Introduction

In order to obtain accurate diagnostic results it is very important to transport faecal samples in proper transport systems. Many intestinal bacteria are susceptible to desiccation and it is essential that the specimen does not dry. Also, low numbers of certain organisms may affect the recovery. Some pathogens require at least 0.5% NaCl, Salmonella and Shigella spp. may not survive pH changes in unbuffered stool as the temperature drops. Campylobacter may require a lower oxidation-reduction potential in the medium.

Objective

The aim of this study was to evaluate the Medical Wire & Equipment new liquid Fecal Transwab® system in maintaining the recovery of:

- Salmonella typhimurium
- Shigella flexneri
- Clostridium difficile
- Campylobacter jejuni

Fecal Transwab® system contains liquid Cary Blair inorganic medium which limits overgrowth of the many commensals in faecal specimens and allows good recoveries of enteric pathogens. The additional advantage of this transport swab is that it can be used in automated streaking systems.

Methods

- CLSI's M40-A describes methods for the evaluation of microbiological transport devices. For this study the method was modified by using a panel of enteric microorganisms to reflect the intended use of the device.
- Fecal Transwab® were inoculated in triplicate with 50μl of inoculum suspension of each bacteria strain then inserted back into the transport device.
- Swabs were incubated at room temperature and at 4°C for 0h, 24h and 48h (as required for CLSI standard M40-A).
- After the appropriate incubation period each swab was vortexed and serial dilutions were prepared from the liquid transport medium.
- Serial dilutions were inoculated onto the appropriate agar using spiral plater
- All plates were incubated at 37°C for 48h. After appropriate incubation, a quantitative count was performed using Acolyte counter.
Overnight broth
10-1
Dispense 50µl Serial dilutions
Spiral plating (50µl)
Acolyte counter
Swabs in triplicate
Quantitative growth

**Methods**

The recovery of *Salmonella typhimurium*

The recovery of *Shigella flexneri*

The recovery of *Clostridium difficile*

The results shown are for one batch. The experiments were repeated for two further batches, with results being consistent with those shown above.

**Conclusions**

Medical Wire & Equipment Fecal Transwab® is a transport device for faecal pathogens and consistently met CLSI M40-A based acceptance criteria for the survival of enteric pathogens without overgrowth for 48 hours. These included *Clostridium difficile*, a significant cause of healthcare acquired infections. Satisfactory recoveries were also recorded for representative isolates of *Salmonella typhimurium*, *Shigella flexneri*, and *Campylobacter jejuni*.

*Campylobacter jejuni* is notoriously fragile even in stool specimens, and this was reflected by results at ambient temperature for this experiment. Other studies (personal communications) have shown that recovery at ambient temperature is possible, but is very dependent on the condition of the organism at the start of the test. Further studies are underway to clarify this, but, as is the case with stool specimens, recovery under refrigerated conditions is within M40-A requirements.