Simplifying hand hygiene technique: three steps are as efficient as six – results from a randomized cross-over trial

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Introduction and Purpose

• The World Health Organization (WHO) provides guidance on the proper technique for the use of handrub consisting of six steps to ensure entire coverage of the hands (Figure 1).

• Several studies provide strong evidence for increased bacterial killing using this technique but compliance with all six steps is low.

• We therefore aimed to assess the efficacy of 3 steps outlining the technique for use of handrub as compared to the conventional six steps by comparing their respective degree of bacterial killing.

Methods

• Randomized cross-over trial including 32 medical students at the University Hospital Basel, Switzerland in May 2014.

• Participants were randomly assigned to performance of hand hygiene following six steps for use of hand rub (Figure 1) as outlined by the WHO (control group), or three steps (intervention group).

• The three steps consisted in first, covering all surfaces of the hands (based on own judgement), second rotational rubbing of fingertips in the palm of the alternate hand, and third, rotational rubbing of both thumbs.

• Assignments were reversed after one day.

• Three ml of the reference disinfectant, 2-propanol (60%), were used for both techniques.

Results

• The bacterial load did not differ significantly before performance of hand hygiene between the control (median 6.37, interquartile range [IQR] 6.19-6.54) and the intervention (median 6.34, IQR 6.17-6.60) group, p=0.513 (Figure 2).

• There was a trend towards lower bacterial counts after performance of hand hygiene in the intervention group (median 1.96, IQR 1.25-2.52) as compared to the control group (median 2.34, IQR 1.80-2.71), p=0.055 (Figure 3).

• The logarithmic reduction factor was higher in the intervention group (median 4.45, IQR 4.04-5.15 versus the control group (median 3.91, IQR 3.69-4.62, p=0.022; Figure 4).

Conclusions

• The WHO recommended 6 step technique can be safely reduced to a 3 step procedure, based on the strict requirements of the EN 1500.

• The simpler technique results in even higher antimicrobial killing, and focuses on finger tips and thumbs, areas that are commonly forgotten with the currently recommended 6 steps.

References
