# Letters to the Editor

## Pitfalls in Infection Control

To the Editor:

We would like to share with you several "pitfalls" in infection control that we have experienced at our 300-bed referral center.

Despite our education efforts in category-specific isolation, we have observed healthcare students (ie, student nurses or respiratory therapists) violating our isolation guidelines. Healthcare students often are not taught the importance and rationale of isolation, nor of category-specific or body substance isolation. With patient care time constraints, the nursing staff or supervisory personnel often make infection control education a low priority, and these students remain naive to the practice of infection control. Medical residents are taught at orientation but often learn infection control principles by trial and error.

Lapses in infection control practices have become particularly problematic for patients in the intensive care unit with organisms resistant to multiple drugs. Nurses and other personnel who have been educated in universal precautions nonetheless occasionally wear gloves while answering the telephone, answering pages, or charting; cross-contamination may occur.[1]

We also have observed patients, in isolation for multiply drug-resistant organisms, transferred to the operating room and returned to the same floor within 24 hours, no longer in isolation. Although we label all the temporary hospital charts of isolated patients with isolation tape, these patients still occasionally "slip" out of isolation.

Isolation tape also is affixed to the permanent hospital chart of patients with resistant organisms, to alert all healthcare providers and the admitting office when these patients are readmitted to the hospital. We also have developed patient information brochures for more common drug-resistant organisms, written in "lay terms" to educate patients and their families.

Finally, we require a direct phone call from the microbiology lab to the infection control nurse, floor nurse, and physician in the event of positive blood cultures or organisms requiring isolation.

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**Teresa Rahn,RN**
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REFERENCE

1. Olsen RJ, Lynd P, Coyle MB, et al. Examination gloves as barriers to hand contamination in clinical practice. *JAMA* 1993;270:350-353.

## (O)-(O) = 0

To the Editor:

Schulman et al[1] have presented an elaborate Monte Carlo simulation estimating the potential benefit of a human immunodeficiency virus (HIV) screening program for surgeons in preventing surgeon-to-patient HIV transmission. The sophistication of their analysis obscures a critical flaw in the data on which it is based.

The authors' premise justifying this analysis is that HIV-infected surgeons regularly, if infrequently, transmit HIV to their patients. In fact, a surgeon-to-patient transmission rate greater than zero is a required parameter for the statistical model. The authors acknowledge that despite several lookback studies, there are no known cases of surgeon-to-patient HIV transmission on which to base a realistic estimate of that transmission rate. They state that 'There are currently no data . .. " when referring to the negative findings of the lookback studies and proceed to substitute an alternative transmission rate more suitable to the requirements of the model. Negative findings, although subject to all of the potential limitations of positive findings, are legitimate data, and negative findings are all we have at this time.

Although surgeon-to-patient HIV transmission is plausible, our current best estimate of that rate is zero. After the first case is documented, if that occurs, then the transmission rate and the potential benefit of prevention programs may be estimated. Until then, (0) - (0) = 0, even in Monte Carlo.

**Janine Jagger, MPH, PhD**
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REFERENCE

1. Schulman KA, McDonald RC. Lynn LA, Frank I, Christakis NA, Schwartz JS. Screening surgeons for HIV infection: assessment of a potential public health program. *Infect Control Hosp Epidemiol* 1994;15:147-155.

*The author replies.*

Dr. Jagger raises an interesting point in her letter, that of the current status of the Centers for Disease Control (CDC) lookback program. There have been no confirmed reports of surgeon-to-patient transmission of human immunodeficiency virus (HIV) infection yet identified through this extensive investigative effort.' Yet, Dr. Jagger in her letter, and the CDC in their reports, have ignored the issue of a type-II (or false-negative) error in reporting their results. Their results may indicate a zero rate of transmission of surgeon-to-patient transmission of HIV infection, or they may indicate that the true rate of transmission may be too low to be detected with the current number of cases reviewed. We have used our model[2] to develop an analysis of the potential for a type-II error in the CDC estimates.[3] More complete and updated

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TABLE 1
EXPECTED NUMBER OF CASES IN THE CDC LOOKBACK PROGRAM BY TRANSMISSION RATE[2]

| No. of Exposed Patients in the Lookback Program | Expected No. of Cases by Physician-to-Patient Transmission Rate | | |
|---|---|---|---|
| | 0.15% | 0.30% | 0.60% |
| 1,000 | 0.01 | 0.02 | 0.05 |
| 10,000 | 0.12 | 0.25 | 0.46 |
| 25,000 | 0.30 | 0.62 | 1.16 |
| 50,000 | 0.61 | 1.23 | 2.31 |
| 100,000 | 1.21 | 2.47 | 4.63 |
| 200,000 | 2.43 | 4.95 | 9.25 |

TABLE 2
PROBABILITY OF ANY CASES DETECTED IN THE CDC LOOKBACK PROGRAM BY TRANSMISSION RATE[2]

| No. of Exposed Patients in the Lookback Program | Expected No. of Cases by Physician-to-Patient Transmission Rate | | |
|---|---|---|---|
| | 0.15% | 0.30% | 0.60% |
| 1,000 | 0.01 | 0.02 | 0.05 |
| 10,000 | 0.12 | 0.21 | 0.37 |
| 15,795 | 0.18 | 0.31 | 0.52 |
| 25,000 | 0.27 | 0.45 | 0.69 |
| 50,000 | 0.46 | 0.69 | 0.90 |
| 100,000 | 0.71 | 0.91 | 0.99 |
| 200,000 | 0.92 | 0.99 | 0.99 |

data are presented in Tables 1 and 2.

We hope these data help Dr. Jagger to understand that the issue being addressed is one of the power of the current CDC studies and the probability of finding a case through their program. Our study and the CDC program are consistent with a low but non-zero surgeon-to-patient transmission rate for HIV infection.

**KevinA.Schulman, MD**
Georgetown University Medical Center
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## REFERENCES

1. Centers for Disease Control and Prevention. Update: investigations of patients who have been treated by HIV-infected health care workers. *MMWR* 1992;41:344-346.
2. Schulman KA, McDonald RC, Lynn LA, Frank I, Christakis NA, Schwartz JS. Screening surgeons for HIV infection: Assessment of a potential public health program. Infect ***Control Hosp Epidemiol*** 1994;15:147-155.
3. Schulman KA, Greco P, McDonald B, Lynn LA, Berlin J, Schwartz JS. The CDC lookback programs for HIV transmission: public safety from a negative epidemiologic study. *Med Decis Making* 1992;13:346.

## CORRECTIONS

### *Evaluation of Interhospital Spread of Methicillin-Resistant Staphylococcus aureus in Sao Paolo, Brazil, Using Pulsed-Field Gel Electrophoresis of Chromosomal DNA*

Due to a production error, an incorrect last sentence appeared in the abstract of Sader et al (1994;15:320-323). A corrected abstract follows.

**Abstract.** To evaluate the interhospital spread of a methicillin-resistant *Staphylococcus aureus* (MRSA) clone in Sao Paulo, we analyzed the restriction fragment length polymorphisms (RFLP) of chromosomal DNA from isolates from nine Sao Paulo hospitals. Restriction digestion of genomic DNA was performed with *Sma*I and the fragments were separated by pulsed-field gel electrophoresis. Only six different RFLP patterns were demonstrated among 30 MRSA isolates. Isolates possessing an identical RFLP pattern were demonstrated in eight of the nine Sao Paulo hospitals evaluated. Our results documented the widespread dissemination of a single clone of MRSA in several hospitals. Furthermore, the small clonal variability among multidrug-resistant MRSA coupled with the wide spread of this clone could make the intrahospital epidemiologic evaluation of MRSA outbreaks very difficult.

### *Risk Factors for Central Venous Catheter-Related Infections in Surgical and Intensive Care Units*

In the April 1994 issue, the list of participants in the Central Venous Catheter-Related Infections Study Group was omitted (1994;15:253-264). The participants included: G. Botta, A. Goglio, C. Maniscalco, M.E. Manso, P. Marone, A. Piscina, U. Bizzi, C. Cestari, M. Costa Angeli, G. Giltri, A. Giuffrida, A. Giussani, V. Motta, G. Osculati, C. Villa, T. Caeran, R. Muzzi, A. Grigis, G. Marchesi, A. Bottacin, V. Pasqualetto, S. Noventa, M. Ruffato, F.

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