# 24 Hour Summary
# Circulatory Systems Devices Panel
# Advisory Committee Meeting
# December 3, 2025

**Introduction:**

A meeting of the Circulatory Systems Devices Panel ("the Panel") of the Medical Devices Advisory Committee was convened on December 3, 2025, to discuss, make recommendations, and vote on information regarding the premarket approval (PMA) application for the V-wave Ventura Interatrial Shunt System. The proposed Indication for Use statement is as follows: The Ventura Shunt is indicated for NYHA Class III heart failure patients who remain symptomatic despite guideline-directed medical therapy, have a LVEF of ≤40%, and who are judged by a Heart Team to be appropriate for Shunt therapy, to reduce the risk of hospitalization for heart failure.

**FDA Questions/Panel Deliberations:**

**Question 1: Safety**

**Please discuss on the clinical significance of the safety events observed in the study.**

The panel consensus was that the acute device and implant procedure safety was satisfactory when the procedure was conducted by an experienced interventionalist with good transeptal skills. However, several longer-term safety concerns warrant attention. Some panelists expressed concerns about long-term safety due to unknown chronic physiologic effects and limited extended patient follow-up in the available data. Key concerns included thromboembolic risks potentially related to paradoxical embolism through the device-created atrial septal defect, new onset atrial fibrillation or other arrythmias, potential detrimental effects of increased blood volume on the right heart chambers, and the possibility of harm for patients whose ejection fraction improved above 40% in view of the adverse outcomes in the HFpEF subgroup.

**Question 2: Primary Effectiveness Endpoint Results**

**Please discuss the clinical significance of the primary effectiveness endpoint results.**

The panel agreed that while the choice of primary effectiveness endpoint and the analysis performed was appropriate, the results did not support benefit in the overall cohort of patients due to the primary endpoint not being met.

## Question 3: Effectiveness Post-Hoc Analyses and Pathophysiologic Insights

**a. Please discuss the strengths and limitations of the evidence (and your level of uncertainty) that the Shunt is beneficial in HFrEF patients.**
**b. Please discuss the strengths and limitations of the evidence (and your level of uncertainty) that this Shunt is harmful in HFpEF patients.**

The panel agreed that the trial was well designed and executed. The panel noted that the study did not meet its primary endpoint, making subsequent analyses hypothesis-generating. The panel discussed the results of the HFrEF and HFpEF subgroup analyses and the statistical interaction test for LVEF, which showed there was a difference in treatment effect between the HFrEF subgroup and the HFpEF subgroup. The statisticians on the panel noted that, while the interaction test result showed a difference the treatment outcome between the HFrEF and HFpEF subgroups, this did not necessarily indicate that the two subgroups should be treated differently. Additionally, they noted that the Gail-Simon test may provide a more appropriate evaluation of directional differences from a statistical perspective (vs. the Z test) of whether the results represent benefit in the HFrEF subgroup and harm in the HFpEF subgroup. They further noted that the Gail-Simon test result was not significant (p-value 0.12), suggesting that there was insufficient evidence that one heart failure subgroup showed benefit while the other subgroup showed harm. The statisticians also noted their lack of understanding of the permutation testing presented by the sponsor as evidence that limited Type I error was controlled.

The panel expressed concern that the study was not appropriately powered to analyze the HFpEF and HFrEF subgroups separately. The panel noted the subgroup analyses conducted to support the proposed indication in HFrEF patients were conducted after the sponsor reviewed the data. Many panelists raised concerns about Type I error inflation and post hoc data-driven hypothesis generation and inferences.

In addition to the discussion of statistical limitations, panelists noted uncertainty driven by the unexpected signal of harm in the HFpEF subgroup, the small sample size of the HFrEF subgroup, the influence of a small number of subjects with a large number of events, and skepticism of the explanation of the underlying pathophysiology based on the hemodynamic data presented. Concerns were also raised about the principle of operation of the device being an alteration of normal physiology. The panel concluded the evidence for benefit in the HFrEF subgroup and harm in the HFpEF subgroup is highly uncertain.

## Question 4: Benefit/Risk

**Given the totality of the evidence presented regarding the safety and effectiveness of the device, please comment on the benefit-risk profile of the device.**

The panel generally agreed that the procedural risk for device implantation is relatively low. However, the panel expressed concern that the long-term Shunt safety (including device patency and late thromboembolic events) is unknown. The panel expressed concern that the evidence for benefit in the HFrEF population is based on a small sample size and the benefit of the device is highly uncertain. Several panelists noted that despite the apparent low procedural risk, the lack of evidence of device effectiveness meant that the benefit risk

profile was unfavorable. The panel emphasized the need for additional studies to evaluate effectiveness in the target patient population. The panel unanimously agreed that the benefits do not outweigh the risks of the device.

**Question 5: Labeling**

a. **Please discuss whether the available clinical data support the proposed indications for use.**
b. **The Shunt proposed indications for use is limited to patients with LVEF ≤40%. Do you agree with the use of LVEF for patient selection? Please discuss any clinical implications including variability and measurement error in LVEF assessments, the potential for LVEF to change over time with therapy or disease progression, and the challenges this may present for clinical decision making for individual patients.**

The panel discussed that the indications do not exclude certain patient groups that were excluded from the trial, and that the indication should be modified to reflect these exclusions. Regarding the use of LVEF for patient selection, concern remained about appropriate patient selection given variability in LVEF measurements, and the scenario where a patient's ejection fraction may improve over time (and whether such a patient would then be at risk of Shunt-associated harm).

**Question 6: Postmarket Study**

**Please discuss the strengths and limitations of the proposed approach to postmarket data collection. Please also comment on whether any additional study objectives, design features, or surveillance are recommended.**

The panel expressed doubt that the proposed postmarket data collection plan would be adequate to address outstanding questions of safety and effectiveness. While the panel noted that additional important safety information could be gathered in a single arm postmarket study, and that postmarket data collection might be useful for capturing long-term safety data, they also noted that a new randomized study would be necessary to adequately evaluate device effectiveness. Several panelists noted the significant practical and ethical challenges with performing a postmarket randomized study.

**VOTE:**

The Panel voted on the safety, effectiveness, and benefit-risk profile of the V-Wave Ventura Interatrial Shunt System.

**Voting Question 1:**
Is there reasonable assurance that the V-Wave Ventura Interatrial Shunt System is safe for use in patients who meet the criteria specified in the proposed indication?

The panel voted as follows:

- Yes: 9
- No: 6

- Abstain: 0

**Voting Question 2:**
Is there reasonable assurance that the V-Wave Ventura Interatrial Shunt System is effective for use in the patients who meet the criteria specified in the proposed indication?

The panel voted as follows:
- Yes: 0
- No: 15
- Abstain: 0

**Voting Question 3:**
Do the benefits of the V-Wave Ventura Interatrial Shunt System outweigh the risk for use in the patients who meet the criteria specified in the proposed indication?

The panel voted as follows:
- Yes: 0
- No: 15
- Abstain: 0

**Contact Information**:

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**Transcripts:**

Transcripts may be downloaded from the link below when they become available:

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