# [Use of 65 cm large caliber Dryseal sheaths to facilitate delivery of the Edwards SAPIEN valve to dysfunctional right ventricular outflow tracts.](https://www.ncbi.nlm.nih.gov/pubmed/31408262)

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**Take Home Points:**

* Implantation of the Sapien XT or S3 valve carries a significant (6-7.5%) risk of tricuspid valve injury.
* Use of the large diameter 65cm DrySeal sheath facilitates advancement of the Sapien valve to the right ventricular outflow tract and may decrease the incidence of tricuspid valve injury.



**Commentary from Dr. Konstantin Averin (Edmonton), catheterization section editor of Pediatric Cardiology Journal Watch:** The Sapien XT and S3 valves have been a welcome addition to the interventional armamentarium for the treatment of dysfunctional right ventricular outflow tracts (RVOT) allowing for treatment of a larger variety of anatomies. However, as the Sapien system was designed for trans-catheter aortic valve implant, the valve is uncovered to allow for a smaller delivery profile and has been associated with a significant risk (6-7.5%) of tricuspid valve injury during delivery to the RVOT. The authors sought to describe their experience using the large diameter 65cm Gore Dryseal Sheath to facilitate delivery of the Sapien XT and Sapien 3 valves to dysfunctional RVOTs.

Thirty patients at 3 large congenital heart centers underwent Sapien 3 (29) or XT (1) implants using the Gore Dryseal sheath. Sheath sizes ranged from 22F to 26 F (see table below for sizing). The valve was mounted directly onto the balloon in 29 cases. Seventeen of the patients were female with a median age of 17.5 years (8-72) and median weight of 60 kg (23.8-128). Most patients had a native RVOT (20/30) with 7 having a bioprosthetic valve and 3 having a conduit.

The valve was delivered successfully in all patients with 1 requiring a second valve and ultimately requiring surgery secondary to an RVOT gradient related to a complex RVOT membrane. No patients had increase in tricuspid valve regurgitation severity related to valve delivery. There were no vascular injuries even though 2 patients who were just over 30kg had a 26F sheath successfully used. All patients had the venotomy closed by a suture placed at the beginning of the procedure or using a figure-of-eight stitch. The short term outcomes were favorable with low post-procedure RVOT gradients and no significant pulmonary valve insufficiency.

The authors conclude that use of the large diameter 65 cm Gore Dryseal sheath facilitates delivery of the Sapien 3 and XT valves to dysfunctional RVOTs with no obvious tricuspid valve injury related to valve delivery. One of the main disadvantages to use of the Sapien valves in dysfunctional RVOTs is the risk of tricuspid valve injury, but using the technique described by Kenny et al, this risk can likely be eliminated making use of the Sapien valves much more appealing.

