Manual versus automated plate streaking of stool samples: a comparative evaluation using PREVI Isola®

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Background

A recent problem of many microbiology laboratories is the annually rising number of samples and requested analyses. Due to economic necessities the staff capacity is limited and in many labs is actually declining.

Results

To evaluate the sensitivity of the PREVI streaker serial dilutions of enteric pathogens (Salmonella, Shigella, Yersinia and Campylobacter) were spiked into fecal samples and plated with both methods. Colonies were counted after 24 and 48 hours.

The technical staff judged the quality of the automated streaking using criteria as morphology of colonies, number of isolated colonies per plate and their personal impression as superior, equal or inferior to the manual method. Each streaking was judged by 3 technicians independently.

In a retrospective analysis the detection rate of enteric pathogens in all stool samples plated manually between February and July 2009 (6 month) was compared to the findings in automated streaked fecal samples between August 2009 and January 2010.

Discussion

We investigated the use of the PREVI® Isola streaker in a comparative evaluation for the automated plating of fecal samples.

The recovery of plated enteric pathogens was comparable to manual methods. The streaker showed a high reliability and stability. We never detected any cross-contamination during different samples.

Surprisingly we found a 50% higher detection rate for Salmonella and a threefold rise in the Campylobacter frequency (0.2 to 0.7%). As we offer our diagnostic service mainly to a tertiary care hospital the demands for service under a strong pressure for cost containment.

A technology that allows automation of laborious tasks (like labeling, inoculation and streaking) will provide technicians with time to concentrate on higher-level activities.

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