Bloodstream Infections Due to *Micrococcus* spp and Intravenous Epoprostenol

To the Editor—We read with interest the article by Kallen et al[1] published in the April 2008 issue of the journal. Kallen et al presented a retrospective cohort study of bloodstream infection (BSI) in patients treated with intravenous prostanoids. The authors concluded that BSI due to gram-negative pathogens was more common in patients who received treatment with intravenous treprostinil than among patients who received treatment with intravenous epoprostenol. The authors reported the organisms that were isolated in blood samples from both groups. We believe that it is important to further examine these results.

Although the novel finding in this report was the higher rate of BSI due to gram-negative pathogens among patients treated with intravenous prostanoids, the authors did not comment on the high rate of BSI due to *Micrococcus* spp in patients treated with epoprostenol. In the latter group, micrococci were the second most common type of bacterium isolated (11 cases); in contrast, micrococci were isolated in none of the patients who received intravenous treprostinil. *Micrococcus* spp have been reported consistently as the second most common etiologic agent of BSI in patients receiving epoprostenol after *Staphylococcus* spp[2-4].

In January 2008, we submitted a paper reporting the common occurrence of BSI due to *Micrococcus* spp among patients treated with intravenous epoprostenol at our institution.[5] During the period from January 2001 to December 2006, 45 cases of BSI occurred in patients who received intravenous epoprostenol through a Groshong catheter. There were 13 cases of BSI due to *Staphylococcus aureus*, 8 cases of BSI due to *Staphylococcus epidermidis*, and 5 cases of BSI due to *Micrococcus* spp. Because no patients at our institution were being treated with intravenous treprostinil at that time, we reviewed the blood culture results from 657 patients who were using a Groshong catheter during the same period for reasons other than pulmonary hypertension. Strikingly, we did not find any micrococcal BSIs in this group of patients.

Why are cases of BSI due to *Micrococcus* spp more frequent in patients treated with intravenous epoprostenol, whereas they are almost nonexistent in other groups with long-term central venous catheters, including patients who are treated with intravenous treprostinil? This question may have interesting answers. Maybe epoprostenol creates the right environment for the growth of micrococci during the preparation, storage, or delivery of the drug. But the most intriguing avenue for investigation, as we also suggested, is to explore the role of the prostanoids in modulation of the immune response in vivo as has already been demonstrated in vitro.[6] The answer to our question may have implications for the development of new types of therapy for pulmonary hypertension.

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A Tertiary Care Cancer Center Experience of the 2007 Outbreak of *Serratia marcescens* Bloodstream Infection Due to Prefilled Syringes

To the Editor—We read with great interest the article by Su et al[1] that describes the 2007 outbreak of *Serratia marcescens* bloodstream infection in Texas due to contaminated prefilled heparin syringes. We had a similar outbreak at our institution[2] during the same period, but interestingly the product incriminated in the investigation by Su et al[1] was not being used at our institution. Even after the recall of all prefilled heparin syringes on December 20, 2007,[3] there were still new cases of *S. marcescens* bloodstream infection occurring among our patients with cancer, with some of these cases acquired nosocomially. The infection control team suspected a second

source of contamination. We notified the local and state health departments regarding our concern for a possible second contaminated source. During our investigation, we determined that the same manufacturer was linked to the supply of prefilled saline syringes. We immediately quarantined the prefilled saline syringes after the content of one of the syringes grew *S. marcescens* and confirmed our suspicion. On January 18, 2008, a wider national recall of all the products by the manufacturer was issued.[4]

Su et al[1] note that the probable reason that cases of *S. marcescens* bloodstream infection continued to occur through mid-December, despite discontinuation of the use of prefilled heparin syringes after November 22, was that heparin solution from lot A syringes was left in intravenous catheters and thus patients were exposed during flush procedures that occurred later. We agree with this possibility because in vitro studies[2] showed that both outbreak strains induce rather quickly a biofilm formation that can adhere to the catheter surface. However, we would like to point out another probable reason of the ongoing outbreak, in particular after the withdrawal of the implicated and first identified contaminated source: the prefilled saline syringes produced by the same manufacturer were also contaminated and they remained in use through mid-December 2007, until their eventual recall on January 18, 2008.[2]

Su et al[1] rightly emphasize the important role of public health entities in effectively communicating information and in linking any suspicious outbreaks among various institutions, to control outbreaks in a timely manner. In addition, we feel that the infection control teams played an equally important role in this outbreak. It was our infection control team that was able to identify a second unsuspected contaminated source, and we were able to take prompt action by immediately quarantining and removing it from use, thereby preventing more infections and saving lives locally and nationwide.[2]

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Simple Interventions Fail to Produce Sustained Reduction in Unnecessary Intravascular Device Dwell Time

To the Editor.—In a letter published in the May 2008 issue of the journal,[1] we showed that a set of simple, low-cost interventions produced a 7.8% reduction in unnecessary intravascular device days. The interventions were based on a daily reminder in the medical record that targeted medical and nursing staff and a daily pamphlet reminder delivered to patients. After consultation within Auckland City Hospital, a modified version of the interventions was implemented in 4 general medical wards and 2 orthopedic wards in 2008. The modifications to the interventions that had been used in the trial consisted of changing the responsibility for placing the chart reminders from clerical to nursing staff, changing from daily pamphlet reminders delivered to patients to having laminated A4-size posters placed at every patient's bedside, and minor wording changes to both reminders. An educational program about the interventions was conducted with staff before and after the introduction of the interventions.

To assess whether the effectiveness of these interventions was sustained over time, we gathered data on intravascular device (IVD) presence and necessity for a 5-day period before the introduction of the interventions and then for a 5-day period 4 months after the introduction of the interventions. Each patient on the wards involved was assessed daily, and the number of IVDs in situ was recorded. Each assessment of a patient was counted as a patient-day. Presence of an IVD was counted as an IVD day. If a patient had more than 1 IVD in place, an IVD day was counted for each device. During the second audit period, data were also gathered on whether the chart reminder was present in the notes in the medical record, whether the reminder had been completed, whether the completed reminder had been acted on, and whether the patient reminder was visible from the patient bedside (this was assessed only on day 1).

The results obtained during the baseline and intervention