

POSTER PRESENTATION

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# A novel method to determine the antiviral efficacy of hand rubs using murine norovirus (MNV) as surrogate of human norovirus

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## Introduction / objectives

So far there is no method available in Europe to determine the antiviral efficacy on contaminated hands. Aim was therefore to develop a method which resembles both contamination and hand treatment in clinical practice as closely as possible.

## Methods

Each fingerpad (8 fingers per 4 subjects) was contaminated by dipping for 15 s in 0.4 ml of MNV suspension + 10% stool suspension and allowed to dry. The virus titre on fingers was determined by shaking a plastic vial with 1 ml of sampling fluid for 20 s. Infectivity was determined by transferring 100 µl after dilution to 8 wells of a microtitre plate with 100 µl of RAW 264.7 cells. After 4 days cultures were assessed for cytopathic effects, the infective dose was calculated with the method of Spearman and Kärber. Hands were similar to EN 1500 either treated with 3 ml of a hand rub or with 3 ml of water of standard hardness using responsible application. Four hand rubs (based on ethanol 80%, 85% or 95%, or based on a combination of 30% propan-1-ol, 45% propan-2-ol and 0.2% mecetronium etilsulphate) and one hand gel (based on 85% ethanol) were evaluated.

## Results

Mean baseline viral titre was between 5.99 and 6.52. The ethanol-based products reduced the viral load by  $4.32 \pm 0.69$  (80% ethanol),  $4.59 \pm 0.36$  (85% ethanol, rinse),  $4.52 \pm 0.67$  (85% ethanol, gel) and  $4.44 \pm 1.07$  (95% ethanol) which were all significantly more effective

compared to the application of water (means between  $2.29 \pm 0.45$  and  $2.67 \pm 0.61$ ). The propanol-based hand rub was somewhat less effective ( $3.77 \pm 0.66$ ).

## Conclusion

The new method allows determining the efficacy of hand rubs against MNV. The contamination is clinically relevant, the application of a hand rub is done as in patient care, the negative control allows determining the reproducibility.

## Disclosure of interest

G. Kampf Employee of Bode Chemie GmbH, Hamburg, Germany, E. Steinmann Consultant for Mikrolab GmbH, Bremen, Germany, J. Steinmann Employee of Mikrolab GmbH, Bremen, Germany.

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