Letters to the Editor

Serratia marcescens Outbreak Associated With Extrinsic Contamination of 1% Chloroxylenol Soap

To the Editor:

In a recent article, Archibald et al[1] reported extrinsic contamination of a 1% chloroxylenol-containing soap product with *Serratia marcescens*. Over the years, a number of articles have appeared in the published literature reporting microbial contamination of antiseptic, antimicrobial, and disinfectant products containing a variety of active ingredients, including quaternary ammonium compounds, chlorhexidine, and triclosan. Archibald gives reference to some of these reports. The conclusion often drawn is that the active ingredients used in these products are not effective because the product is found to carry viable microbes. However, the problem could be more complex and involve a failure in product formulation stability and preservation. The primary function of some antimicrobial chemicals (ie, active ingredients) is to exert an immediate or residual antimicrobial effect on skin. In essence, the product is a delivery vehicle for the active ingredient. However, even though these active ingredients are antimicrobial, they are not designed to function as product preservatives. Wash products often contain a high percentage of water (up to 80% of the total formulation). Antimicrobial active ingredients such as triclosan and chloroxylenol are practically insoluble in water and are essentially hydrophobic. In the case of an aqueous product, a preservative (or preservative system) should be water soluble to be readily available to potential microbial contaminates residing in the aqueous phase. Cationic antimicrobials, such as quaternary ammonium compounds, can be partially or completely deactivated by natural soaps and certain classes of surfactants. Preservatives are a separate and distinct class of antimicrobial chemicals designed specifically to protect a product from microbes unintentionally introduced during manufacturing or use in the field.

In addition to an active ingredient, manufacturers of antimicrobial wash products must include an effective, persistent, stable, and broad-spectrum preservative system to resist contamination. Preservative efficacy should be confirmed by using standard challenge (and rechallenge) testing to verify that it works over the intended shelf-life of the product. It also is important that product dispensers be designed properly to minimize the introduction of microbes from outside the container, either from the users or the immediate environment.

REFERENCE

1. Archibald LK, Corl A, Shah B, Schulte M, Arduino MJ, Aguero S, et al. *Serratia marcescens* outbreak associated with extrinsic contamination of 1% chloroxylenol soap. *Infect Control Hosp Epidemiol* 1997;18:704-709.

Stephen Spainhour, BA
Ciba Specialty Chemicals
High Point, North Carolina

The authors reply.

We would like to thank Mr. Spainhour for his comments, which we think add to the general body of published knowledge on contamination of antiseptic, antimicrobial, and disinfectant products. The point is well taken that the problem could have involved a failure in product formulation, stability, or preservation. In our article, we did not imply that the active ingredient (1% chloroxylenol) was ineffective because the opened bottles of soap carried viable *Serratia marcescens,* nor did we envisage 1% chloroxylenol as a product preservative.

We agree that all formulations of antimicrobial wash products should contain an antimicrobial preservative and that there should be quality control checks to ensure efficacy of this preservative over the intended shelf-life of the product. Some manufacturers tend to treat the identities of the antimicrobials that are used as preservatives in their various formulations as a corporate secret. The 1% chloroxylenol soap preparation referred to in our article contains a polyquaternium disinfectant. It has been reported previously that *S marcescens* can survive in solutions with a polyquaternium for up to 72 hours.[1]

The teaching points in our article were essentially that (1) antimicrobial soaps can be responsible for the propagation of nosocomial pathogens in intensive-care units with high-risk patient populations; (2) personal bottles of soap, carried by healthcare workers, should not be used in intensive-care units; and (3) soap dispensers should be designed properly to minimize extrinsic contamination with nosocomial pathogens, and this could be achieved by using wall dispensers operated by foot-activated pumps.

REFERENCE

1. Parment PA. The role of *Serratia marcescens* in soft contact lens associated ocular infections. A review. *Acta Ophthalmol Scand* 1997;75:67-71.

Lennox K. Archibald, MD
Centers for Disease Control
and Prevention
Atlanta, Georgia
Bhavesh Shah, MD
Ann Corl, RN
Myrna Schulte, RN
Donna J. Fisher, MD
Barbara W. Stechenberg, MD
Baystate Medical Center
Springfield, Massachusetts
William R. Jarvis, MD
Centers for Disease Control
and Prevention
Atlanta, Georgia

A Cluster of Drug-Resistant *Streptococcus pneumoniae* Among Nursing Home Patients

To the Editor:

The New York City Department of Health (NYCDOH) noted that three clinical isolates of drug-resistant *Streptococcus pneumoniae* ([DRSP] two from blood and one from tracheal aspirate) had been reported from three residents of the same nursing home during September 15 to 25, 1996. All three residents had been transferred to the same hospital with acute pneumo-

https://doi.org/10.1017/S0195941700087981 Published online by Cambridge University Press