have been surprisingly slow to respond to this problem. New methods for the reduction of bacterial accumulation are needed, especially in old dental units, whereas state-of-the-art units have sterilizable water lines and flushing devices to obtain better water quality. In biomedical laboratories, cyclic acid-based washes are used to remove biofilms from plastic tubing.


## REFERENCES

1. Council Directive 80/778/EEC [European Economic Community] concerning the quality of drinking water intended for human consumption. July 15, 1980.
2. Martin MV. The significance of the bacterial contamination of dental unit water systems. *Br Dent J* 1987;163:152-154.
3. Williams JF, Huntington MK, Johnston AM. Dental waterlines. A source of contamination. *Infection Control and Sterilization Technology* 1995;1:14-20.
4. Miller CH. Microbes in dental unit water. *J Calif Dent Assoc* 1996;24:47-52.
5. Lewis DL, Arens M, Appleton SS, Nakashima K, Ryo J, Boe RK, et al. Cross contamination potential with dental equipment. *Lancet* 1992;340:1252-1254.



**Marina E.T. Merne, DDS**
**Mirja H. Puranen, DDS, PhD**
**Stina M. Syrjänen, DDS, PhD**
University of Turku
Turku, Finland
**Pekka M. Hyvönen, DDS, PhD**
University of Kuopio
Kuopio, Finland


# Report on a Packaged Handwashing Antiseptic Contaminated With *Pseudomonas aeruginosa*

**To the Editor:**

The occurrence of bacterial contamination of disinfectants and antiseptics during their use and inside their original packaging may result in pseudobacteremias or the circulation of resistant strains within the hospital.[1-3] We report the serendipitous discovery of the contamination of a packaged handwashing antiseptic at Umberto I Hospital in Ancona, Italy.

A study aimed at evaluating the antimicrobial activity of a new procedure in antiseptic hand washing was conducted in the blood transfusion service. The routine handwashing procedure involved the use of a packaged antiseptic containing triclosan (5-Chloro-2- [2,4-dichlorophenoxy] phenol), used in our hospital since mid-1997.

The blank test of the antiseptic in use revealed contamination by *Pseudomonas aeruginosa.* After this discovery, we tested four sealed samples present in the transfusion unit; *Pseudomonas aeruginosa* was isolated from three.

Following these observations, all of the antiseptics coming from the same company still present in the hospital were identified and removed from use. Only two different lots were still present, and 13 bottles could be analyzed: 5 from different wards and 8 present in the pharmacy service. Thirteen of 17 samples analyzed belonged to lot A and 4 to lot B. *P aeruginosa* was isolated in 7 cultures (41%), all belonging to lot A (54% of samples from this lot). The Department of Health was informed.

The cause of antiseptic contamination in the original packaging often remains unknown,[1,3,4] as in this case; the minimal nutritional requirements of *Pseudomonas* species, as evidenced by their ability to grow in distilled water and their tolerance of a wide variety of physical conditions, contribute to their ecological success. Moreover, the ubiquity of this bacterium would increase the possibility of contact with antimicrobials and therefore the possibility of selecting, in the hospital environment, strains resistant to disinfectants. The mechanisms of resistance have been made clear, and Levy et al recently published the results concerning the acquisition by *Escherichia coli* K 12 strains of resistance to triclosan.[5]

As already observed by Oie, "At present, the necessity of measures to prevent contamination does not seem to be fully appreciated."[4] The publication of reports of epidemics, or the accidental discovery of the spread of microorganisms, coming from antibacterial solutions represents the lack of increased hospital prevention measures by infection control committees. We believe that checking sterility of disinfectant or antiseptic products must be assured at two levels: during the production cycle and during hospital use. In our opinion, the microbiological control of samples of antiseptic products in use should become a routine procedure as far as infection control committees are concerned, taking feasibility and cost into account.


## REFERENCES

1. Centers for Disease Control. Epidemiologic notes and reports update on contaminated Prepodyne solution. *MMWR* 1982;31:235.
2. Berkelman RL, Anderson RL, Davis BJ, et al. Intrinsic bacterial contamination of a commercial iodophor solution: investigation of the implicated manufacturing plant. *Appl Environ Microbiol* 1984;47:752-756.
3. Barry MA, Craven DE, Goularte TA, Lichtenberg DA. *Serratia marcescens* contamination of antiseptic soap containing triclosan: implications for nosocomial infection. *Infect Control* 1984;5:427-430.
4. Oie S, Kamiya A. Microbial contamination of antiseptics and disinfectants. *Am J Infect Control* 1996;24:389-395.
5. Levy Colin W, Roujeinikova A, Sedelnikova S, Baker PJ, Stuitje Antoine R, Slabas AR, et al. Molecular basis of triclosan activity. *Nature* 1999;398:383-384.



**Marcello M. D'Errico, MD**
**Sandra Savini, PhD**
**Emilia Prospero, MD, MPH**
**Isidoro Annino, MD**
University of Ancona
Ancona, Italy


# Tuberculin Skin Testing in the Era of Multidrug-Resistant Tuberculosis

**To the Editor:**

The tuberculin skin test using purified protein derivative (PPD), first introduced in 1910, has been the standard and the only validated screening procedure for identifying asymptomatic tuberculosis (TB) infections in the United States since the early 1930s. PPD skin test interpretation may be problematic due to cross-reactivity, booster effect, anergy, variability in the performance or reading of the test, lot-to-lot variation of PPD, and a variety of other causes.[1] False-positive reactions may occur because antigens present in the PPD are shared with environmental mycobacteria, an overlap known to be considerable in some areas of the world.[1] We report the consequences of a PPD skin test conversion in a healthcare worker (HCW 1) who worked on an inpatient unit providing clinical care to patients with multidrug-resistant (MDR) TB, as well as to patients with *Mycobacterium avium* complex (MAC) infection.

Our 250-bed tertiary-care research hospital has a TB control plan that is congruent with Centers for Disease Control and Prevention (CDC) "Guidelines for Preventing