Reply to Worth et al

To the Editor—We thank Worth and colleagues [1] for reflecting on some important points related to our recent study where we reported a 63% reduction in hospital-onset (HO) *Staphylococcus aureus* bacteremia (SAB) in Australia [2]. We agree that the HO-SAB definition used in our study is not the national definition currently used for healthcare-associated (HCA) SAB surveillance in Australian hospitals. We commented on this in the discussion. Authors of our study have previously made similar comments to those made by Worth and colleagues [3–8]. For the purposes of benchmarking Australia internationally, we believe a HO-SAB definition is a robust and accurate approach to identify any real reduction in SAB—the aim of the paper.

Capturing all HCA-SAB cases requires much more additional work by infection control professionals and infectious diseases physicians at a local level. In addition, collecting such additional surveillance requires validation [9, 10], potentially lacking in parts of Australia. However, there are 2 important reasons why we used only a HO-SAB definition in our study. First, we wanted to report data over a long time frame, 12 years of data. The HCA-SAB definition was not agreed upon by Health Ministers until 2008 in Australia, meaning previous longitudinal prospective data were not collected consistently. Retrospective analysis would have been very difficult and likely subject to bias. Second, the HO-SAB definition allows for international comparisons, whereas the HCA-SAB definition does not. Without using a HO-SAB definition, we would not have been able to undertake the comparisons outlined in our discussion. We fully support the use of HCA-SAB surveillance definition and hope that many other countries move to such a definition for the reasons described by Worth and colleagues. We believe that when data are presented, HO-SAB should be presented as a subset of the total HCA-SAB numbers where possible. Comparisons can then be made with studies that have not used the more inclusive definition. The conclusions in our study are consistent with the definitional approach we used. We never stated or implied that we tried to measure and report all cases of HCA-SAB.

We acknowledge the point made by Worth and colleagues regarding data analysis and model adjustment for heterogeneity and multistate frailty. We are not convinced that this extra complexity in analysis is needed to demonstrate the points made. Regardless, under the agreements with those providing data for our study, only aggregated hospital data were to be analyzed and published, so the proposed analysis was not possible. What our data showed was a major and significant reduction in incidence of HO-SAB over a 12-year period caused by both methicillin-resistant and methicillin-sensitive *S. aureus* in Australian hospitals since 2002. This reduction coincided with a range of infection prevention and control activities implemented during this time [2]. It suggests that national and local efforts to reduce the burden have been very successful. As we commented, there are many potential reasons for the reductions in HO-SAB observed in our study, and Worth and colleagues are correct in acknowledging the important role that surveillance and multiple interventions play [11, 12].

Note

Potential conflicts of interest. All authors: No potential conflicts of interest.

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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