

# Response to Letter to the Editor on Robotic Distal Pancreatectomy, a Novel Standard of Care? Benchmark Values for Surgical Outcomes From 16 International Expert Centers

Philip C. Müller, MD,\* Inne H.M. Borel Rinkes, MD,† and Pierre Alain Clavien, MD, PhD\*

We appreciate the interest of Dr. Chao et al<sup>1</sup> from New Zealand in our article on benchmarking robotic distal pancreatectomy (RDP).<sup>2</sup> They ask for clarification on the center eligibility criteria and the numbers used in our analyses.

The identification of benchmark values was gathered in international expert centers, which were identified according to center volume (minimum 20 robotic cases). Contrarily to most benchmark studies targeting well-established procedures like open pancreatoduodenectomy,<sup>3</sup> liver resection,<sup>4</sup> or transplantation,<sup>5</sup> RDP is a novel procedure introduced over the last 5 to 10 years in most centers including a learning period. Our analysis covered cases from the first RDP from each institution up to mid 2020 to identify the accumulating experience of the respective centers, and to individually minimize the effects related to the learning curve. For example, different from previous benchmark studies, the first 10 cases of each center were excluded to account for the institutional learning curve. Interestingly, however, we observed that outcomes of those first 10 cases were within benchmark criteria, except for a doubled conversion rate. Consistent with these results, a recent study on RDP based on the multicenter database of the *European Consortium on Minimally Invasive Pancreatic Surgery* disclosed outcomes within the benchmark values, even without applying strict center criteria or accounting for the learning curve.<sup>6</sup>

The authors of the letter underline the respective role of both the center and individual surgeon experience. Although studies have suggested that the center experience correlate with short-term outcome and individual surgeons with long-term results, such relationships for oncologic results remain unknown in minimally invasive pancreatic surgery.<sup>7</sup> In addition, how surgical experience with other complex hepato-pancreato-biliary or transplant procedures influence outcomes after RDP remains unclear. Thus, for our study, we did not take into account the

experience per surgeon, also because at this stage RDP is typically restricted to very few surgeons in the respective participating centers. For international comparability, we strongly recommend to separately report center and surgeon-specific results as suggested by the Miami guidelines on minimally invasive pancreas surgery.<sup>8</sup>

## REFERENCES

1. Chao PP, Koea JB, Hill AG, et al. Comment on “Robotic distal pancreatectomy, a novel standard of care? Benchmark values for surgical outcomes from 16 international expert centers”. [published online ahead of print, 2023 Jan 19]. *Ann Surg*. doi: 10.1097/AS9.0000000000000212.
2. Müller PC, Breuer E, Nickel F, et al. Robotic distal pancreatectomy, a novel standard of care? Benchmark values for surgical outcomes from 16 international expert centers. [published online ahead of print, 2022 Jul 21]. *Ann Surg*. doi: 10.1097/SLA.00000000000005601.
3. Sánchez-Velázquez P, Muller X, Malleo G, et al. Benchmarks in pancreatic surgery: a novel tool for unbiased outcome comparisons. *Ann Surg*. 2019;270:211–218.
4. Rössler F, Sapisochin G, Song G, et al. Defining benchmarks for major liver surgery: a multicenter analysis of 5202 living liver donors. *Ann Surg*. 2016;264:492–500.
5. Muller X, Marcon F, Sapisochin G, et al. Defining benchmarks in liver transplantation: a multicenter outcome analysis determining best achievable results. *Ann Surg*. 2018;267:419–425.
6. van Ramshorst TME, Giani A, Mazzola M, et al. Benchmarking of robotic and laparoscopic spleen-preserving distal pancreatectomy by using two different methods. *Br J Surg*. 2022;110:76–83.
7. van Hilst J, Korrel M, de Rooij T, et al. Oncologic outcomes of minimally invasive versus open distal pancreatectomy for pancreatic ductal adenocarcinoma: a systematic review and meta-analysis. *Eur J Surg Oncol*. 2019;45:719–727.
8. Asbun HJ, Moekotte AL, Vissers FL, et al. The Miami International evidence-based guidelines on minimally invasive pancreas resection. *Ann Surg*. 2020;271:1–14.

From the \*Swiss HPB and Transplantation Center, Department of Surgery and Transplantation, University Hospital Zurich, Zurich, Switzerland; and †Department of Hepato-Pancreato-Biliary Surgery, Regional Academic Cancer Center Utrecht, St. Antonius Hospital Nieuwegein and University Medical Center Utrecht, Utrecht, the Netherlands.

Disclosure: The authors declare that they have nothing to disclose.

All authors approved the final manuscript.

Reprints: Inne H.M. Borel-Rinkes, MD, Department of Surgery, University Medical Center Utrecht, Room No. G 04.228, P.O. Box 85500, 3508 GA Utrecht, the Netherlands. Email: i.h.m.borelrinkes@umcutrecht.nl.

Copyright © 2023 The Author(s). Published by Wolters Kluwer Health, Inc. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

*Annals of Surgery Open* (2023) 1:e239

Received: 9 December 2022; Accepted 30 December 2022

Published online 19 January 2023

DOI: 10.1097/AS9.0000000000000239