Hands-off! Using a Spray Application Delivery System to Impact Bacterial Contamination of Moisture Barriers

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Background:

The potential for bacterial contamination of tubes containing ointments and creams are well known. During incontinence care, large amounts of fecal bacteria can be spread to intact and impaired skin as well as to the caregiver's gloved hand. If the utmost attention to detail is not provided to, contamination of the moisture barrier tube tips and possibly, the barrier ointment or cream, may occur. The literature reports that caregivers associate spray formulations with reduced wound contamination.[1]

Project Purpose and Method:

To determine if environmental bacterial and cross-contamination is reduced with a touchless spray delivery of protective barriers (Spray)* versus traditional rub on, flip-top, tube packaged protective barriers (Tube)[†]. Ten tubes were cultured at the rim of the opening (Figure A) and compared to the cultures of the Spray nozzle (Figure B) prior to use and then after one week in clinical use. The body of each served as their own control (Figure C and Figure D).

Results:

Cultures show a quantifiable difference between Spray and Tube, suggesting that cross-contamination is reduced with Spray.

Conclusions:

While all medication delivery systems can be a potential source of bacterial cross-contamination, those with spray delivery systems help reduce reintroducing bacteria to the incontinent patient with actual or potential loss of the transepidermal barrier.

The rim at the opening of the Tube and Spray were cultured at Day 0 and Day 7

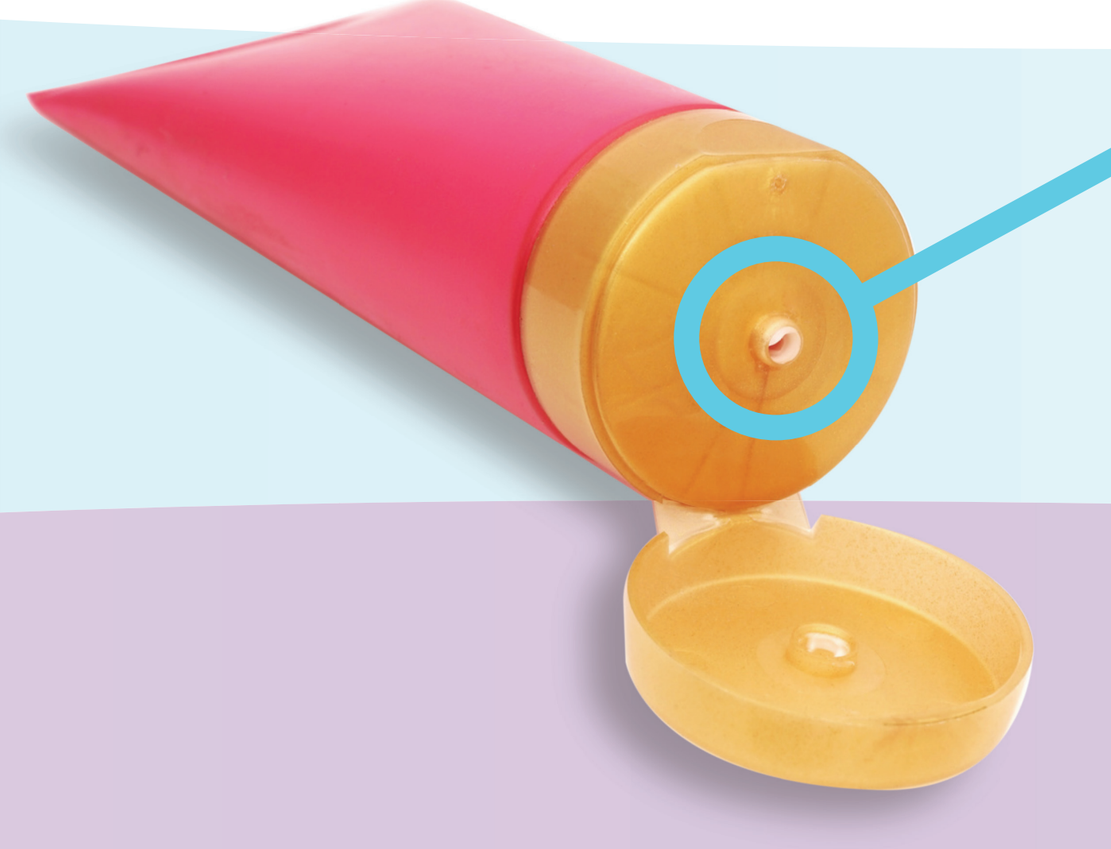


Figure A

Figure B

The Control was a culture of the body of the Tube and Spray at Day 0 and Day 7.

Figure C

Figure D

Results:

Day 0 culture results from the body (Control)

- Cultures from the outside of the Tube resulted in 3/10 positive cultures
- Cultures from the outside of the Spray bottle resulted in 2/10 positive cultures

Day 0 culture results from the nozzle and rim

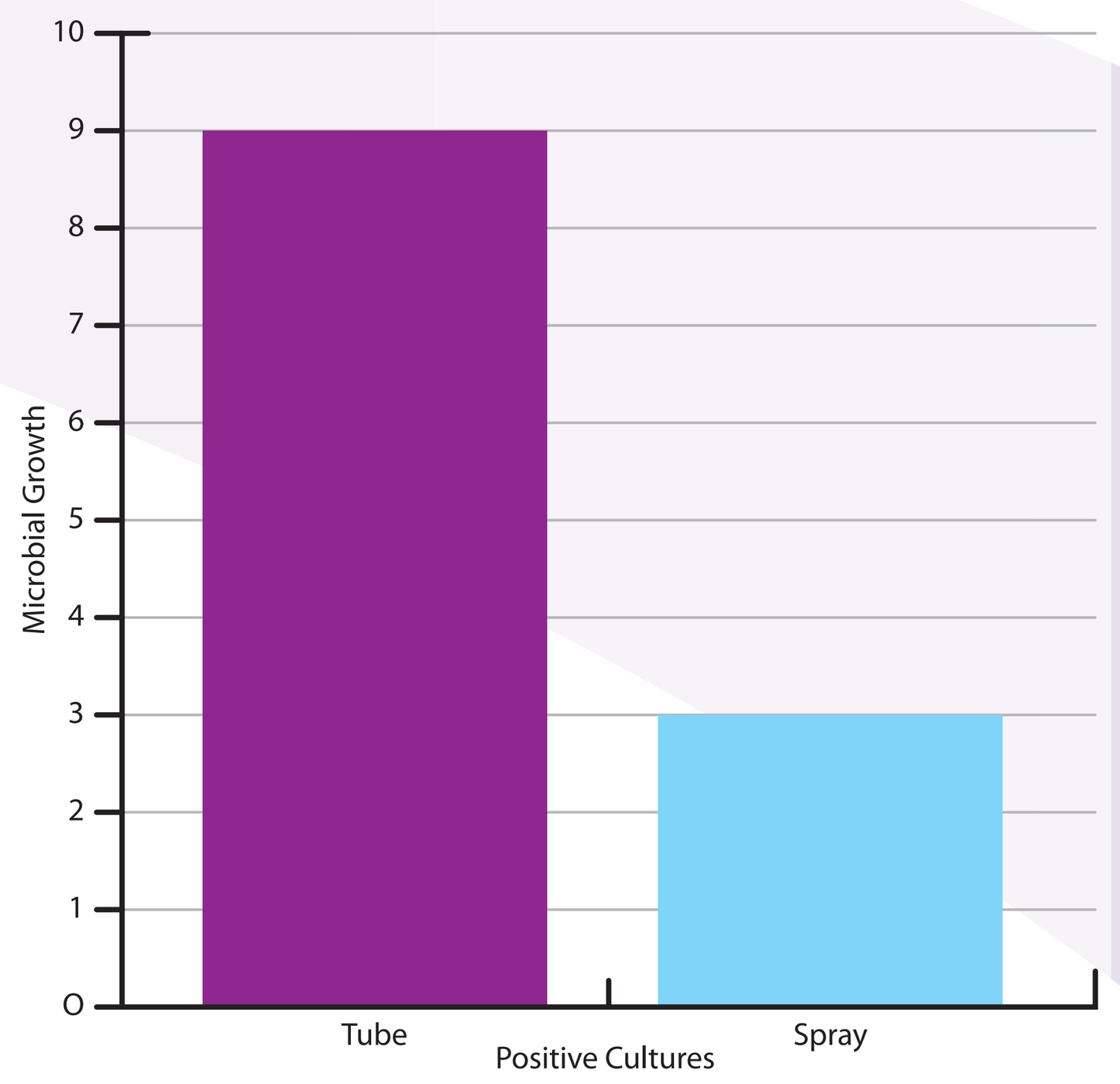
- Cultures from the area of dispensing of Tube resulted in 0/10
- Cultures from the area of dispensing of Spray resulted in 0/10

Day 7 culture results from the body

- 9/10 Tube yielded microbial growth
- 10/10 Spray yielded microbial growth

Day 7 culture results from the nozzle and rim

- 9/10 Tube were positive for microbial growth
  - 8 Different types of bacteria and yeast cultured
  - Resulted in significant contamination
- 3/10 Spray were positive for microbial growth
  - 3 Different species of bacteria and yeast
  - Reduced contamination versus Tube



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References
1. Weir, Dorothy; Farley, Kathleen L. Relative delivery efficiency and convenience of spray and ointment formulations of papain/urea/chlorophyllin enzymatic wound therapies. *JWOCN*. 2006;33(5):482-490.
*Touchless Care® Clear Protectant Spray is a registered trademark of Crawford Woundcare Ltd.
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