Reply to Uçkay et al

To the Editor—We welcome the comments by Uçkay and colleagues and thank them for their attention to detail. We also thank Dr Duncan for his enlightening editorial [1].

It is true that there has never been convincing evidence that patients with preoperative asymptomatic bacteriuria (ASB) are really at increased risk of prosthetic joint infection (PJI). Nevertheless, urine screening before total joint replacement has found its way into clinical practice among the orthopedic community.

Analysis of previous articles on this subject [2–6] is hampered by their heterogeneous definition of ASB (positive culture vs sediment >5 leukocytes per high power field in others) and heterogeneous antibiotic treatment regimens (no specific antibiotics vs surgery during the course of antibiotic treatment vs antibiotic treatment exclusively after surgery), and also by the low numbers of total joint replacements involved.

We recognize that our results are based on a relatively small number of cases of PJI; nevertheless, with almost 2500 total joint replacements, roughly 300 cases of ASB, and 41 cases of infection, this is, to the best of our knowledge, the largest article on this subject [7].

Our finding that ASB was associated with increased risk for subsequent PJI is not based on a causal relationship. On the contrary, our study demonstrates that bacteria found in PJI were different from the pathogens of ASB. We believe that ASB serves as a surrogate marker for some yet not fully understood vulnerability to infection, particularly by gram-negative microorganisms.

Whether it is caused by a distorted skin flora, as the article by Ollivere et al [8] seems to suggest, or by some kind of defective immune response remains unclear. Additional studies are needed to confirm...
our results that ASB identifies a group of patients with increased risk of infection. It is also necessary to elucidate the hypothesis that patients with ASB indeed have a different skin flora than patients without ASB and whether these patients would benefit from a specific antibiotic prophylaxis covering gram-negative organisms.

Regarding Uçkay et al’s concerns about the misinterpretation of the article’s message by time-pressured clinicians, our abstract clearly states that the infection rate was significantly higher in the ASB group than in the non-ASB group, but that no significant difference in PJI rate between treated and untreated patients was found. We emphasized in the conclusion of the abstract that preoperative antibiotic treatment did not show any benefit and cannot be recommended.

We wholeheartedly agree with the editorial commentary [1] that preoperative antibiotic treatment of ASB leads to increased costs, possible adverse drug reactions, and negative collateral effects such as increasing risks of *Clostridium difficile* infection or selection of antibiotic-resistant bacteria, although analysis of such events was unfortunately not possible in our study.

We believe we can all agree that current available evidence shows that routine screening and treatment of ASB before total joint arthroplasty is unwarranted and potentially may even be associated with unintended consequences.

On another note we would like to apologize for the errors of our Table 4 [7] that were also brought to our attention and required publishing an erratum with corrected *P* values. We would also like to elucidate why duration of surgery >75th percentile was excluded from the final multivariable analysis. Although this was significantly associated with PJI in the univariable analysis, information was missing in a significant proportion of patients. As such, we decided to exclude it in order to account with the majority of the cohort for the final analysis. We strongly believe that this topic does not influence the conclusion of the study, as a preliminary multivariable analysis including duration of surgery showed comparable findings regarding ASB.

**Note**

**Potential conflicts of interest.** All authors: No reported conflicts.

All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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