after a multifaceted intervention in the medical ward. All of these encouraging findings indicate that CAUTI can be preventable by a multidisciplinary team care bundle.

In contrast to previous reports[6] that the catheter utilization ratios significantly decreased from 0.14 to 0.09 ($P < .001$), the catheter utilization ratio remained high and increased from 0.78 to 0.85 ($P < .001$). This large difference in utilization ratio reflects different study settings, for example, neurosurgery ICU versus medical ward. Most of the patients in this study were unconscious and needed close monitoring of urine output in the neurosurgery ICU; therefore, the catheter utilization ratio could be higher than in other settings. However, the intensivists should still adhere to the bundle, for example, daily review of the indications urinary catheters and early removal of the catheter to avoid unnecessary use of urinary catheters.

In conclusion, the rate of CAUTI in the neurosurgery ICU can be reduced to zero after implementation of a prevention care bundle in spite of a high catheter utilization ratio.

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Bacteriostatic Effect of Mixtures of 1% Propofol with 4% Lidocaine versus 4% Lidocaine Alone: Regards on Microbiologic Studies in the Field of Anesthesiology

To the Editor—Since many decades ago, we have seen the great incursion that infectious diseases have had in the field of anesthesiology: first, because of the emerging knowledge and advanced techniques related to the clinical management of medical conditions, and second, because of the importance of prevention of nosocomial infections when aseptic techniques are appropriately enforced in anesthetic practice.

Among 20 or more original articles based on the microbiology approach on anesthesiologic topics such as the bacteriostatic and probiotic properties of anesthetics, we want to mention 1 particular study by Sakuragi et al[1] published in 1999 with the purpose of specifying the advantages, disadvantages, and areas for improvement in this line of investigation. In an experimental study with a frequent nosocomial pathogen (*Escherichia coli*), Sakuragi et al[1] mentioned the purpose of verifying the concentration-dependent antibacterial activity of lidocaine alone and when it is combined with propofol emulsion to compare this interaction, and they demonstrated the bacteriostatic effect of lidocaine under different concentration mixtures in a 1% propofol solution. They concluded that the addition of lidocaine, even at low concentrations, to propofol solution might be an innovative technique to decrease the hazard of nosocomial infections associated with bacterial extrinsic contamination of propofol. Methodologically, the colony count carried out by the authors through in vitro cultures is the gold standard to identify bacterial growth; however, in these cases, the use of new techniques is recommended, such as flow cytometry, which estimates susceptibility by means of bacterial viability outcomes.[3] In the study by Pina-Vaz et al,[4] the bacteriostatic effect of lidocaine was measured in terms of minimal inhibitory concentration following the flow cytometry technique; interestingly, this technique allowed for clarification of the mechanism of action through the different fluorescent stains and laboratory conditions.[5]

In the first observations made by Sakuragi et al[1] about bacterial growth on propofol alone, we might say that there were coherent results, according to several case reports of outbreak infections associated with propofol contamination.[6]

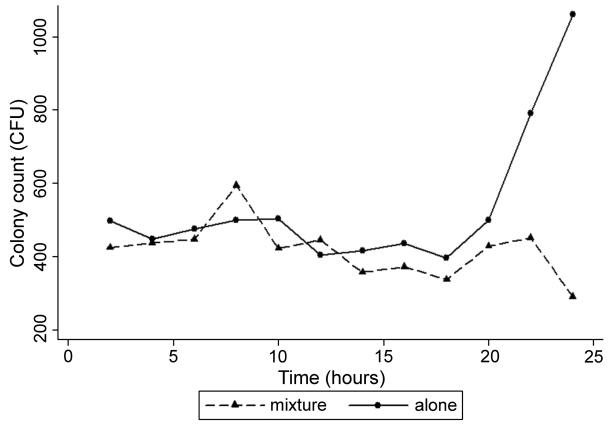

FIGURE 1. Results adapted from the study by Sakuragi et al,[1] which represents the bacterial growth in the mixture of 4% lidocaine with 1% propofol (dashed line) and in 4% lidocaine alone (solid line). CFU, colony-forming unit.

Because of this finding, most authors and all manufacturers have emphasized the importance of a careful management of anesthetics with probiotic characteristics—such as propofol—since 1990, when these were first suspected as a risk factor for nosocomial infections.[6,7] In other results, they described the growth behavior of *E. coli*, comparing the interaction of lidocaine from 1% to 4% concentrations plus 1% propofol and lidocaine alone, basically to determine the bacteriostatic efficacy of lidocaine in the function of concentrations able to counteract the probiotic properties of propofol. When the authors counted the progress of colonies in 4% lidocaine with 1% propofol and 4% lidocaine, surprisingly the growth rate reported in the mixture was less than in the lidocaine alone (-0.004 and $+0.01$, respectively). According to the results presented by Sakuragi et al,[1] we adapted them in Figure 1 to show the same amazing situation where the mixture of lidocaine with propofol reduces the bacterial growth in greater magnitude than lidocaine alone, especially after 20 hours. Although this observation might produce many questions, we confirm no statistically significant difference between the colony counts in the mixture and lidocaine alone (t test, $P = .07$). Further, this outcome is particular because before the date of publication, there were no findings with that feature. The majority of articles confirm larger growth rates in mixtures of lidocaine with propofol than lidocaine alone.[8]

Despite the bacteriostatic effect of lidocaine shown by Sakuragi et al[1] and other authors, there is controversial information that we have to take into account. First, according to a study by Wachowski et al,[8] lidocaine has no bacteriostatic effect. Second, propofol has been associated with impairment of monocyte and neutrophil function,[9] decreasing bacterial clearance without an attributable or established mechanism. Third, hyperlipidemia associated with long-term infusions of propofol might impair mitochondrial oxygen uptake and precipitate problems of oxygen utilization.[10] Fourth, although there are several additive antimicrobial preservatives for propofol ampules, the US Food and Drug Administration has deemed to include only disodium edetate because it is the most safe and effective preservative. Some of them have been rejected because of insufficient effect (eg, lidocaine) or even adverse effects (eg, sodium metabisulfite).

In terms of the bacterial growth behavior, we want to leave open for discussion the real interaction properties of lidocaine and other bacteriostatic anesthetic agents when combined with propofol and the possible laboratory-related methodological errors that could emerge in these kinds of studies.

Finally, we would like to congratulate the efforts of the authors in this line of investigation, and also we want to encourage the development of new studies in vitro based on innovative and specialized techniques to analyze bacterial susceptibility. Studies such as these would be very important, given the strong clinical approach and impact that they may have.

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Implementation of a Restricted Foods Policy at a Large Academic Medical Center

To the Editor—Despite well-established safe food handling practices, foodborne illness remains a significant source of morbidity and mortality in the United States. Immunocompromised hospitalized patients are at increased risk of developing severe complications of foodborne illness. We describe the development and implementation of a restricted foods policy to minimize the risk of foodborne illness in vulnerable patients.

Foodborne illness represents a major source of morbidity and mortality in the United States, with an estimated 9.4 million episodes annually, including 55,961 hospitalizations and 1,351 deaths each year.[1] Hospitals provide care for the most medically vulnerable and immunocompromised individuals in society; however, despite governmental safety regulations and well-established safe food handling practices, foodborne outbreaks in healthcare settings do occur and are associated with an increased risk of death compared with other settings.[2]

Listeria monocytogenes is uniquely suited to cause serious nosocomial infections, given its tendency to contaminate certain ready-to-eat food products, ability to replicate at refrigerator temperatures, and propensity to cause invasive infection in immunocompromised patients and pregnant women. Stem-cell/solid-organ transplant patients have a 2,584-fold greater risk than the general population of developing serious illness from *L. monocytogenes* infection, while patients with hematologic malignancy, HIV/AIDS, end-stage renal disease, diabetes, alcoholism, and age greater than 65 years have risks of developing serious illness from *Listeria* that range from 7.5 to 1,384 over that of the general population.[3] Numerous outbreaks of nosocomial listeriosis have been reported, with hospital-provided sandwiches, ready-to-eat sausage products, diced celery, soft cheeses, and sliced deli meats most frequently implicated as the source of the outbreaks.[2,4-7] High mortality rates have been reported in these outbreaks, and most patients who died had some level of compromised immunity.

Despite the potentially catastrophic outcomes of listeriosis in immunocompromised patients, a survey of New York City acute care hospitals found that most hospitals allowed cold prepared salads (eg, tuna or chicken salad) and ready-to-eat deli meats to be served to immunocompromised patients, including pregnant women, transplant recipients, patients with hematologic malignancy, patients receiving chemotherapy, and those with chronic kidney or liver disease.[8] Similarly, 14%–45% of New York City hospitals permitted soft cheeses to be served to patients with varying immunocompromising conditions.[8] Reports of healthcare-associated listeriosis prompted an evaluation of foods served to our hospitalized patients and the development and implementation of a restricted foods policy at our institution.

New York University Langone Medical Center (NYULMC) is a 705-bed academic tertiary referral center located in New York City that includes 63 intensive care unit beds, a 22-bed oncology unit, and a dedicated 6-bed bone marrow transplant unit. NYULMC performs approximately 75 solid-organ transplantations and 40 hematopoietic stem-cell transplantations annually. Our diverse patient population presented logistical challenges in implementing a restricted foods policy that targeted only specific immunocompromised patients. All patient food at NYULMC originates from the same location within our facility, and the constraints of our kitchen design rendered impossible the establishment of dedicated storage and preparation areas for foods destined for immunocompromised patients. While some institutions employ "low-bacteria" or "neutropenic" diets for their most immunocompromised patients, we chose to focus on food entry into our institution rather than distribution of food to specific patient populations, as many studies have called into question the benefit of these diets in the severely immunosuppressed.

To reduce the risk of listeriosis and other foodborne illnesses, we developed and implemented a restricted foods policy that applies to patients in our institution. Table 1 highlights foods that are not permitted to be served to any patient at NYULMC, pathogens of concern with these foods, and acceptable food alternatives that have lower potential for causing foodborne illness. In addition, to reduce the risk of waterborne pathogen exposure, only bottled water filtered by reverse osmosis, bottled/canned drinks that do not require refrigeration before opening, and pasteurized juices are served to our solid-organ and stem-cell transplant recipients and to patients undergoing induction chemotherapy for hematologic malignancies. Tap water, either alone or when added to other