

## Letter to the editor on “Antimicrobial copper alloys decreased bacteria on stethoscope surfaces”



To the Editor:

The investigation into the benefits of copper alloys on stethoscopes provides a plausible solution to reducing hospital-associated infection, but the study methodology leaves questions which jeopardize the findings. Cost benefit and patient variation regarding colonization and infection both affect the application and validity of the study.<sup>1</sup>

The cost of supplying stethoscopes coated with copper was not provided and not compared with the amount of revenue that would be saved by the infections eliminated by these copper-coated stethoscopes (CCSs). Studies such as the one by Rupp et al identified both the cost of their silver-coated urinary catheters used and the revenue saved by the reduction of a recorded number of infections, a statistic that would only strengthen the validity of this study.<sup>2</sup> Cost analysis would need to be performed to identify if CCSs would be a cost sustainable solution.

Next, the study does not identify which patients the physicians with the CCSs saw. There were 2 differing populations between the locations, which were identified in the limitations, but it was not identified whether these patients were on isolation precautions, such as those for methicillin-resistant *Staphylococcus aureus* or vancomycin-resistant *Enterococcus*, which would increase the bioburden of these organisms. Multidrug-resistant organisms are found to have higher bioburdens even within cleaned rooms, leading to believe that they would be present in greater colony counts on the CCSs.<sup>3</sup>

Finally, with this potential increased bioburden, it brings into question whether stethoscopes would need to be tested more than once a week as indicated during this study. The issue arises because

recent studies have found that copper sulfate requires 100 minutes to completely kill certain organisms (eg, *Enterococcus* spp), leading us to believe a similar time would be required for the CCSs to kill these organisms.<sup>4</sup> Physicians are seeing patients at a shorter interval than that of the required kill time, which would indicate that the CCSs would not have a long enough duration to effectively kill any organisms present.

In conclusion, further investigation into cost analysis, more defined patient populations, and increased frequency of CCS sampling would increase the validity of the study. This study does illuminate the benefits of CCSs, also creating a platform on which to further research these instruments.

### References

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Conflicts of interest: None to report.

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