in the transparent dressing group: longer dressing change interval, longer duration of catheter use, and less use of topical antibiotics. The authors discuss but dismiss these covariates. Also, they combine studies with different brands of transparent dressing—brands are not interchangeable.[4]

A typographical error in Table 3 inadvertently exchanged proportions of phlebitis in the Nicola and DeChairo study: 78/255 (30.6%) applies to gauze and not transparent; 58/270 (21.5%) applies to transparent and not gauze dressings (the relative risk [RR] is correct.) This difference is statistically significant in favor of transparent dressing. Maki and Will[5] did not find skin colonization rates significantly greater using transparent as opposed to gauze dressings when both were changed every 2 days. Arterial catheter data from Maki and Will[6] should have been excluded; some transparent dressings are contraindicated for arterial use. Abstracts are subject to the same biases as published articles, and so do not "avoid publication bias."

Significant differences in catheter-tip infection do not imply correspondingly significant differences in clinical infection. There were no statistically significant increases in any clinical infection due to transparent dressings. Finally, covariates not considered in the authors' statistical analyses could more than make up for observed differences in dressing type.

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Since 1980, Dr Berry has been a paid consultant to the 3M Corporation, manufacturer of Tegaderm® transparent dressing.

1. Hoffmann KK, Weber DJ, Samsa GP, Rutala WA. Transparent polyurethane film as an intravenous catheter dressing: a meta-analysis of the infection risks. *JAMA.* 1992;267:2072-2076.
2. Maki DG. Infections due to infusion therapy. In: Bennett JV, Brachman PS, eds. *Hospital Infections.* 2nd ed. Boston, Mass: Little Brown & Co Inc; 1986:561-580.
3. Nahass RG, Weinstein MP. Qualitative intravascular catheter tip cultures do not predict catheter-related bacteremia. *Diagn Microbiol Infect Dis.* 1990;13:223-226.
4. Young GP, Alexeyeff M, Russell DM, Thomas RJS. Catheter sepsis during parenteral nutrition: the safety of long-term OpSite dressings. *JPEN J Parenter Enteral Nutr.* 1988;12:365-370.
5. Maki DG, Will L. Colonization and infection associated with transparent dressings for central venous catheters: a comparative trial. In: Program and abstracts of the Association for Practitioners in Infection Control Educational Conference; June 3-7, 1984; Washington, DC. Abstract poster session, board 21.
6. Maki DG, Will L. Study of polyantibiotic and povidone-iodine ointments on central venous and arterial catheter-sites dressed with gauze or polyurethane dressing. In: Program and abstracts of the 26th Interscience Conference on Antimicrobial Agents and Chemotherapy; September 28-October 1, 1986; New Orleans, La. Abstract 1041.

In Reply.—When comparing the infection risks of transparent vs gauze dressings used on central venous catheters, the RRs were 1.78 for catheter-tip infection, 1.63 for bacteremia, and 1.69 for catheter sepsis. These RRs represent the best assessment of the overall risk associated with the use of transparent dressings. (For catheter-tip infection, $P<.001$; for catheter sepsis, $P=.06$.) In our discussion we used the word "trend" in discussing this level of significance. The choice of .05 as the level of "statistical significance" is arbitrary, and given the RRs demonstrated in the meta-analysis, further studies are warranted before accepting transparent dressings as safe.

Dr Berry notes that a recent review by Maki[1] states that quantitative cultures of catheter tips have a "15 to 40 percent association with concomitant bacteremias." We disagree with Berry's conclusions regarding the significance of a positive catheter-tip culture. Dr Maki notes that "most catheter-related septicemias derive from local infection of the transcutaneous cannula tract." We did not state that catheter-tip infection and catheter sepsis need occur simultaneously, but rather that the former is a precursor to the latter. We also recognize that not all catheter-tip infections proceed to sepsis. The two references (ie, Maki[1] and Nahass and Weinstein[2]) cited by Berry describe the predictive value of catheter-tip infection for concurrent sepsis, which is an entirely different issue.

Many of the studies we cited had differences as noted by Berry, but these differences did not bias our results. As we noted, the differences in duration of catheter use were not significant. There was somewhat greater use of antibacterial ointments in the gauze groups, but this additional use was small compared with the large number of catheters studied. Transparent dressings were changed less frequently than gauze dressings. Transparent dressings have been promoted as advantageous for two reasons: the need for less frequent changes and the ability to visualize the insertion site to allow assessment of local infection.

For these reasons, all seven studies of peripheral catheters used longer dressing intervals for transparent dressings. As such, our analysis reflected differences in the way transparent and gauze dressings are currently used. Changing transparent dressing as frequently as is currently done with gauze dressing would result in higher dressing cost. Further, use of antibacterial ointment under a transparent dressing obscures the insertion site.

We appreciate Berry's notes of a typographical error in Table 3. While it is true that including abstracts does not solve the problem of publication bias, including these sources may serve to ameliorate its effects. Another approach to the issue of publication bias involves the "file-drawer problem" (ie, estimating the number of negative studies required to eliminate the observed statistical significance). Using the method of combining z scores,[3] one would need in excess of 64 central venous catheter studies and 30 peripheral venous studies to negate the observed statistical significance for the catheter-tip infection outcome. This calculation can be verified using data from Tables 2 and 4.

Lastly, we feel that Berry's comments unfairly argue for placing the burden of proving that new technologies such as transparent dressings are safe on the unbiased scientific community. Rather, companies that introduce new technologies should provide studies of adequate power to ensure that these technologies are least as safe as current methods.

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1. Maki DG. Infections due to infusion therapy. In: Bennett JV, Brachman PS, eds. *Hospital Infections.* 2nd ed. Boston, Mass: Little Brown & Co Inc; 1986:561-580.
2. Nahass RG, Weinstein MP. Qualitative intravascular catheter tip cultures do not predict catheter-related bacteremia. *Diagn Microbiol Infect Dis.* 1990;13:223-226.
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T-Lymphocyte Subsets in Intravenous Drug Users With HIV-1 Infection

To the Editor.—Recently, Margolick et al[1] reported on changes in CD4 and CD8 T-lymphocyte subsets in intravenous drug users (IVDUs). In their words, "The principal finding was the slow rate of decline in CD4 lymphocyte counts in HIV-1 [human immunodeficiency virus type 1] seropositive IVDUs over a 2.5-year period of observation." (Actual observation period was 18 months.) The authors assert that this finding contradicts "the common perception that HIV-1 infection in IVDUs leads to rapid decline in CD4 lymphocytes." Howev-