducing SSI.

**Material/methods:** PubMed, EMBASE, CINAHL, Cochrane Central Register of Controlled Trials, and WHO Global Health were searched from 1990 to 24/04/2014 with restriction to papers in English, Spanish, and French. The Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology was used to assess the quality of the retrieved evidence

**Results:** Out of 1744 hits, only six papers with SSI as a primary outcome were identified, three of which were randomized control trials (RCTs) and three observational studies. Five studies comparing handrubbing with alcohol-based solutions to handscrubbing with antimicrobial soap containing either 4% povidone iodine or 4% chlorhexidine gluconate showed no significant difference in SSI. The same result was found in a cluster randomized cross over trial comparing handrubbing to handscrubbing with plain soap. Most of the studies showed better skin tolerability and acceptance by surgical teams for alcohol-based handrubbing compared to handscrubbing regardless of the product. Cost analysis conducted in four of these studies showed cost benefit of handrubbing compared to handscrubbing. No meta-analysis could be performed due to substantial heterogeneity in the concentration of products used and in the application time. In addition, 17 studies evaluating changes in colony forming units (CFUs) on participants' hands as the outcome were found but were excluded in the final evidence assessment due to high variability of the study setting, type of product, and time of sampling

**Conclusions:** Overall, moderate quality of evidence from three RCTs showed equivalence of handrubbing and handscrubbing in preventing SSI. Surgical teams preference for alcohol-based handrubs is attributable to higher tolerability and acceptability generally due to less time needed to prepare and fewer skin reactions. However, the overall evidence remains extremely limited and well designed RCTs comparing efficacy of products, technique and duration of SHA with SSI as the primary outcome are warranted.