

Pseudoepidemic of *Rhodotorula rubra* in Patients Undergoing Fiberoptic Bronchoscopy

To the Editor:

The report "Pseudoepidemic of *Rhodotorula rubra* in Patients Undergoing Fiberoptic Bronchoscopy" by Hoffmann, et al. (1989;11:511-5141, although interesting, is somewhat misleading.

The authors state that a 2% glutaraldehyde was used in the bronchoscope disinfection procedure preceding the outbreak. They recommend, in part, that this procedure be continued with immersion for at least 20 minutes. The report does not state which 2% glutaraldehyde was used. This is particularly significant regarding the three cases diagnosed with *Mycobacterium tuberculosis* because the Cidex product requires 45 minute immersion at an elevated temperature of 77°C for tuberculocidal activity, according to its Environmental Protection Agency (EPA) registration. The manufacturer's label directions should be followed, as required by federal law.

The report also cites a reference authored by William A. Rutala, PhD, one of the co-authors of the report. The reference, entitled "Draft Guideline for Selection and Use of Disinfectants" has been severely criticized by the EPA and other scientists for its content and support. The use of the "draft" guideline as support gives it tacit recognition.

Marian Kennedy, RN
Silver Springs, Maryland

Karen Hoffmann, RN, MS; David J. Weber, MD; and William A. Rutala, PhD, were asked to respond to this letter.

Ms Kennedy is troubled by the recommendation that semicritical patient care items, such as bronchoscopes, are immersed in a 2% glutaraldehyde (or other high-level disinfectant) for at least 20 minutes. This concern emanates from the fact that one 2% glutaraldehyde manufacturer recommends a 45-minute immersion at an elevated temperature of 77°C for tuberculocidal activity. She is also concerned that the Association for Practitioners in Infection Control (APIC) draft guideline was referenced.¹

First, we do not believe it is necessary to indicate which 2% glutaraldehyde was used because there is no evidence in the scientific literature that identifies differences in the tuberculocidal activity when the disinfectants are used as recommended by the APIC draft guideline (i.e., 220 minutes at room temperature). A recent publication that assesses the tuberculocidal activity of three glutaraldehyde-based formulations using a modified AOAC test (using Middlebrook 7H9 broth as the primary subculture medium and neutralization by dilution) suggests that the tuberculocidal label claims inaccurately reflect the ability of glutaraldehyde-based formulations to inactivate a clinical isolate of *Mycobacterium tuberculosis*.² For example, two 2% alkaline glutaraldehydes with differing label claims (label claims of 45 minutes at 25°C and 20 minutes at 20°C) both inactivated *M tuberculosis* (0 positive penicillins/10 replicates) using a 20-minute exposure time at room temperature. However, a 1:16 dilution of 2% glutaraldehyde-7.05% phenol-1.20% sodium phenate (label claim of 10 minutes at 20°C) failed to inactivate *M tuberculosis* (10 positive penicillin/10 replicates) in 20 minutes at room temperature. These data suggest that differing label claims for glutaraldehyde-based

formulations may be attributable in part to interlaboratory and intralaboratory variability in test results. Additionally, our article³ suggested only minimum exposure times and did not preclude the use of longer exposure times (e.g., 45 minutes) and higher temperatures (e.g., 77°C) for disinfecting semicritical items.

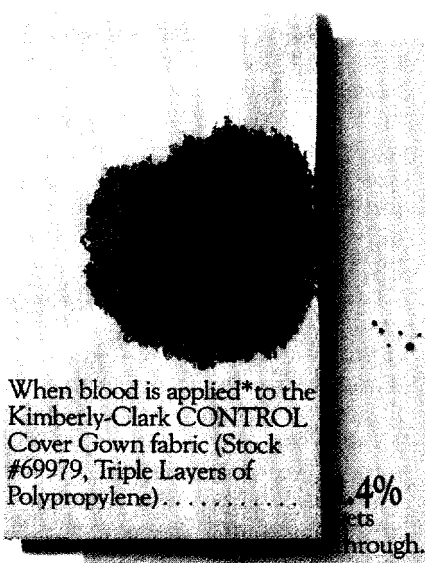
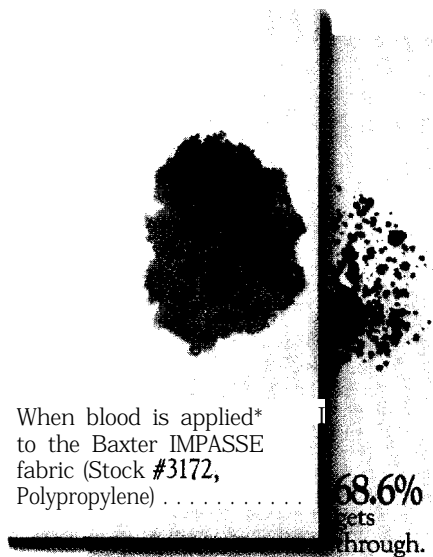
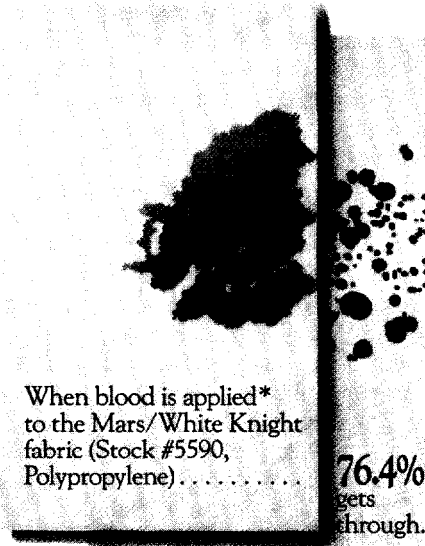
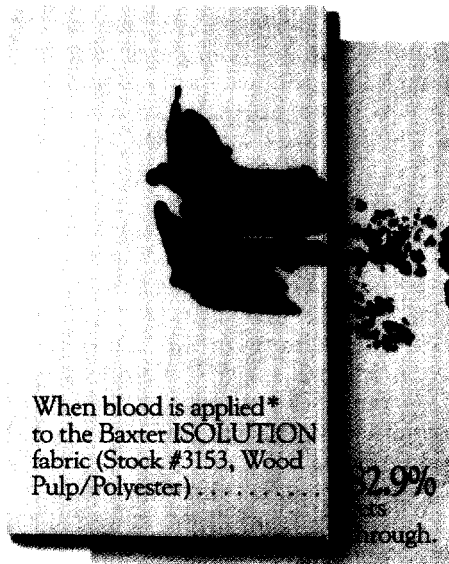
Second, the "Draft Guideline for the Selection and Use of Disinfectants" was published in the *American Journal of Infection Control* so infection control practitioners and other healthcare professionals could provide their critical comments.¹ All comments were used to amend the guideline, and following unanimous approval of the guideline by the Guidelines Committee and the APIC Board of Directors, it was published in the April 1990 issue of the same journal.⁴ The recommended minimum immersion time for semicritical patient care objects remained at least 20 minutes. The draft guideline was referenced because it cited two papers that suggested that 20 minutes at room temperature is the minimum exposure time needed to reliably kill *M tuberculosis* with a 2% glutaraldehyde.^{5,6}

We, as well as others,⁷ remain deeply concerned that there are neither reliable test methods to determine the microbiocidal activity of disinfectants nor verification of manufacturers' label claims by an independent laboratory or the appropriate federal agency (EPA for disinfectants) using a standardized test. Until these control measures are implemented, we can confidently predict that nosocomial infections secondary to inadequately disinfected instruments will continue to occur.

William A. Rutala, PhD;
Karen K. Hoffmann, RN, MS;
David J. Weber, MD
Chapel Hill, North Carolina

(continued on page 336)

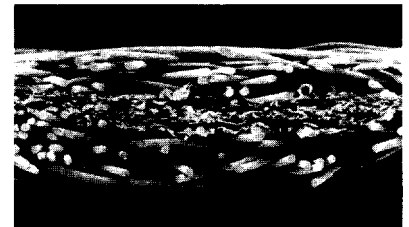
SPOT THE #1 COVER GOWN



CONTROL™ Cover Gowns from Kimberly-Clark are the #1 choice for many reasons, but none more critical than the superior barrier protection shown in these unretouched photos. Simply put, they far outperform other gowns.

Two major independent studies support CONTROL Cover Gowns' superior performance.

In a study at Arkansas Children's Hospital, CONTROL Cover Gowns were shown to be more protective against contaminated body fluids.¹ And a study published in The New England Journal of Medicine showed that CONTROL Cover Gowns and gloves significantly reduced nosocomial infection in pediatric intensive care.²



Cross-section of CONTROL Cover Gown Fabric

The key is CONTROL Cover Gowns' unique, three-layer laminated fabric with an inner layer of polypropylene micro-fibers. This inner layer forms a barrier to screen out bacteria and resist fluid penetration. Yet, this remarkable cloth-like fabric is also highly breathable and tear resistant.

Get the best for your staff and patients. For more information on CONTROL Cover Gowns, call 1-800-KC HELPS, or 1-800-524-3577.

 Kimberly-Clark

*applied at 0.5 psi of pressure

1 Eisenach, K., T. Yamauchi, B. Johnson, and R. Clarke. 1989. Resistance of cover gowns to microbially contaminated human body fluids. *Abstr. Annu. Meet. of Interscience Conf. on Antimicrob. Agents and Chemother.*, 604, p.202.

2 Klein, B.S., W.H. Perloff, and D.G. Maki. 1989. Reduction of nosocomial infection during pediatric intensive care by protective isolation. *N. Engl. J. Med.* 320: 1714-1721.

® Registered Trademark of Kimberly-Clark Corp., Roswell, GA 30076 01990 KCC. All rights reserved.

(continued from page 334)

REFERENCES

1. Rutala WA. Draft guideline for selection and use of disinfectants. *Am J Infect Control*. 1989;17:24A-38A.
2. Cole EC, Rutala WA, Nessen L, Wannamaker NS, Weber DJ. Effect of methodology, dilution and exposure time on the tuberculocidal activity of glutaraldehyde-based disinfectants. *Appl Environ Microbiol* 1990;56:1813-1817.
3. Hoffmann KK, Weber DJ, Rutala WA. Pseudoepidemic of *Rhodotorula rubra* in patients undergoing fiberoptic bronchoscopy. *Infect Control Hosp Epidemiol*. 1989;10:511-514.
4. Rutala WA. Guideline for selection and use of disinfectants. *Am J Infect Control*. 1990;18:99-117.
5. Ascenzi JM, Ezzell RJ, Wendt TM. A more accurate method for measurement of tuberculocidal activity of disinfectants. *Appl Environ Microbiol*. 1987;53:2189-2192.
6. Collins FM. Use of membrane filters for measurement of mycobactericidal activity of alkaline glutaraldehyde solution. *Appl Environ Microbiol*. 1987;53:737-739.
7. Washington Regulatory Reporting Group. FTC investigating touting of medical 'disinfectant.' *FTC: Watch Number 314*. January 29, 1990:6.

On Duplicate Publication of a Manuscript

To the Editor:

We write in response to the editorial in this issue of *Infection Control and Hospital Epidemiology* (ICHE) regarding the duplication of a manuscript.¹ Two essential matters will be dealt with. First, we will show that the two papers, though related, are not duplicates or redundant. Second, we will explain why our manner of cross-referencing between the two papers was appropriate.

The two papers in question are reports on a study regarding the application of influencing tactics, described by Kipnis, et al.² in the context of infection control.

In the first paper, published in ICHE, 45 infection control nurses (ICNs) were surveyed regarding the use of these tactics, and 65 ICNs were requested to predict the compliance of the ward nurses.³ The usage responses of the ICNs were compared with the report by Kipnis, et al., who studied the use of tactics among managers.² Kipnis, et al. factor-analyzed their results, and this also was done for the usage responses of the 45 ICNs.

In the second paper, published in the *Journal of Hospital Infection* (JHI), the compliance responses of 881 ward nurses and the factor analysis of these responses were reported.⁴ The pattern that emerged was found to be entirely different from that of Kipnis, et al.² (except for one factor). We believe that this had special relevance for infection control and was worth reporting. Structures discovered through factor analysis are important ways for understanding human behavior,⁵ though this may not be readily appreciated by those who are unfamiliar with behavioral research.

With such differences existing between the two papers, we certainly do not understand why they are considered by the editors of ICHE to be duplicates (implying that they are the same manuscript). Even "redundancy" is too strong a word because the structure and findings described in JHI are entirely new, and they have important applicational value. Nevertheless, in retrospect, we concede that more could have been done to highlight the inherent differences between the two papers.

The paper in ICHE was written first, and the revised version was accepted on January 16, 1989; unfortunately it was published more than one year later, in the March 1990 issue. The second paper, published in JHI, was written only after the first paper was completed. Therefore, when we were writing the first paper, the second paper was not referenced because it had yet to be written. However, when we were writing the second paper (accepted on August 25, 1989), we did quote the first paper. We also informed the editor of JHI about the first paper and its content. However, the JHI paper was published on February 1990, one month before the publication of the ICHE paper, giving the false impression that the JHI paper was written first.

When we submitted the second paper, we did not inform the editors of ICHE because we had re-

ferred to its paper in the references. In our experiences with other learned journals, this procedure has been acceptable. In fact, if this had not been done, scientific decorum would certainly have been broken. However, this was insufficient for the ICHE editors, and presumably, they would like to be informed of any subsequent reports related to studies that they have accepted for publication. We certainly respect their right to adopt such a stringent policy, but this was not evident in any of their editorial statements. It seems rather unjustified that we were accused of breaking such a stringent policy, when it had never been adequately communicated to contributors of ICHE.

Finally, we would like to refer to the editors' proposal to "draft a copyright statement modified from the policy of *The Annals of Internal Medicine*" for future contributions to the journal.¹ We do not understand why our papers were used to explain editorial policies when such a copyright statement is yet to be drafted. In all fairness, when a stringent policy is put into effect, adequate notice of that policy should be made before someone is faulted. Moreover, as explained earlier, we believe that our papers were neither duplicates nor redundant.

**W.H. Seto, MD;
S.G. Ong, MD;
T.Y. Ching, RN**
Hong Kong

REFERENCES

- 1 Wenzel RP, Maki DG, Crow S, Schaffner W, McGowan JE Jr. Duplicate publication of a manuscript. *Infect Control Hosp Epidemiol*. 1990;11:341-342.
- 2 Kipnis D, Schmidt SM, Wilkinson I. Intraorganizational influence tactics: explorations in getting one's way. *J Appl Psychol*. 1980;65:440-452.
- 3 Seto WH, Ong SG, Ching TY, et al. Brief report: the utilization of influencing tactics for the implementation of infection control policies. *Infect Control Hosp Epidemiol*. 1990;11:144-150.
- 4 Seto WH, Ching TY, Chu YB, Ng SH, Ong SG. Evaluations of staff compliance with "influencing" tactics in relation to infection control policy implementations. *J Hosp Infect*. 1990;15:157-166.
- 5 Kerlinger PN. Factor analysis. In: *Foundations of Behavioral Research*. 3rd ed. New York, NY: CBS College Publishing; 1986:569-595.