testing for children because of very low prevalence (<0.01/1,000 discharges; unpublished data). This would have led to a 15% saving. If HIV screening was performed for high-risk groups only, approximately a 90% savings would have been made. If routine preoperative HIV screening is to be argued against on a financial basis, it then becomes extremely important to attempt to identify high-risk groups by meticulous history taking and clinical examination.

In this study, $680,084 was spent to identify one HIV-positive patient whose status would not have been suspected based on medical history or clinically indicated tests.

There is a concern that routine screening for HIV might induce a false sense of security among surgeons, leading to a deviation from Universal Precautions.[4] Our study shows some evidence to support this impression. Published data suggest that surgeons experience intraoperative skin penetration once every 40 cases.[5] Thus, 125 such events would be expected annually at this hospital, but only eight were reported during the study period, clearly reflecting underreporting. Second, surgeons showed little interest in following up on the possibility of HIV seroconversion in patients with whom blood contact had occurred, reflecting a poor appreciation of the concept of false-negative HIV testing. However, limiting HIV testing to patients with clinical indications only did not improve adherence to adequate history taking, Universal Precautions, reporting of blood contacts, or follow-up of relevant HIV-negative patients for seroconversion.[4] Prior knowledge of the patient's HIV status would facilitate the early administration of AZT, which might be effective in preventing subsequent HIV seroconversion after a specific exposure, a valid argument in favor of routine preoperative screening.

In conclusion, because of very low seroprevalence of HIV infection in this community, it is recommended that our hospital's policy for HIV screening should be discontinued, and testing should be limited to high-risk patients only. This could be accomplished by using formatted surgical history sheets addressing risk factors for HIV infection that have to be completed thoroughly on all patients and enforced through regular checks by senior surgical staff and random review by quality improvement specialists.

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Barrier and Antiviral Effect of a New Cream Formulation

To the Editor:

The increased awareness of deadly infectious diseases has led many in the healthcare profession to question the integrity of their gloves. This is not unwarranted, because perforation rates remain higher than the Food and Drug Administration guidelines of 2.5% for unused sterile surgical gloves and 4.0% for unused examination gloves.[1-4] In response to this, Microbarriers, Inc (Pulaski, WI), developed a novel cream that exhibits barrier and antiviral properties. We investigated the ability of the base cream and base cream with 5% nonoxynol-9 to act as a barrier to herpes simplex virus type 1 (HSV-1) and the amino acid leucine.

To test the effect of the cream as a barrier, we simulated the condition of a barrier with a pair of stacked filter paper disks.[5] The bottom disk was dampened with distilled water. A uniform layer of the cream containing 5% nonoxynol-9 was applied to the top filter, and then 100 µl of a solution containing either radiolabeled leucine or HSV-1 was applied to the stack. The bottom filter was removed at time points 0, 5, 15, 30, 60, and 180 minutes, and the amount of label passing through the cream was counted in a scintillation counter. Control filters contained no cream. The results of these experiments are shown in Figure 1. Counts at all time points were significantly ($P<.05$) lower for the cream than for their respective controls (Student's t test). At saturation, 68% of the leucine and 27% of the HSV-1 had passed the barrier, compared to their respective controls. Similar results were obtained with the base cream without nonoxynol-9 (data not shown).

To test the antiviral activity of the cream, a dry Dacron swab was dipped into the cream and smeared on the bottom and sides of a 96-well microtiter plate. The cream was allowed to dry, and then a solution containing HSV-1 (100 µl) was added to each well. At time points 0, 5, 15, 30, 60, and 180 minutes, the solution was removed and assayed for live virus. No cream was added to control wells. The results are shown in Figure 2. The cream alone reduced titers by 15- to 20-fold, which do not differ significantly from the control. The addition of nonoxynol-9, however, had the effect of reducing viral titers to 0 after as little as 5 minutes' exposure; these differences were significant ($P<.05$).

The development of this new cream offers a possible second line of defense to the use of gloves and may provide some protection even when used alone. This new formulation has barrier properties similar to other creams,[5] but, with the addition of nonoxynol-9, also has significant antiviral properties that would enhance the protective effect. Additional studies of the effect of the creams on glove material and of clinical efficacy now are needed.

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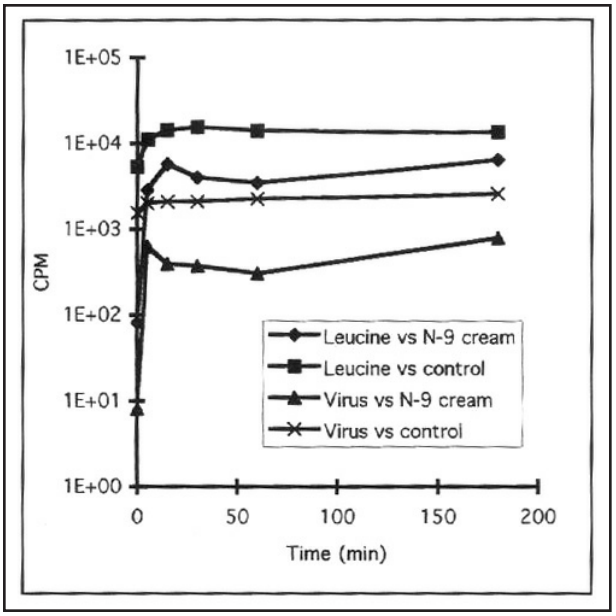

FIGURE 1. Barrier function of the cream with 5% nonoxynol-9. Radiolabeled leucine (n=4) and radiolabeled HSV-1 (n=6) were tested, and the average was plotted. Counts at all time points were significantly ($P<.05$) lower for cream compared to their respective controls.

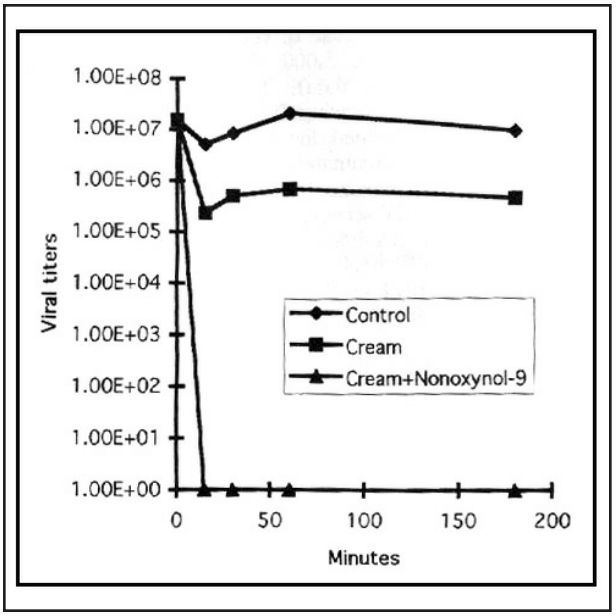

FIGURE 2. Antiviral activity of the cream base and the cream with 5% nonoxynol-9. The average of the titers for each sample (n=2) are plotted. Viral titers at all time points after 0 minutes were significantly ($P<.05$) lower for the cream with nonoxynol-9 compared to the control.

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Administrative Controls for TB: "Keep Doing What You've Always Done, and You'll Get What You Always Got"

To the Editor:

We appreciate the editorial of Dr. Wurtz[1] in response to our report entitled "Implementation and Evaluation of an Algorithm for Isolation of Patients With Suspected Pulmonary Tuberculosis."[2] We would like to clarify several points that she raised.

First, before 1993, data on patients isolated with suspected pulmonary tuberculosis (TB) were not collected consistently at the Massachusetts General Hospital (MGH). Therefore, we were unable to compare isolation data before and after the implementation of the algorithm to determine if use of the algorithm improved the rate of isolation. Anecdotal reports of inconsistent isolation prior to 1993 prompted the development of the algorithm.

Second, during 1993 and 1994, isolation data were collected only from patients with at least one positive acid-fast bacilli (AFB) sputum smear or sputum culture that grew *Mycobacterium tuberculosis.* Only the 69 patients so identified were analyzed in our report. Dr. Wurtz has mistakenly assumed that these 69 patients represent all of the patients isolated for suspected pulmonary TB in 1993 and 1994, and has calculated an apparently low "rule-out ratio" (ie, ratio of patients isolated to TB cases) of 1.7:1. Such a ratio cannot be determined, given the lack of data on all patients isolated for suspected pulmonary TB during 1993 and 1994. However, based on data from 1995, 114 patients were isolated for suspected pulmonary TB at the MGH, and nine pulmonary TB cases were diagnosed, yielding a rule-out ratio of 12.6:1.

Third, Dr. Wurtz's comment that ". . . 19% of all patients evaluated for TB had positive acid-fast bacilli . . . smears but negative cultures . . . a surprisingly high smear false-positive rate" deserves comment and clarification. In 1993, three patients had AFB smear-positive specimens that were culture-negative. However, in 1994, 10 patients had AFB smear-positive, culture-negative specimens; six of these patients had specimens that were processed during July and August 1994 in the MGH Clinical Microbiology Laboratory. An investigation revealed that contaminated water in the laboratory had been used to prepare both potassium hydroxide and phosphate-buffered saline solutions used in the processing of AFB smears. This contamination most likely was due to a failure in the reagent water filtering system, and the problem has since been corrected. All six patients were initially isolated based on their AFB smear-positive respiratory specimens, but, when contamination was suspected and when all respiratory specimens were negative for *M tuberculosis,* they were not evaluated further for TB. If these six patients are excluded during the period 1993 and 1994, the percentage of patients with smear-positive, culture-negative specimens was 11% (7/63) of patients with positive smears or cultures and a much smaller proportion of all patients isolated for suspected TB.

Although we agree that the use of the TB algorithm did not result in the immediate isolation of all patients subsequently diagnosed with pulmonary TB, the calculated failure

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