

tion), then the figure to identify an unknown HIV-infected person swells to \$43,649 (4,535/4 × \$38.50/test). It is unclear whether their cost calculation includes counseling time. Experts on the benefits of HIV test-related counseling believe that pre- and post-test counseling can be invaluable even for high-risk persons found to be seronegative.<sup>2,3,14</sup> It would be surprising if the HIV based counseling provided by the cardiovascular surgery service spent much time on risk-reduction counseling, thus missing a key opportunity to prevent HIV infection.<sup>2,3</sup> We would be interested in seeing data as to the content and time allotted to counseling at TMH. We doubt whether TMH or the state of Texas can afford a screening program that is so inefficient. At SPRMC, a public teaching hospital, data from the CDC's sentinel hospital project suggest that it would cost an average of between \$6,000 to \$12,000 to identify an unknown HIV-positive patient (Henry K. CDC Sentinel Study. Unpublished data. 1990).<sup>17</sup> In addition, the efficiency of hospital-based screening would decrease over time because patients would be recycling through, and therefore one would be measuring more HIV incidence and less HIV prevalence as the program progressed.

We are concerned about why TMH sees so few HIV/AIDS patients. Also, the acceptance of the HIV screening program was 91% on the cardiosurgery service and only 31% on medicine. Those data suggest to us that the program was not broadly accepted at TMH, and that HIV/AIDS patients may be avoiding TMH because of a negative image about aggressive HIV testing practices and because of physician attitudes about HIV/AIDS at TMH. The practice of leaving the enzyme

immunoassay results in the TMH computer system despite negative or indeterminate western blot results also concerns us because many healthcare workers still misinterpret those results (Henry K. CDC Sentinel Study. Unpublished data. 1990).<sup>2,18,19</sup> The authors do not provide data as to what advantage the patients actually gained by finding out their HIV status (e.g., did they all easily access HIV care, including early intervention strategies). We interpret their data as demonstrating the inefficiency and relatively poor acceptance (by staff and patients) of an attempt at universal voluntary HIV testing at a private hospital in Houston, a high-incidence area for HIV/AIDS. We agree with the authors that a targeted approach toward HIV testing using local seroprevalence and epidemiologic data is more appropriate.

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*The authors were asked to respond to this letter:*

Dr. Henry and Mr. Campbell are correct in their observation that several other hospitals in Houston, Texas, care for more human immunodeficiency (HIV)-positive patients than The Methodist Hospital (TMH). The Houston Veterans' Affairs Medical Center, Harris County Hospital

District (Ben Taub and Lyndon B. Johnson hospitals) and several private institutions care for more HIV-positive patients than our institution. Several primary care physicians at these private institutions have self-declared “acquired immunodeficiency syndrome (AIDS) practices.”

There is a consensus that voluntary HIV testing to identify infection patients should be accomplished. The best approach to testing—who, how, where, and when—has not been established. We believe the authors took exception to the word “widespread” (not used in the first line of the abstract). As discussed in our article, we also believe in a targeted approach, but how best to select the population to test deserves further study.

The statistical difference between the seroprevalence of patients agreeing to and declining HIV screening reached a  $p$  value of .12—a value that is generally interpreted as not statistically significant. Before this study, our hypothesis was that we would see a statistically significant difference in the HIV seroprevalence of these groups; we did not. Whether the difference between 0.26% and 0.60% is medically significant, even though not statistically significant, is left to the reader. With a bigger sample size or different population, statistical difference might be shown, but it was not in our study. It takes a leap of faith to believe “these data clearly suggest that persons at risk will selectively refuse participation.”

As we stated, the screening process did discover 12 patients not previously known to be HIV positive by the admitting physician. Even the patient who knew he was HIV-positive did not convey this information to healthcare workers until he was told of the positive serology. Some of these

patients would have been found to be HIV-positive at some time during hospitalization, but when and how many are not known.

In assessing the financial aspects of HIV testing, it is important to distinguish between cost and charges. Many variables must be included in any financial equations, and several were discussed in the article. Certainly, the discovery of one HIV-positive patient and the subsequent prevention of one hospitalization for *Pneumocystis carinii* pneumonia or the prevention of transmission to one sexual partner would save huge sums of money. The cost analysis of an HIV screening program is very complex. HIV testing has not been a financial loss for our institution, although it might be for a public hospital. We agree that counseling high-risk patients is a valuable approach in controlling the AIDS epidemic and that screening programs are a golden opportunity for counseling. More work needs to be done in this area.

As we discussed in our article, there is considerable difference in the interest demonstrated by various TMH physicians and other healthcare workers in this screening program. The majority of physicians are supportive of the program, but vary in their degree of active participation. Few physicians are against the screening program. The scope of this article did not include long-term follow-up on HIV discoveries; however, each of these patients was counseled by physicians with expertise in the care of HI-related disease and given the opportunity for prompt and appropriate medical care.

The purpose of our report was to share the “good and bad” experience of admission HIV screening in a large hospital. The program is well accepted by patients and healthcare workers.

Although it is not perfect and a targeted population approach would be much more cost effective, hospitals are practical places for HIV screening, and the benefit is to the patient.

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## **Clinical Predictors of Infection of Central Venous Catheters Used for Total Parenteral Nutrition**

### **To the Editor:**

We were pleased to read the article “Clinical Predictors of Infection of Central Venous Catheters Used for Total Parenteral Nutrition” by Armstrong et al.<sup>1</sup> However, we disagree with the methods used by the authors and, accordingly, with some of the conclusions reached in their study.

The authors support and implement a predictive protocol for catheter sepsis based exclusively on the clinical and microbiological investigation of the skin close to the catheter entry site. This alone could invalidate their study because many of these infections are caused by endoluminal hub contamination.<sup>2</sup> Additionally, there are serious methodological pitfalls, the most important of which are the following. First, no clear criteria for catheter removal are given. Second, the skin is not sterilized after the skin culture has been taken and before the catheter is removed. This may result in spurious extraluminal contamination of the catheter tip. Third, because only the semiquantitative extraluminal culture method was used, endoluminal contamination might have been overlooked in some cases.<sup>3</sup>