

# **Supplemental Material**

**Table S1. Clinical Trials in VHD – Challenges and Opportunities.**

<ul style="list-style-type: none"><li>• How should the “patient voice” be incorporated into trial design and endpoints selected and prioritized in way that aligns with FDA and other policies? What are the best ways to analyze these endpoints?</li></ul>
<ul style="list-style-type: none"><li>• Most trials in the valve space are device-based trials sponsored by industry and there is a lack of medical therapy trials. Heart failure trials tend to exclude patients with significant valve disease or those who have recently had a procedure. Pharmaceutical companies seem to view patients with valve disease as a small/niche population despite the epidemiology studies which clearly show the large size of this population of patients. Accordingly, there is a lack of data on the effects of medications for heart failure on patients with valve disease and it is often challenging to convince the relevant stakeholders of the importance of these studies.</li></ul>
<ul style="list-style-type: none"><li>• What is the most effective way to study imaging-based studies with imaging efficacy endpoints in the context of their expense?</li></ul>
<ul style="list-style-type: none"><li>• How can people of color, women, rural, and less resourced patients be appropriately represented in clinical trials?</li></ul>
<ul style="list-style-type: none"><li>• What is the appropriate “control arm” for device studies (e.g. GDMT, surgery, or another transcatheter therapy)? How do they affect trial enrollment?</li></ul>
<ul style="list-style-type: none"><li>• How do the heterogeneity of patients with secondary MR and TR (e.g. spectrum of valve and ventricular anatomy and function, differences in patient characteristics, sensitivity to loading conditions, etc.) impact identification and enrollment of appropriate patient groups? What are strategies to overcome resulting challenges?</li></ul>
<ul style="list-style-type: none"><li>• How can registries (e.g. TVT, STS, etc.) be leveraged effectively to answer patient-centered research questions and run pragmatic clinical trials?</li></ul>

FDA, Food and Drug Administration; GDMT, guideline directed medical therapy; MR, mitral regurgitation; STS, Society of Thoracic Surgeons; TR, tricuspid regurgitation; TVT, Transcatheter Valve Therapies.

**Table S2. Resources for Patient-Centered Research in Valvular Heart Disease.**

<p><b>Heart Valve Voice US</b>  <a href="https://www.heartvalvevoice-us.org">https://www.heartvalvevoice-us.org</a></p>	<p>Heart Valve Voice US is the only patient advocacy organization in the U.S. solely focused on heart valve disease (HVD). The organization works to increase public awareness and understanding of HVD, provides patient and care giver education, and advocates for increased HVD research and access to all valve disease treatments.</p>
<p><b>Heart Valve Voice UK</b>  <a href="https://heartvalvevoice.com">https://heartvalvevoice.com</a></p>	<p>The six objectives that drive all of the work we do: (1) raise awareness of the symptoms and severity of heart valve disease in the UK in order to save lives and improve the quality of life; (2) increase the awareness of symptoms of heart valve disease; (3) work towards ensuring there is a clear and effective treatment pathway among care providers to ensure more effective management of the disease; (4) effectively campaign for early diagnosis and treatment of heart valve disease across the UK; (5) provide credible, independent and practical advice and information about heart valve disease; and (6) represent the UK's heart valve disease patients to help ensure that they receive the best treatment at the right time, improving quality of life and overall outcome for each individual.</p>
<p><b>Heart Valve Society</b>  <a href="https://heartvalvesociety.org">https://heartvalvesociety.org</a></p>	<p>The mission of the Heart Valve Society is to promote awareness, advance knowledge, and innovate to reduce the burden of heart valve disease with a global and multidisciplinary approach.</p>
<p><b>Alliance for Aging Research</b>  <a href="https://www.agingresearch.org/">https://www.agingresearch.org/</a></p>	<p>The Alliance for Aging Research (AAR) is the leading nonprofit organization dedicated to accelerating the pace of scientific discoveries and their application to vastly improve the universal human experience of aging and health. AAR provides education on heart valve disease and leads activities every February for National Heart Valve Disease Awareness Day.</p>
<p><b>Mended Hearts</b>  <a href="https://mendedhearts.org/">https://mendedhearts.org/</a></p>	<p>Mended Hearts (MH) is the largest patient-to-patient heart disease support network in the world. MH provides education, support and hope to patients with all types of heart disease and activates its extensive network of patient volunteers to visit patients in more than 460 hospitals nationwide.</p>
<p><b>National Heart Valve Disease Awareness Day</b>  <a href="http://www.valvediseaseday.org">www.valvediseaseday.org</a></p>	<p>The goal of National Heart Valve Disease Awareness Day on February 22 is to increase recognition of the specific risks and symptoms of heart valve disease, improve detection and treatment, and ultimately save lives. While heart valve disease can be disabling and deadly, available treatments can save lives,</p>

	making education and awareness particularly important. On this day and throughout the year, the campaign partners—60+ non-profits, advocacy organizations, professional societies, and hospitals and heart centers—are helping to spread the word about valve disease.
<b>Association of Black Cardiologists</b> <a href="http://www.abcardio.org/">www.abcardio.org/</a>	Mission: To promote the prevention and treatment of cardiovascular disease, including stroke, in Blacks and other minorities and to achieve health equity for all through the elimination of disparities.
<b>NHLBI site on VHD</b> <a href="https://www.nhlbi.nih.gov/health-topics/heart-valve-disease">https://www.nhlbi.nih.gov/health-topics/heart-valve-disease</a>	
<b>European Society of Cardiology Council on Valvular Heart Disease</b> <a href="https://www.escardio.org/Councils/Council-on-Valvular-Heart-Disease/About">https://www.escardio.org/Councils/Council-on-Valvular-Heart-Disease/About</a>	The ESC Council on Valvular Heart Disease aims to be a multidisciplinary forum for the Heart Valve Team, to encourage research, knowledge exchange, teaching and other educational activities in valvular heart disease.
<b>HeartValveSurgery</b> <a href="http://heartvalvesurgery.com">heartvalvesurgery.com</a>	Robust online patient community
<b>Living with Valve Disease</b> <a href="http://livingwithvalvedisease.org">livingwithvalvedisease.org</a>	
<b>WomenHeart</b> <a href="http://womenheart.org">womenheart.org</a>	The National Coalition for Women with Heart Disease was founded in 1999 by three women who had heart attacks while in their 40s and faced many obstacles, including misdiagnosis, inadequate treatment, and social isolation.
<b>Patient-Centered Outcomes Research Institute (PCORI)</b> <a href="http://www.pcori.org">www.pcori.org</a>	PCORI funds studies that can help patients and those who care for them make better-informed healthcare choices. PCORI funded a project on aortic stenosis: <a href="http://valveadvice.org">valveadvice.org</a>
<b>Society for Cardiovascular Angiography and Interventions (SCAI)</b> <a href="http://www.scai.org">http://www.scai.org</a> SCAI Patient Site <a href="http://secondscount.org">http://secondscount.org</a> <a href="http://www.secondscount.org/treatments/treatments-detail-2/transcatheter-aortic-valve-replacement-tavr-2#.XW6ONfIKi2w">http://www.secondscount.org/treatments/treatments-detail-2/transcatheter-aortic-valve-replacement-tavr-2#.XW6ONfIKi2w</a>	
<b>The Society of Thoracic Surgeons</b> <a href="https://www.sts.org/">https://www.sts.org/</a>	
<b>American College of Cardiology</b> <a href="https://www.acc.org">https://www.acc.org</a> ACC Patient Site <b>Cardio Smart</b> <a href="https://www.cardiosmart.org/TAVRDecisionAids">https://www.cardiosmart.org/TAVRDecisionAids</a>	
<b>American Heart Association</b> <a href="https://www.heart.org/">https://www.heart.org/</a>	
<b>MAGIC Project</b> <a href="https://app.magicapp.org/app#/guideline/1308">https://app.magicapp.org/app#/guideline/1308</a>	TAVI versus SAVR for patients with severe symptomatic aortic stenosis at low to intermediate perioperative risk

<p><b>Sharedcardiology: A resource for clinical cardiologists and their patients</b> <a href="http://sharedcardiology.org">sharedcardiology.org</a></p>	<p>A website updated by a practicing cardiologist, collating decision aids for cardiology clinicians; includes links to relevant policy documents (e.g. National Coverage Determinations).</p>
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