

## Letters to the Editor

### Meaningful Measurement of Compliance

#### To the Editor:

Drs. Hersey and Martin suggest that "hospital policies are not, in themselves, sufficient to result in healthcare worker compliance" and that "inclusion of compliance with infection control precautions in staff performance reviews" is a necessary communication to promote compliance with practices intended to prevent occupational transmission of hepatitis B virus and human immunodeficiency virus.<sup>1</sup> Results of a Canadian nationwide survey and covert observation of practices in some of the surveyed hospitals' critical care units support these recommendations<sup>2</sup>; however, there are three caveats.

First, the Canadian survey found considerable confusion in the use of terms to describe current infection control protocols and considerable discrepancy between individual policies and national guidelines.<sup>3</sup>

Second, covert observation of glove use for three specific nursing procedures from each of four aspects of care [intravascular, oral, wound, and perineal] revealed composition of observations as an important confounding variable (Figure 1).

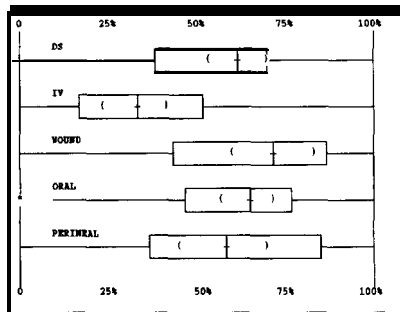


FIGURE 1. Frequency of observed glove use during types of nursing care. Scale represents the percentage of observations in which gloves were worn. † indicates the median among all 35 hospitals, ( ) indicates a 95% confidence interval for the median, boxed areas extend from the 25th to the 75th percentile, \* indicates an extreme value. "DS" is a uniformly biased, directly standardized overall rate.

Third, the study failed to find a strong correlation between level of knowledge and compliance in practice, but did find a persistent negative slope between knowledge-practice correlation coefficients and improving quality of observational data (Figure 2).

The implication of these findings is that announcing policies is not enough, but neither is evaluating staff on the basis of confounded observations of glove usage. Meaningful measurement of compliance with effective policies will require standardized observations. Achieving high levels of compliance will require applied research to document effectiveness of policies, meaningful measurement of compliance levels, and two-way communication with staff members to achieve informed consensus. It may be difficult to evolve more effective policies in a stringently regulated environment, such as that imposed by the Occupational Safety and Health Administration standards, but hospital

epidemiology's fundamental role should remain oriented toward continuous evaluation and improvement, not enforcement.

#### REFERENCES

1. Hersey JC, Martin LS. Use of infection control guidelines by workers in healthcare facilities to prevent occupational transmission of HBV and HIV: results from a national survey. *Infect Control Hosp Epidemiol* 1994;15:243-252.
2. Birnbaum DW. New National Strategies for hospital infection control: a critical evaluation. 1992. Doctoral thesis, University of British Columbia, Vancouver, British Columbia, Canada.
3. Birnbaum D, Schulzer M, Mathias RG, Kelly M, Chow AW. Adoption of guidelines for universal precautions and body substance isolation in Canadian acute-care hospitals. *Infect Control Hosp Epidemiol* 1990;11:465-472.

David Birnbaum, PhD, MPH  
Applied Epidemiology  
Sidney, British Columbia, Canada

*The authors declined to reply at this time.*

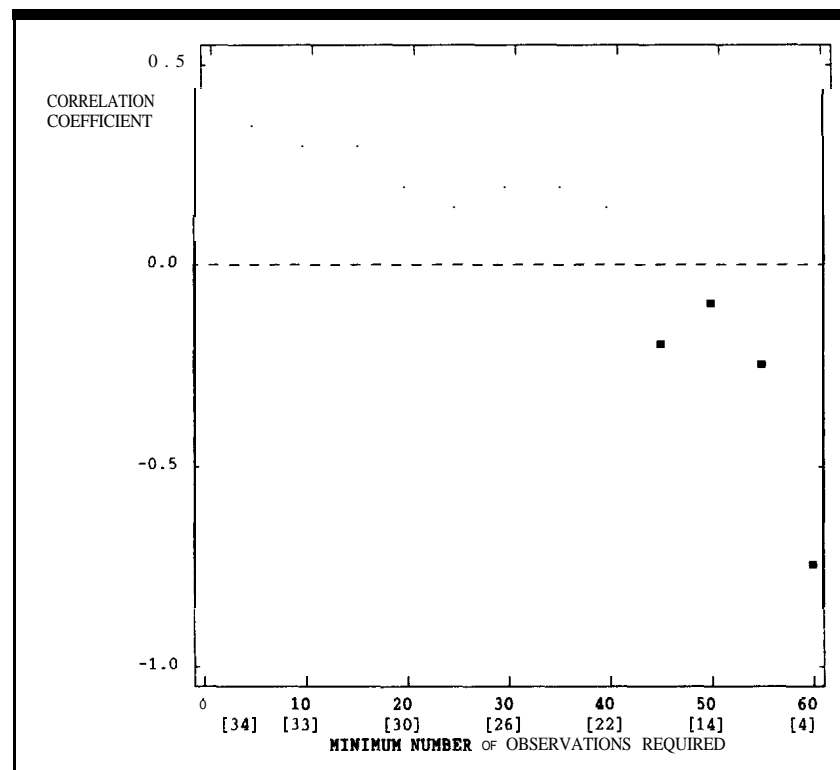


FIGURE 2. Spearman's correlation coefficient (of knowledge and practice scores) versus minimum number of practice observations required for inclusion in analysis. Numbers in brackets indicate number of hospitals included.

## Occupational Scabies in Healthcare Workers

### To the Editor:

We would like to share with you our experiences with an outbreak of scabies among healthcare workers (HCWs), especially because they differ from and add to the experiences described by Pasternak et al.<sup>1</sup>

The outbreak of scabies described by Pasternak et al.<sup>1</sup> clearly demonstrates the ability of Norwegian scabies to be transmitted by brief skin-skin contact and (in their case) contact with clothing or bed linen, especially if working conditions and laundry services are compromised.

In contrast to Sao Paulo, where scabies seems to be a frequent parasitosis in the community, patients with (especially Norwegian) scabies hardly are seen at our hospital. We experienced an outbreak of scabies among HCWs at our university hospital (where working conditions and laundry service are no problem) due to a wrong diagnosis. During an ICU hospitalization of an 84-year-old woman receiving long-term corticosteroid treatment for chronic autoimmune vasculitis, the patient was seen several times by a dermatologist, but initially was not diagnosed with scabies. During her hospitalization, the woman shared rooms with 14 other patients and had contact with 49 HCWs. Twelve of 40 nurses and 2 of 9 physicians who had contact with the patient developed scabies. The attack rate of nosocomial scabies among HCWs was **28.6%**. Overall, 26 (53.1%) of 49 HCWs received treatment, including 12 prophylactically treated persons. Among the significant others of the HCWs, scabies was proven in three and six received preventive treatment. The low rate of transmission to other patients probably was due to good compliance with infection control guidelines (especially use of barrier methods and handwashing between patients) and the fact that the trans-

mission of mites from a HCW with typical scabies to a patient generally is low.

The outbreak could occur since the "atypical" clinical presentation (no prominent itching) and skin manifestation (hyperkeratosis due to abnormal host immune response) in the index patient were not recognized or diagnosed during her hospital stay. In countries with a low incidence of scabies in the community, scabies may be a rare event among hospital patients, although recently outbreaks of scabies originating from acquired immunodeficiency syndrome (AIDS) patients were reported.<sup>2-4</sup> Incorrect initial diagnosis of Norwegian scabies seems to be a major problem and was reported in 55% of the cases in a review.<sup>4</sup> In countries like Germany or The Netherlands, controlling occupationally acquired scabies therefore depends first of all on the hospital staff being alert to the possibility of infection among patients, and an early and accurate diagnosis. Once the problem was known, the infection control guidelines and the treatment of affected patients and staff proved efficient to control the outbreak.

### REFERENCES

1. Pasternak J, Richtmann R, Gamme PP, et al. Scabies epidemic: price and prejudice. *Infect Control Hosp Epidemiol* 1994;15:540-542.
2. Rostami G, Sorg TB. Nosocomial outbreak of scabies associated with Norwegian scabies in an AIDS patient. *Int J Sex Transm Dis AIDS* 1990;1:209-210.
3. Sirera G, Romeu J, Ribera M, et al. Hospital outbreak of scabies stemming from two AIDS patients with Norwegian scabies. *Lancet* 1990;335:1227.
4. Lam S, Brennessel D. Norwegian scabies and HIV infection-case report and literature review. *Infect Dis Clin Pract* 1993;3:169-173.

**A. Voss, MD**

University Hospital St. Radboud  
Institute of Medical Microbiology  
Nijmegen, The Netherlands

**C. Wallrauch, MD**

University Hospital Rechts der Isar  
Institute of Medical Microbiology  
Munich, Germany

### The authors reply.

We thank Dr. Voss and Dr. Wallrauch for their comments on our article. We would like to point out the fact that common scabies is a rather frequent finding in Sao Paulo, but keratotic scabies is not. We agree that Norwegian scabies can be misdiagnosed. Indeed, our probable index case caused a disagreement between our dermatology service and the infection control nurse-she strongly suspected keratotic scabies, but the dermatologist was not so sure, and that was the reason to biopsy the patient. Our experience with run-of-the-mill scabies is that usually it does not cause secondary cases in the hospital, in contrast to keratotic scabies; the worldwide experience with this form of the disease shows its potential to cause wide epidemics. We agree that hospital staff should be alert to the diagnosis of keratotic scabies; drug addicts, homeless persons, and AIDS patients certainly are persons at risk for keratotic scabies, and they exist in Sao Paulo, The Netherlands, and Germany. We note that universal precautions should prevent epidemic scabies but did not, in our hospital or in the epidemic described by Dr. Voss, suggesting again that healthcare workers do not always follow them-or that, as currently done, they are not enough to prevent these outbreaks. We have the same problem in educating HCWs to always wash their hands between patients and use barrier methods with possibly infected skin lesions here in Sao Paulo and in other places.

**Jacyr Pasternak, MD**

**Rosana Richtmann, MD**

**Antonio P.P. Gamme, MD**

**EdwaI A.C. Rodrigues, MD**

**Fermina B.M. Silva, RN**

**Maria de Lourdes Hirata, RN**

**Suely Ciosak, RN**

Real Sociedade Portuguesa

de Beneficiencia

Sao Paulo, Brazil