**Comparison of the Copan ESwab System with Traditional Charcoal Swab in Stuarts Transport Medium**

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**Aim**
To compare the traditional system with charcoal swab in Stuarts medium with ESwab in Amies transport medium in a clinical setting in order to optimize the results of swab cultures from complicated wounds.

**Background**
The Copan ESwab is a new nylon-flocked swab designed to optimize specimen collection and to minimize entrapment of the specimen in combination with liquid Amies transport medium, Fig 1. The ESwab has met the CLSI criteria for maintenance of viability of aerobic bacteria stored in both room and refrigerated temperature and anaerobic bacteria stored at refrigerated temperature.

**Methods**
One hundred and sixty hospitalized patients and outpatients at The Copenhagen Wound Healing Center, Bispebjerg Hospital were included.

On clinical indication, each patient had swabs taken from leg or foot wounds with both a charcoal swab and an ESwab, from exactly the same part of the wound, Fig 2. The two swabs were placed in Stuarts medium and Amies medium, respectively and immediately transported at ambient temperature to the Department of Clinical Microbiology and cultured for aerobic and anaerobic bacteria.

Charcoal swabs in Stuarts medium were processed using standard routine procedures. From the ESwab/Amies medium all plates were inoculated with 30 microliter/plate in order to detect at least $10^3$ CFU/mL. The plates were incubated in aerobic and anaerobic atmosphere and red after 24h and 48h, respectively.

To compare the qualitative performance of the swabs the bacteria were divided into three groups, and the pathogens were further analyzed:
2. Potential pathogens (*Enterobacteriaceae*, *Enterococcus* spp., fungi)
3. Non-pathogens (Coagulase neg. staphylococci, Corynebacterium spp.).

**Results**
From 160 patients 196 paired sets of swabs were received.

One hundred and twenty eight sets had concordant culture results. In 68 sets, disagreement with one or more isolates was found. Sixtytwo isolates, of which 23 were pathogens, were exclusively isolated with the ESwab system, whereas 38 isolates, of which 24 were pathogens, were exclusively isolated from the charcoal swab system. Likewise, 24 potential pathogens were exclusively isolated with the ESwab system, whereas 14 potential pathogens were exclusively isolated from the charcoal swab system.

Anaerobes were isolated from 12 ESwabs compared to seven from the charcoal swabs.

**Table. Performance of the ESwab system versus charcoal swab in Stuarts medium.**

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</thead>
<tbody>
<tr>
<td>All bacteria isolates</td>
<td>259</td>
<td>62</td>
<td>38</td>
<td>35</td>
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<td>0.016</td>
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<td><em>S. aureus</em></td>
<td>68</td>
<td>9</td>
<td>16</td>
<td>103</td>
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<td>0.162</td>
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<td><em>Pseudomonas aeruginosa</em></td>
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<td>5</td>
<td>1</td>
<td>163</td>
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<td></td>
<td></td>
<td></td>
<td>0.013</td>
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<td>Haemolytic streptococci</td>
<td>14</td>
<td>2</td>
<td>4</td>
<td>176</td>
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<tr>
<td>Anaerobes</td>
<td>4</td>
<td>8</td>
<td>3</td>
<td>181</td>
<td></td>
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<td>0.132</td>
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**Conclusions**
In this study, the ESwab system was at least as good as the standard charcoal swab in Stuarts medium.

ESwabs were easy to handle in the clinical setting.

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