TABLE
RESULTS FROM DIFFERENT BODY AREAS OF THE INITIAL SET OF SCREENING CULTURES FOR METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* FROM 29 COLONIZED PATIENTS

Site Samples					
Nose	**Throat**	**Axilla**	**Perineal Area**	**Wound***	**Number of Patients**
+	−	−	−	−	4
+	+	−	−	−	2
+	−	+	−	−	1
+	−	−	+	−	1
+	−	−	−	+	1
+	+	+	−	−	1
+	+	−	−	+	1
+	−	+	+	−	2†
+	+	+	+	−	4
+	−	+	+	+	2
−	+	−	−	−	3
−	−	+	−	−	2
−	−	−	+	−	4
−	−	−	−	+	1

* If present.
† One of these two patients was the index case.

Ceftazidime proved an excellent selective antibiotic for this MRSA in subcultures from the enrichment medium; interference from contaminating flora was noted only sporadically. MRSA was clearly visible after 24 hours of incubation. Moreover, no MRSA could be detected after 48 hours of incubation if it was not already visible after 24 hours on this medium. Overall, MRSA colonies were larger with a brighter zone of hemolysis compared to the Mueller-Hinton medium without ceftazidime, following the same incubation period.

We conclude that our screening approach, consisting of obtaining cultures of all appropriate anatomical sites and the use of an enrichment broth plus a selective solid agar plate, yielded higher case-detection rates of this epidemic MRSA III-29 strain. However, it must be borne in mind that the optimal detection technique could be strain-dependent.

REFERENCES

1. Frenay HME, van Leeuwen WJ, de Neeling AJ, et al. Infection spreads between hospitals. *BMJ* 1994;308:58.
2. Mulligan ME, Murray-Leisure KA, Ribner BS, et al. Methicillin-resistant *Staphylococcus aureus*: a consensus review of the microbiology, pathogenesis, and epidemiology with implications for prevention and management. *Am J Med* 1983;94:313-328.
3. Working Party Report. Revised guidelines for the control of epidemic methicillin-resistant *Staphylococcus aureus*. *J Hosp Infect* 1990;16: 351-377.
4. Coello R, Jiménez J, Garcia M, et al. Prospective study of infection, colonization and carriage of methicillin-resistant *Staphylococcus aureus* in an outbreak affecting 990 patients. *Eur J Clin Microbiol Infect Dis* 1994;13:74-81.
5. Milne LM, Curtis GDW, Crow M, et al. Comparison of culture media for detecting methicillin resistance in *Staphylococcus aureus* and coagulase-negative staphylococci. *J Clin Pathol* 1987;40:1178-1181.
6. Mouton RP, Mulders SLTh, de Knijff J, et al. Comparison of test systems for recognition of methicillin resistance in *Staphylococcus aureus*. *Eur J Clin Microbol Infect Dis* 1989;8:968-973.
7. Cookson B, Peters B, Webster M, et al. Staff carriage of epidemic methicillin-resistant *Staphylococcus aureus*. *J Clin Microbiol* 1989;27:1471-1476.
8. Sautter RL, Wells LW. Selective staphylococcal broth. *J Clin Microbiol* 1990;28:2380-2381.
9. van Enk RA, Thompson KD. Use of a primary isolation medium for recovery of methicillin-resistant *Staphylococcus aureus*. *J Clin Microbiol* 1992;30:504-505.
10. Wagenvoort JHT, Davies BI, Westermann EJA, et al. MRSA from air-exhaust channels. *Lancet* 1993;341:840-841.

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Industry Has Not Eliminated Needlestick Injury: Is It Time for Personal or Federal Intervention, or Both?

To the Editor:

Ten years ago, any standard intravenous (IV) administration set afforded adequate access for IV drug administration (using hypodermic needles via latex Y-ports). Since the discovery of acquired immunodeficiency syndrome, a new multimillion dollar "needleless IV access" industry has developed. In spite of great expenditures for multiple types of "needleless" products, this technology has not had a significant impact on needlestick injury rates.[1] Needleless products typically are used in addition to hypodermic needles and standard latex ports, and one prospective study actually demonstrated an increased use of hypodermic needles when a needleless system was introduced.[2]

This development is particularly frustrating, as 10 years ago, my practice of anesthesia in West Germany was possible without needlestick injury dangers during IV injections. There, all IV cannulae had Luer-lock injection ports as integral components of the cannulae itself (Figure), and IV administration set tubings consistently lacked injection ports. Injections only were possible by directly attaching the syringe (*without hypodermic needle)* to the Luer port of the cannulae, or via an inserted stopcock. Needles only were used safely, during sterile conditions, and prior to patient contamination, while filling syringes with drugs. A second positive facet of these techniques resulted: syringes were used to inject drugs into only a single patient, as the syringe tip directly contacted the port and at a location very near the patient's bloodstream. In American anesthetic practice, common syringe utilization on multiple patients throughout the day was, and remains, commonplace, as many anesthetists feel syringe contamination is excluded when latex ports are injected using needles.[3,4]

The Food and Drug Administration (FDA) prohibited entry of Venflon "injection cannulae" into the US market in the late 1960s, because there were fears of port contamination and patient infection (apparently

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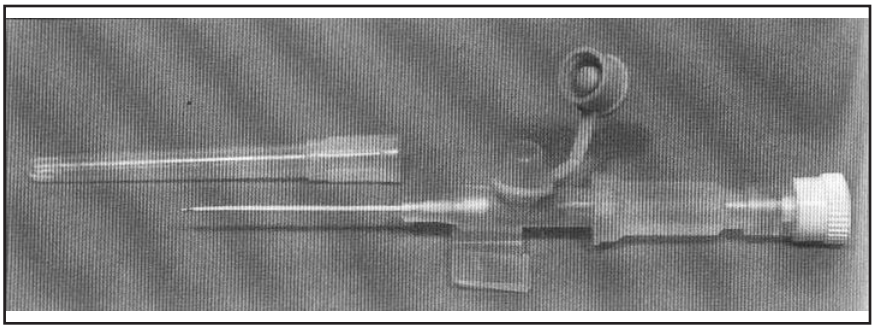

FIGURE. A Viggo "Venflon" catheter (Viggo, Helsingborg, Sweden) is shown with the resealable and attached port cap opened to expose the injection port. This cap can be removed, and stopcock caps will fit the Leur locking port.

unsubstantiated, given the long history and continued widespread European usage). Now, however, the majority of US needleless products are exactly of this port type, although guidelines continue to recommend the maintenance of "closed" IV administration systems (latex ports) over "open" systems (Leur ports/stopcocks) to prevent IV infections.[5] Recent investigation has documented an increased risk of IV infections when modern needleless systems were used.[6] Venflon cannulae now will *not* be introduced here, because of expired patent protection and the cost of the FDA 510k approval hurdle, as well as the lucrative nature of marketing the multicomponent and redundant needleless systems.[7]

The recent introduction of the Lifeshield 18 GA blunt cannula (Sherwood/Monoject, St Louis, MO; Abbott Corp, Chicago, IL) finally may provide a real solution to needlestick injury risk in American IV therapy. Although Lifeshield cannulae typically do require 1 to 3 kg to pierce *intact* standard Y-port membranes, and associated coring can cause many brands of standard Y-ports then to leak subsequently, any standard Y-port membrane pierced *only once* with a sharp needle then can be accessed as easily with a blunt cannula as if it were a hypodermic needle. Minimal force is required, needle injury risk is nonexistent, and the integrity of the ports remains intact even after as many as 60 blunt cannula insertions. Single-dose–vial membranes are much less problematic than Y-port membranes when using blunt cannulae, as they typically require much less force to pierce. With multidose vials, postpuncture leakage is not a concern, as pressure gradients (which cause fluid leakage) across the membrane are not encountered.

Coring of membranes is known to occur with any hollow needle, and drug particulate contamination is a recognized and common, if not constant, occurrence during contemporary IV therapy with hypodermic needles.[8] Coring of vial membranes from blunt cannulae access, as well as puncture force requirements, if of concern, could be minimized further with the development of vial membranes intended for this type of use, or possibly eliminated completely via membrane prepuncture with a nonhollow lancet. It is unlikely that drugs will be marketed universally in containers with Leur openings or pre-slit membranes (specifically designed to eliminate needle usage), particularly if implementation is left to multiple manufacturers: the costs for development, stringent FDA approval and drug stability requirements, and nonexistent patent protection (ie, market advantage) provide no corporate incentive.

Syringes no longer should be marketed with hypodermic needles in place, and factory prepiercing of all latex membranes of standard IV administration sets should be required. These two measures would make IV drug administration using blunt needles, from start to finish, safe and convenient. Hypodermic needles could be eliminated from the much larger number of nontranscutaneous manipulations, while allowing conscious hypodermic utilization only for skin puncture.

Prepierced (used) latex ports and blunt needles clearly are generic (nonproprietary) items, would be cheap to produce, and are familiar and easy to use. One small manufacturer had attempted to market these products, but burdened with a nuisance lawsuit by a very large corporation, was financially unable to litigate this generic concept and prevail in the public interest. It is time for government to pursue actively the cost containment and worker safety that federal programs demand, by litigating or legislating the described measures. Until then, we must continue to risk needle injury or simply quit buying syringes with hypodermic needles attached (which can be done; for example, Sherwood/Monoject markets all syringes with blunt cannulae *or* hypodermic needles) and produce our own prepierced ports via safe homemade measures using available products.[9] I have been using a blood lancet (Becton-Dickenson #5755, Franklin Lakes, NJ) successfully and without membrane compromise to prepuncture any port membrane. In this way, I have eliminated completely the need for hypodermic needles. The paper-thin packaging of these lancets allows me to carry multiple sterile lancets in my pocket to ensure their availability at all times. The flat, nonhollow, triangular lancet point creates a hole indistinguishable from manufactured preslit membranes, and facilitates cannulae insertion over needle holes and without coring.

REFERENCES

1. Hershey JC, Martin LS. Use of infection control guidelines by workers in health care facilities to prevent occupational transmission of HBV and HIV: results from a national survey. *Infect Control Hosp Epidemiol* 1994;15(4):243-252.
2. Berry AJ. The use of needles in the practice of anesthesiology and the effect of a needleless IV administration set. *Anesth Analg* 1993;76:1114-1119.
3. Kempen PM. Anesthesia practice—a vector of infection? *Anesthesiology* 1989;71:A948.
4. Tait AR, Tuttle DB. Preventing perioperative transmission of infection: a survey of anesthesiology practice. *Anesth Analg* 1995;80: 764-769.
5. Simmons BP. Guidelines for Prevention of Intravascular Infections. US Department of Human Services Document PB84-923403. Reprinted from Guidelines for the Prevention and Control of Nosocomial Infections. Hospital Infections Program, Centers for Disease Control, CID, PHS, HHS.
6. Danzig LE, et al. Bloodstream infections

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associated with a needleless IV infusion system in patients receiving home infusion therapy. *JAMA* 1995;273(23):1862-1864,
7. Kempen PM. Equipment modifications to reduce needle sticks. *N Engl J Med* 1988;319:308.
8. Waller DG, George CF. Ampoules, infusions, and filters. *Br Med J* 1986;292:714-715.
9. Federal Food and Drug Administration. Use of approved drugs for unlabeled indications. *FDA Drug Bulletin* 1982;1:4-5.

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Correction

Controlling Vancomycin-Resistant Enterococci

It has come to our attention that the legend for Figure 1 in the Concise Communication article "Controlling Vancomycin-Resistant Enterococci" (1995;16:634-637) contained an error. The box to the left of the legend "epidemic vanB" should have been filled with a tiny, dotted pattern. Please see the revised figure with its legend as printed on this page. We regret any inconvenience this may have caused the authors and our readers.

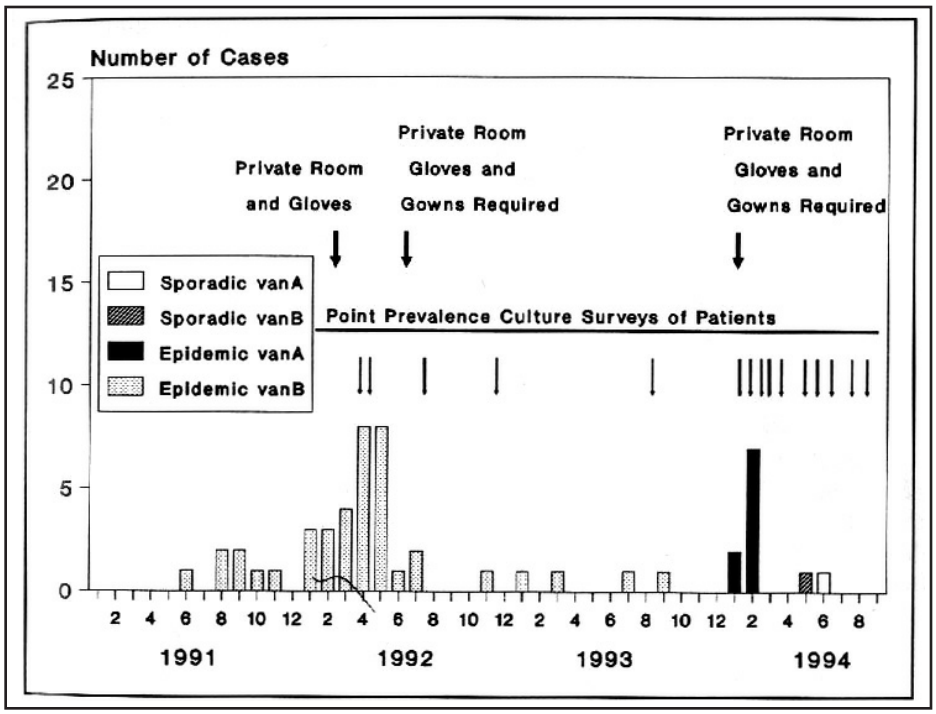

FIGURE 1. Number of patients with vancomycin-resistant *Enterococcus faecium*, by month of first positive culture. Dates of implementation of various control measures are shown by heavy vertical arrows, and dates of point-prevalence culture surveys are shown in small vertical arrows.

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