

Letters to the Editor

Skin Entry Site Swabbing a Poor Predictor of Catheter-Related Sepsis

To the Editor:

Looking for risk factors in the acquisition of catheter related sepsis, we have completed a prospective study of 100 central venous catheters. As the study progressed it became increasingly obvious that routine swabbing of the catheter entry site did not predict the result of subsequent culture of the catheter tip. Skin entry site swabs were taken twice weekly from each patient at the time of dressing change. Povidone-iodine ointment was applied

after swabbing and the insertion site covered with a sterile gauze or semi-permeable polyurethane dressing. Swabs were cultured aerobically on horse blood agar plates. Catheters were removed aseptically and cultured using a semiquantitative technique.¹ The mean duration of catheterization was 18.5 days.

Seven catheters had positive cultures using the criteria of Maki et al.¹ In five of these cases patients appeared clinically to have catheter-related sepsis. There was one fatality. Sixty-eight patients, however, had positive catheter entry-site swabs at some stage during insertion and in 39 cases there were multiple isolates. In

only two cases did results of swabbing correlate with tip culture (see Table). In both of these cases the organism was a coagulase-negative staphylococcus labeled *Staphylococcus epidermidis*. However, speciation was not performed and antibiotic susceptibilities were not determined for the isolates from entry-site swabbing. It is thus possible that these organisms represented different species or different strains within a species. Other investigators² have also found a similar poor correlation between skin swabbing and catheter tip cultures.

Hence, we would not recommend routine entry-site swabbing in the management of central venous catheters. Intravenous lines should be removed if there is any suspicion of catheter-related sepsis and culture of the catheter, preferably with a semiquantitative technique, should be performed.

REFERENCES

1. Maki DG, Weise CE, Sarafin HW: A semiquantitative culture method for identifying intravenous-catheter-related infection. *N Engl J Med* 1977; 296:1305-1309.
2. Lunt H, Humble WV, Carter JM et al: Intravenous catheter-associated *Staphylococcus epidermidis* bacteraemia in hematology/oncology patients. *Aust NZ J Med* 1987; 17:339-341.

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BACTERIOLOGY OF POSITIVE CATHETER TIP CULTURES*	
Catheter Tip	Entry Swab
1. <i>Staphylococcus aureus</i>	<i>Staphylococcus epidermidis</i>
2. <i>Staphylococcus aureus</i>	<i>Staphylococcus epidermidis</i> Non-JK diphtheroids
3. <i>Staphylococcus epidermidis</i>	<i>Staphylococcus epidermidis</i>
4. <i>Klebsiella pneumoniae</i>	No growth
5. <i>Corynebacterium JK</i>	<i>Staphylococcus epidermidis</i> Non-JK diphtheroids <i>Candida albicans</i>
6. <i>Staphylococcus epidermidis</i>	<i>Staphylococcus epidermidis</i> Non-JK diphtheroids
7. <i>Staphylococcus aureus</i>	<i>Staphylococcus epidermidis</i> <i>Streptococcus faecalis</i>

*Numbers 1 through 5 had clinical sepsis.