Letters to the Editor

Questions Raised About June Issue

To the Editor:

I have just completed—cover to cover-the June 1989 issue of *Infection Control and Hospital Epidemiology* (Vol 10[6]). Surely this is a monumental effort to cover a very comprehensive symposium.

However, some issues were raised that deserve further comment. For example, Dr. Dennis Maki ("AIDS: Serologic Testing for the Human Immunodeficiency Virus-To Screen or Not to Screen") stirs us up with recurring questions and now also begins to confuse us with a new issue.

First there is the issue of screening for human immunodeficiency virus (HIV) antibodies. For several years now we have worked hard here in California to oppose laws allowing mass screening for fear of driving HIV-positive persons underground. I agree they already are. However, how can we now do an about-face and ask for permission to screen without raising the already high level of hysteria and paranoia occurring in society? How does Dr. Maki propose to handle or control such information? And, of course, the eternal question-who will pay for all of this? I do believe that knowledge of such information may alter behavior, but at what cost?

Secondly, we have come to promote universal precautions (UP) as a major step forward in infection control. Some have gone so far as to create a whole new class of isolation category (bloodstream infection [BSI]) as proposed by Jackson and Lynch. Now Dr. Maki is suggesting that this approach may not be effective; "a false sense of security." Rather, he suggests a retreat-a step back, possibly pressured by colleagues-to targeted precautions. The suggestion that "we do not know if UPs are more or less effective . . ." is absurd for several reasons:

- The practice hasn't been around long enough (less than two years);
- Theoretically it makes more sense to protect oneself under all circumstances (e.g., gastrointestinal bleeder with gastroenteritis may have *Shigella* species. Do we wait the three days for lab results or wear gowns and gloves now?);
- Costs may appear prohibitive, but the cost of gloves is far outweighed by costs incurred from occupational acquisition of a shigellosis (three weeks off in many cases); and
- If we change course now, without demonstrating its efficacy and, I believe, an eventual lowering of the national nosocomial infection rate (hovering at 5%), we will lose face with those who look to us for answers and solutions. We will appear to be unsure, vacillating and confused-hardly a testimonial to an "expert."

Finally, in reference to Dr. John E. McGowan's article ("Infection Control: New Problem Organisms for Infection Control"), he overlooks a suggestion made at the 1988 National American Society of Microbiology (ASM) meeting, that some organisms may actually develop resistance to antibiotics just because of their presence or proximity. We have all held the traditional view that development of resistance is a random event. But witness Dr. McGowan's own observation that methicillin resistant *Staphylococcus aureus* (MRSA) may develop resistance to Ciprofloxacin within three weeks of introduction of therapy. I propose that this notation may suggest further study before we can accuse physicians of drug abuse.

Irwin H. Koransky, MS, SM(AAM)
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Drs. Maki and McGowan were asked to respond to this letter.

Mr. Koransky is troubled by the conclusion that much wider testing for human immunodeficiency virus (HIV) infection is needed at the present time, in part because ". . . we have worked hard . . . in California to oppose laws allowing mass screening . . ."

As pointed out in the article, I believe that most HIV-infected persons have been far underground for a long time, having not availed themselves of numerous options for HIV testing, including anonymous testing in state counseling and testing centers. I further believe that the societal "hysteria and paranoia" about HIV infection and acquired immunodeficiency syndrome (AIDS) that Mr. Koransky fears derives in part from pervasive resistance to the use of HIV screening as a health promotion measure; resistance that has included legislation that implicitly discourages HIV testing. As pointed out in the article as well as in a recent essay on this subject written with Dr. Frank Rhame, we believe that much wider use of HIV testing could begin to reduce the reluctance to be tested among those who know they are at increased risk and could also begin to dissolve the insidious "we-they" mentality that has been so counterproductive to efforts to contain the spread of

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Published efficacy data: Neonates born of infected mothers[1]	Yes	Yes
VACTRAC™-computer software for vaccination tracking and compliance	Yes	No
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Lowest cost per dose[2]	Yes	No

*For those recently exposed to the virus (including needlestick exposure), certain travelers to high-risk areas, and neonates born of infected mothers.
†Hepatitis B Vaccine (Recombinant), MSD.
‡When prolonged maintenance of protective antibody titers is desired, a booster dose at month 12 is recommended.

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HIV.' It has been my experience almost uniformly that patients I see and propose to be tested do not become hysterical or paranoid about being tested, and very few decline when presented with the rationale for testing.

It is now clear that zidovudine (AZT) will be of substantial benefit to all HIV-infected individuals, not just those who are symptomatic or who have low CD4+ lymphocyte counts,[2] and we finally are seeing general concurrence that all persons who might be at risk for HIV infection should be tested. Even gay advocacy groups that have strenuously opposed testing are finally coming around. I find it painful, however, that consensus recommendations to test widely were not forthcoming 18 to 24 months ago; recommendations that might have resulted in hundreds of thousands of HIV-infected persons starting AZT before cellular immunity was irretrievably lost.

Mr. Koransky questions "who will pay for all of this?" This is a very germane question that encompasses all aspects of healthcare with regard to HIV infection and AIDS, not just testing. It includes programs of education at all levels of society, timely treatment for all HIV-infected persons and support for research; support that does not eviscerate basic research in numerous areas of biomedical inquiry unrelated to AIDS. The evidence that AZT could benefit several million people must spur us as a society to make the financial commitment that will be needed for all aspects of AIDS prevention and care, including wider testing and use of AZT. Dollars spent for HIV testing will prove a high yield investment in the fight against AIDS.

Lastly, Mr. Koransky is troubled by my comments on universal precautions (UPs). Mr. Koransky should reread the article. I did not "suggest a retreat-a step back, possibly pressured by colleagues." I am simply stating a fact, namely, that Ups-which are going to prove extremely costly, especially when the new Occupational Safety and Health Administration (OSHA) guidelines go into effect-have been implemented empirically, without scientific study, let alone an analysis of cost-benefit.

Mr. Koransky is creating a strawman. No responsible medical person is going to oppose precautions to avoid contact with blood and other potentially infectious body fluids with every patient, but infection control practitioners have been promulgating UPs for many years, long before AIDS. We have long been deeply committed to the study of barrier precautions for prevention of nosocomial infection.[3,4] However, I have two concerns about UPS.

First, in certain high-risk settings, such as the operating room, where there is a very high incidence of sharps injuries and prolonged contact with blood, I must reassert that it is not implausible that UPs might provide less protection than could be achieved with voluntary HIV screening of operated patients and the use of targeted precautions for those shown to have HIV infection. I believe efforts must be made to try to scientifically assess the effectiveness of UPs, especially in the operating room and intensive care unit. The outcome of such studies may provide a basis for voluntary HIV screening of patients in certain settings, such as prior to elective surgery."

Second, I'm concerned that UPs could paradoxically increase the risk of nosocomial infection in general." Outbreaks of nosocomial infections have continued to occur despite UPs, and gloves are being worn by healthcare personnel for many-too often, most-patient contacts. The problem is how gloves are being used, which I think reflects a major shift in mindset. The focus of the healthcare provider in regard to use of gloves is now directed primarily at protecting him- or herself rather than protecting the patient. The same set of gloves commonly is worn for a prolonged period, for numerous activities." It should come as no surprise that gloves become heavily contaminated' and can become a reservoir of nosocomial pathogens. The greatly increased use of gloves as part of UPs must be paralleled by education on how to use them in a manner that will not jeopardize the patient.[6] Moreover, the greatest emphasis on UPs must be placed on measures and innovative approaches for preventing sharps injuries, which have accounted for 75% of all cases of occupationally-related HIV transmission.[8]

Mr. Koransky is concerned that "if we change course now . . we will lose face . . . we will appear to be unsure, vacillating, and confused . . . ." Anytime we are unwilling to subject expensive and logistically-demanding control measures to scientific study and, based on the results of such scrutiny, change our practices, we move medicine away from the scientific discipline we all want it to be back to the dark ages of empiricism.

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Koransky asks whether there are other factors beside antimicrobial agent use that may contribute to the emergence of hospital organisms resistant to antimicrobials. Indeed, there are several such factors.' Thus, it is reasonable to state that antimicrobial resistance is not the only factor that leads to resistance within the hospital. However, antimicrobial use certainly is one of the

most important of these factors.273 Resistance is not necessarily a "random event,"[1,2,4] and optimal antimicrobial use still should be an essential part of current practice.[4]

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Cross-Sectional Survey Sampling

To the Editor:

Cross-sectional survey sampling in hospital epidemiology usually treats samples of patients as representative of a "superpopulation" of all potential patients, with the objective of estimating underlying "baseline" values. However, in quality assurance tasks like monitoring quarterly blood product use,' it may be appropriate to consider the finite population at risk during a time interval specified and apply the finite population correction factor' to sample size and variance calculations. The question under study becomes whether care is within specifications during a given period rather than estimating underlying "baseline" rates.

The brief section on sampling in Credé and Hierholzerb (*Infect Control Hosp Epidemiol*, July 1989, 321-325) excellent summary of cross-sectional design suggests stratified random sampling and cluster sampling as alternatives to simple random sampling. Indeed, if differences between strata (i.e., between departments, wards, diagnostic groups, etc.) are the subject of interest, or an overall estimate is desired but strata means are likely to differ widely, or a sampling frame is available for groups but not individuals, then stratification, post-stratification, systematic or cluster sampling may be preferable to simple random sampling.

Individual strata sample size allocation may be equal, proportional or "Neyman" optimal; sampling rates in each of the strata need not be equal. Cluster selections may be random or by probability proportional to size.

Cochran's useful text[2] provides a different perspective on a distinction between stratified random and cluster sampling than one might infer from Credé and Hierholzer's reference to "higher density selection." In cluster sampling, the cluster group (department, ward, household, etc.) is selected and every individual in that group is included in the sample. Non-random inclusion of every individual within selected clusters, as when every patient on selected wards is included in "prevalence rounds," distinguishes cluster sampling from various forms of random sampling. A consequence is calculation of variance estimates by mean square error, *not* the binomial approximation we commonly rely upon with random sampling of proportional data.

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Letters to the Editor should be addressed to INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY Editorial Offices, C41 General Hospital, University of Iowa Hospitals and Clinics, Iowa City, IA 52242. All letters must be typed, double spaced and may not exceed four pages nor include more than one figure or table. The editors reserve the right to edit for purposes of clarity or brevity.