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**Response to an invited commentary on “Impact of a bundle on surgical infections after hip arthroplasty. A cohort study in Italy” [Int. J. Surg. (2020) Epub ahead of print] The reality of bundles in a resource-limited environment**

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# International Journal of Surgery

Response to An invited commentary on “Impact of a bundle on surgical infections after hip arthroplasty. A cohort study in Italy” [Int. J. Surg. (2020) Epub ahead of print] The reality of bundles in a resource-limited environment.

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## International Journal of Surgery Author Disclosure Form

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None to declare.

### Please state any sources of funding for your research

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Costanza Vicentini (Costanza.vicentini@unito.it)

Turin, 12/10/20

Dear Editors,

We are submitting our response to the invited commentary on our paper, “Impact of a bundle on surgical infections after hip arthroplasty. A cohort study in Italy” [Int. J. Surg. (2020) Epub ahead of print] The reality of bundles in a resource-limited environment.

In our study, we analysed the effect of the introduction of a simple, four-element evidence-based bundle on surgical site infection (SSI) rates after hip arthroplasty. Our institution is responsible for coordinating data collection for the region of Piedmont, in the north-west of Italy, as part of the national surveillance system for SSIs (SNICH). We introduced the bundled intervention in 2012 with the objective of improving surgical care quality and conducted a prospective study in the 49 hospitals in our region participating in SNICH. We found compliance significantly increased with time and a significant association between full compliance with the bundle protocol and reduced SSI rates.

Our study suggests the simple and relatively resource-sparing protocol applied in our region could be effective in improving surgical care quality, and our results compare favourably with those of larger and more complex bundles. We believe this intervention could lead to sustained results over time through the systematic integration of evidence-based practices into routine care. Through our response to the invited commentary, we hope to clarify certain aspects regarding the implementation of infection control practices within a bundled intervention in resource-limited settings.

Thank you for your time and consideration,

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**Declaration of interest**

None to declare.

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Dear Editor,

In recent literature, bundles of increasing size and complexity are gaining traction, contrary to the Institute for Healthcare Improvement’s definition [1] and, in our opinion, reducing their potential for widespread applicability. Our recently published study suggests a relatively simple and resource-sparing bundle protocol applied in our region could be effective in reducing surgical site infections (SSIs) following hip arthroplasty and could help improve surgical care quality [2].

The elements constituting our bundle protocol were selected as they are “highly recommended” SSI prevention practices according to the WHO Guidelines on Safe Surgery [3]. These guidelines were developed as part of the 2007-2008 Global Patient Safety Challenge, which focused on improving the safety of surgical care in all environments and settings. Recommendations and interventions were reviewed and tested at pilot sites in each of the six WHO regions, in order to assess resource requirements and to evaluate their feasibility, validity, reliability and cost-effectiveness. However, implementing guidelines in clinical practice is an inherently complex issue in any setting [4]. Further, we agree with the authors of the invited commentary to our paper that in addition to the resources required for the single elements, the successful implementation of a bundled intervention requires significant efforts in terms of time, staff training and surveillance efforts, as demonstrated by the challenges we faced in achieving high levels of compliance [5].

Granted that limited-resource settings face greater challenges in ensuring surgical safety, a recognized issue common to developed and developing countries alike is the unreliable application of existing safety practices. Proven measures are inconsistently followed, not because of lack of resources but because of poor systemization [3]. The objective of a bundled intervention is the systematic

integration of evidence-based practices into routine care. In our region, implementing a bundle protocol allowed to optimize available resources through the consistent and uniform application of well-established practices.

Considering the significant burden of SSIs and other preventable surgical complications, and the increasing volume of major surgery worldwide, surgical safety has emerged as a global public health concern [3]. Further research efforts are needed to understand what kind of barriers exist to effect sustained behavioural change in this context and to explore the feasibility and cost-effectiveness of implementing infection-control protocols in limited-resource centers. Hopefully, our relatively simple bundle will prove effective and sustainable in other settings other than our own.



## References

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