Dr Bapat serves as a consultant for Medtronic Inc, Edwards Lifesciences, Boston Scientific, Abbott, and 4Tech.

the bench testing. This issue is compounded in a clinical scenario. It would have been of value if an “ideal implantation depth,” yielding a balance among least leaflet distortion, least aortic regurgitation, and secure implantation, had been provided, rather than a generic “high implantation” recommendation, because the latter may increase the incidence of embolization or repeated repositioning, for marginal gains. This issue was reported earlier³ by a group including one of the authors of the Azadani and colleagues¹ study.

3. Use of a larger Evolut R does not deflect the stent posts of any surgical valve, as stated by Azadani and colleagues¹ (Figure 1, A and B), because it lacks the radial strength necessary unless a postimplantation balloon dilatation is performed (Figure 1, C). A postimplantation balloon dilatation may result in uneven expansion of the Evolut R frame, especially when a large size is used (Figure 1, C), and although balloon dilatation may lower the gradients on the table it will also affect durability.

Guidance in the VIV application, which I have developed, takes in to consideration IFU by the manufacturers, bench testing, and clinical experience.⁴ The aim is to provide a reliable source for ideal VIV positioning and sizing for all levels of clinical expertise. The next update will reflect growing clinical experience. The application will continue to warn the users when a particular VIV combination falls outside the IFU range, in the interest of clinical safety, and this should not be viewed as an inaccurate guidance until further evidence claims otherwise.

Vinayak N. Bapat, FRCS(CTh)
Division of Cardiovascular Surgery
St Thomas' Hospital
London, United Kingdom

References

1. Azadani AN, Reardon M, Simonato M, Aldea G, Nickenig G, Kornowski R, et al. Effect of transcatheter aortic valve size and position on valve-in-valve hemodynamics: an in vitro study. *J Thorac Cardiovasc Surg.* 2017;153:1303-15.e1.
2. Kappetein AP, Head SJ, Génèreux P, Piazza N, van Mieghem NM, Blackstone EH, et al; Valve Academic Research Consortium-2. Updated standardized endpoint definitions for transcatheter aortic valve implantation: the Valve Academic Research Consortium-2 consensus document. *J Thorac Cardiovasc Surg.* 2013;145:6-23.
3. Alnasser S, Cheema A, Horlick E, Van Mieghem N, Feuchtnner G, Simonato dos Santos M, et al. Optimal transcatheter heart valve sizing in aortic valve in valve implantation: insights from the Valve in Valve International Data (VIVID) Registry. *J Am Coll Cardiol.* 2016;68(18 Suppl B):B271.

4. Bapat V. Valve-in-valve apps: why and how they were developed and how to use them. *EuroIntervention.* 2014;(10 Suppl U):U44-51.

<http://dx.doi.org/10.1016/j.jtcvs.2017.03.089>

RESPONSE TO MR BAPAT: DOES SIZE MATTER? IT DOES IN TEXAS

Reply to the Editor:

I thank Mr Bapat for his letter discussing our bench study of Core-Valve Evolut R valve-in-valve procedures. I will begin with a full disclosure: I use his valve-in-valve app, and I like it. I have great professional admiration for Mr Bapat's work, and we are personal friends. I value and understand his comments, but I nonetheless have trended toward the use of the size 26 Evolut R valve (Medtronic, Minneapolis, Minn) in size 23 surgical valves in my practice. I think, however, that this area is still open to debate, and we of course do not know how such upsizing will affect durability—nor are we even certain of the durability of valve-in-valve procedures in general. I do think that one takeaway from this work is that a high implantation is crucial unless you are implanting a size 25 or larger surgical valve, and even then a high implantation would be beneficial. There are several reasons that I have moved to the use of the size 26 Evolut R valve for a size 23 surgical valve, and these reasons center on having consistently better flow dynamics when the valve is implanted high. I also do not hesitate to use postimplantation balloon valvuloplasty if it appears to be needed. Although balloon annuloplasty may exert a long-term effect on durability, we have no evidence at this point to support such a possibility, and it is also hard to envision why the effect of balloon annuloplasty would be worse than that of constraining the valve in the sheath in the first place. The central valve cage does not have as much radial force as a balloon-expandable valve, but it does have a high hoop strength, and if the posts are expanded with a balloon, this hoop strength can maintain its expansion. We have also found that certain valves, and the Hancock II (Medtronic) is one of these, will actually fracture and expand their frame with aggressive balloon valvuloplasty, decreasing the gradient even further. I would also challenge the conclusions drawn from the valve pictures, because the valve in these images is implanted much lower than we would accept. If it had been implanted higher, the valve itself would have expanded fully, and this has been our clinical experience.

I thank Mr Bapat for his thoughtful comments, and I salute him for the many contributions that he has made to the valve-in-valve procedure, as well as to the entire field of transcatheter aortic valve replacement. Our work was

Author has nothing to disclose with regard to commercial support.

done to help add more scientific information to the clinical choices that we are currently making. We look forward to continuing to explore this exciting area with Mr Bapat and others and to developing even better answers as to

how best to approach this valve-in-valve implantation procedure.

*Michael J. Reardon, MD
Methodist DeBakey Heart & Vascular Center
Houston, Tex*

<http://dx.doi.org/10.1016/j.jtcvs.2017.03.117>