Antibacterial efficacy of locally made alcohol based hand rub and commonly available commercial hand rubs used in healthcare facilities in Uganda.

Tusabe Fred[1], Kasuswa Sophia[1] Ssegawa Alex[1], Businge Emmanuel[1] and Ampaire Lucas[2]

Abstract

Background

Use of hand sanitizers has become a cornerstone in clinical practice for the prevention of disease transmission between practitioners and patients. There are a number of hand sanitizers sold on the Ugandan market with labels on their package that claim that the hand sanitizer can kill 99.999% of germs and also there are Hospitals that embarked on the local production of Alcohol based hand sanitizer whose efficacy data is not locally available.

Objective: To evaluate antibacterial efficacy of locally made alcohol based hand sanitizer and commonly available commercial hand sanitizers used in Healthcare facilities (HCF) in Uganda.

Method:

This was an Invitro experimental laboratory-based study of two different brands of hand sanitizers (coded HS1-2) commonly used in HCF in Uganda, these were compared to a reference standard 60% Isopropyl alcohol. Efficacy was evaluated using standard organisms of *Klebsiella pneumoniae* American Type Culture Collection (ATCC 13883), *Escherichia coli* (ATCC 25922), *and S, aureus* (ATCC 25923) as per prEN 12054, a European standard method.

The logarithmic reduction factors (RF) were assessed at baseline and after treatment with each organism at different concentrations and log reductions then calculated.

Results; Both hand sanitizers studied showed $7\log_{10}$ CFU/mL reduction within 15 Seconds of contact time. Efficacy was independent of the alcohol concentration in each brand (Saraya 70% and Locally made 80% alcohol)

Conclusion: One hundred percent (100%) of the hand sanitizers used have efficacy that meets World Health Organization (WHO) standards that requires 5 $\log_{10}$ CFU/mL reduction of bacteria within 15 seconds of contact time. From this study we infer the use of the Locally made hand sanitizer and Saraya. The two hand sanitizers had broad antibacterial spectrum. However, there is need to evaluate efficacy and organoleptic properties using In vivo studies.

Keywords: Uganda, Hand sanitizer, Efficacy, Reduction factor, invitro study, antibacterial, alcohol.