studies done at CDC showed that, with flash sterilization, the "margin of safety" may be relatively small. In point of fact, a recent outbreak of meningitis on a neurosurgical service was traced to inadequate flash sterilization of central-nervous-system tubing.[2]

Although following the CDC recommendation mentioned by Dr. Weinstein may result in increased costs for some hospitals, we believe that the costs are reasonably small and acceptable for most hospitals, considering the potentially enormous costs of an undetected sterilization failure involving an implanted device. However, CDC and its working group realize that: **1)** *the proper period of time to withhold implantables from use pending spore test results is not known, although it is probably at least 24 hours;* **2)** *even with the best planning, not all implantable devices necessary for an operation will have been sterilized 48 hours in advance; and* **3)** *strict compliance with the recommendation as written may be very expensive and impractical for a few hospitals with a large volume of implant surgery and limited storage space. Thus, the recommendation in the Environmental Control Guidelines has now been changed, with the agreement of panel members, to the following:*

1. Every load (sterilized) should be monitored with a spore test if it contains implantable objects. These objects should not be used until the spore test is found to be negative (at 48 hours). Category II
2. Implantable objects should not be sterilized by "flash" steam sterilization. Category I

We will soon incorporate this change into our next revision of the Guidelines and bring this change to the attention of hospital personnel. We appreciate the comments and criticism presented by Dr. Weinstein; such comments give us the opportunity to improve our guidelines. As we said in our preface to these guidelines, we welcome all comments, suggestions, and criticisms.

REFERENCES

1. Centers for Disease Control. False-positive results of spore tests in ethylene oxide sterilizers—Wisconsin. MMWR 1981; 30: 238-40.
2. Ho JL, et al. Common-source *Pseudomonas aeruginosa* infection in neurosurgery. In: Proceedings of the Annual Meeting of the American Society of Microbiology, 1981. Dallas, Texas. Paper L10, page 80. Abstract.

To the Editor:

Medical research continues evolving into an increasingly sophisticated, technologically intensive endeavor. It is not uncommon now to have multimillion dollar grants awarded to teams of researchers employing myriads of postdoctoral fellows and technicians, just to study the molecular structure of slightly aberrant polypeptides. Admittedly this is an overstatement, but it does highlight the fact that health care practitioners in many smaller institutions are finding it increasingly difficult to conduct original research. However, there is still at least one fruitful area of study available to practitioners of infection control: nosocomial infections caused by nonfermentative gram-negative bacilli—NFB.

NFB are a diverse group of bacteria that have two common features. They are unable to grow in the absence of available oxygen and cannot generate energy fermentatively. Additionally, they have simple nutritional requirements, resist most antimicrobial agents, and are ubiquitous in nature.

Although hundreds of NFB species have been described, less than 40 species are routinely encountered in clinical microbiology laboratories. The most common of these species, *Pseudomonas aeruginosa,* is already an old friend (or enemy) of infection control personnel. It is a significant pathogen with fairly straightforward modes of transmission within hospitals.

What about all of the other NFB isolates? For example, are CDC Va-1 or CDC IIk-2 potential pathogens? What about the pathogenicity of *Alcaligenes faecalis* or *P. acidovorans*? How are NFB other than *P. aeruginosa* transmitted within the hospital? Can hospital water systems be reservoirs for pathogenic NFB? Infection control programs can provide answers to these questions through three relatively simple steps.

1) Insist that your microbiology laboratory identify all NFB isolates to the species level. Laboratory reports that list "*Pseudomonas* species" should be considered unacceptable. Do three isolates of "*Pseudomonas* species" from one ward equal an outbreak? Probably not if, in reality, one is actually *P. maltophilia,* one is *Acinetobacter lwoffi,* and the third is *P. acidovorans.* The problem is, you just won't know until you get accurate information. If your laboratory has limited resources, you should encourage them to use reference laboratories, such as those supported by states and counties. Most of these laboratories do not charge for reference services.

2) Review patient charts for evidence of significant infections caused by correctly identified NFB. Pay particular attention to pure culture isolates, recovered more than once from body sites with documented evidence of infection.

3) Publish your findings. Infection control practitioners are in a unique position to correlate and disseminate this type of information. In this way, you might be responsible for discovering one of the "new" nosocomial pathogens of the 1980s.

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To the Editor:

Following publication of "Guidelines for Prevention of Catheter-Associated Urinary Tract Infections" in *INFECTION CONTROL*'s March/April issue, the Centers for Disease Control received a letter pointing out a problem with the recommendation that concerns bladder irrigation. That recommendation, Number 6a, has now been changed. The recommendation as originally written implied that continuous irrigation of the bladder to prevent anticipated obstruction was inadvisable. This implication was not intended. With the agreement of the Guideline working group, the recommendation has now been changed and combined with recommendation 6e, so that it reads as follows:

> Irrigation should be avoided unless obstruction is anticipated (e.g., as might occur with bleeding after prostatic or bladder surgery); closed continuous irrigation may be used

to prevent obstruction. To relieve obstruction due to clots, mucus, or other causes, an intermittent method of irrigation may be used. Continuous irrigation of the bladder with antimicrobials has not proven to be useful and should not be performed as a routine infection prevention measure.
Category II

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To the Editor:

With regard to our article entitled "Excessive Levels of Gram-Negative Bacteria in Hemodialysis Machines Because of Inadequate Cleaning Guidelines" appearing in *INFECTION CONTROL* 1981; 2:373-376, we wish to point out a difference in terminology between our article and the literature published by Cobe Laboratories, manufacturers of the Cobe Centry® 2 dialysis machine. Our references to "disinfection" and "disinfectant" relate to procedures which Cobe characterizes as "cleaning" or "bleaching" procedures and materials. Cobe's disinfection procedure, formerly called sterilization, involves the use of formaldehyde throughout the fluid pathway of the Centry 2 and this procedure was not the subject of our article. Therefore, we are not in a position to suggest that increased bacterial counts cannot be satisfactorily reduced by using the manufacturer's current formaldehyde disinfection guidelines.

Cobe Laboratories has recently informed us that prolonged use of the bleach disinfection procedure recommended in our article will result in a high rate of corrosion of internal parts. Other users of Centry 2 machines should be informed that we did not address this problem in our study. The manufacturer recommends that their instructions for use be followed explicitly. It should also be noted that achieving acceptable levels of bacteria in any dialysis machine requires, not only effective disinfection procedures, but acceptable quality levels of incoming water as well.

Nassau Hospital has used Cobe Centry 2 machines exclusively for dialysis during the past 18 months and have ordered additional Centry 2 machines. Any implication in our article that Cobe machines are unsatisfactory because of formaldehyde disinfection procedures, or otherwise, or that Cobe representatives have not been responsive to problems experienced in the dialysis clinic of the Nassau Hospital, was unintended.

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To the Editor:

I am writing you in regard to the article entitled "Excessive Levels of Gram-Negative Bacteria in Hemodialysis Machines Because of Inadequate Cleaning Guidelines," by Gurevich I, Williams F, and Cunha BA, appearing in *INFECTION CONTROL* 1981; 2:373-376.

Facilities with which I have been or am now actively involved in a leadership role have used the Century® 2 machine since it was first manufactured, and have satisfactorily performed over 75,000 treatments with these machines. We routinely perform quantitative bacteriologic studies on the water-in and dialysate-out, and have never identified a problem of excessive bacteriologic counts attributable to a Centry 2 machine. We follow the manufacturer's recommended protocol for *both* cleaning *and* disinfecting our Centry 2's, which seems to be the problem the authors encountered in their hemodialysis unit. They discuss the cleaning protocol and indicate that part of the fluid path of the machine, "is not reached at all by the disinfectant." It is true that part of the fluid path is not reached by the *cleaning agent* (household bleach, or 5.25% sodium hypochlorite), but the *disinfection* or *sterilization* involves the regular use of 3.7% formaldehyde which does reach all parts of the fluid path. The authors do not mention, and were apparently unaware of, the disinfection protocol and the use of formaldehyde to sterilize the fluid pathway. It is not surprising that they encountered bacterial problems, since the source water contained 60 times the allowable bacterial count for hemodialysis water, and since they were not sterilizing their machines.

The authors recommend adding a 1:2 dilution of sodium hypochlorite and water into the water intake system of the Cobe Centry 2. This concentration of bleach will damage expensive parts of the machine, all of which will be exposed to the full concentration of the solution introduced. Damage from such exposure may not be immediately apparent, but will occur with this repeated abuse. Since there are over 10,000 Cobe Centry 2's in active use, application of the authors' recommendations on a wide scale could cause an enormous economic loss to dialysis facilities.

I beleive it is imperative to publish most prominently a warning to all readers of *INFECTION CONTROL* not to implement the recommendations of this article, and a recommendation to follow the manufacturer's recommended procedures for both cleaning and disinfecting the Cobe Centry 2.

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