

Results from Benefit of Microcor in Acute Decompensated Heart Failure (BMAD) Trial Presented as ACC.23/WCC Late-Breaking Clinical Trial

March 6, 2023 — CHELMSFORD, MASS. — ZOLL[®], an Asahi Kasei company that manufactures medical devices and related software solutions, announced that results from the Benefit of Microcore in Acute Decompensated Heart Failure (BMAD) Trial were presented today by Dr. John Boehmer, MD, of Penn State Health Milton S. Hershey Medical Center and the trial lead investigator, as a Late-Breaking Clinical Trial at the American College of Cardiology's 72nd Annual Scientific Session Together with World Congress of Cardiology.

Based on BMAD Trial results, ZOLL Heart Failure Management System (ZOLL HFMS) reduced 90-day heart failure hospital readmission by 38% ($p=0.03$).¹ To learn more, view [BMAD Trial clinical results](#).

ZOLL HFMS is an FDA-cleared patch-based wireless system that employs novel radiofrequency technology to monitor pulmonary fluid levels, providing early warning of potential future decompensation events and allowing physicians to improve outcomes.

ZOLL HFMS is non-invasive and can be worn by patients 24 hours a day. Certified technicians from the ZOLL Independent Diagnostic Testing Facility monitor data from ZOLL HFMS and provide physicians with timely notifications based on patient-specific trends according to predefined criteria. The system is intended for patients following an acute heart decompensation event that resulted in a hospitalization or clinic visit.

"ZOLL HFMS has demonstrated the ability to reduce hospital readmissions by providing remote monitoring of pulmonary fluid level changes, giving clinicians a new capability in their toolbox to care for patients with heart failure and improve outcomes," said Jason T. Whiting, President of ZOLL Cardiac Management Solutions.

Every year in the U.S., more than 650,000 individuals are newly diagnosed with heart failure², and the lifetime risk of developing this syndrome is one in five.³ Heart failure is one of the largest clinical challenges facing healthcare today, affecting nearly 6 million Americans⁴ and accounting for 1 million hospitalizations every year, with more than 90 percent due to fluid overload.^{5,6} Thirty-one (31) percent of heart failure patients are readmitted within 90 days.⁷ The number of heart failure hospitalizations is a strong predictor of mortality in heart failure patients.⁸ The current U.S. expenditure for heart failure exceeds \$30 billion annually, with 60-80 percent related to hospitalization, and these figures are expected to grow in the future.⁹

For more information, visit ZOLLHeartFailure.com.



About ZOLL

ZOLL, an Asahi Kasei company, develops and markets medical devices and software solutions that help advance emergency care and save lives, while increasing clinical and operational efficiencies. With products for defibrillation and cardiac monitoring, circulation enhancement and CPR feedback, supersaturated oxygen therapy, data management, ventilation, therapeutic temperature management, and sleep apnea diagnosis and treatment, ZOLL provides a comprehensive set of technologies that help clinicians, EMS and fire professionals, as well as lay rescuers, improve patient outcomes in critical cardiopulmonary conditions. For more information, visit www.zoll.com.

About Asahi Kasei

The Asahi Kasei Group contributes to life and living for people around the world. Since its foundation in 1922 with ammonia and cellulose fiber business, Asahi Kasei has consistently grown through the proactive transformation of its business portfolio to meet the evolving needs of every age. With more than 46,000 employees around the world, the company contributes to a sustainable society by providing solutions to the world's challenges through its three business sectors of Material, Homes, and Health Care. Its health care operations include devices and systems for acute critical care, dialysis, therapeutic apheresis, transfusion, and manufacture of biotherapeutics, as well as pharmaceuticals and diagnostic reagents. For more information, visit www.asahi-kasei.com.

Asahi Kasei is also dedicated to sustainability initiatives and is contributing to reaching a carbon neutral society by 2050. To learn more, visit <https://www.asahi-kasei.com/sustainability>.

¹ Boehmer J, et al. Impact of Heart Failure Management Using Thoracic Fluid Monitoring From a Novel Wearable Sensor: Results of the Benefits of Microcor (μ Cor™) in Ambulatory Decompensated Heart Failure (BMAD) Trial. Presented as Late-Breaking Clinical Trial at the 2023 American College of Cardiology Annual Scientific Session, March 6, 2023.

² Yancy CW, Jessup M, Bozkurt B, et al. 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *J Am Coll Cardiol*. 2013;62(16):e147-e239.

³ Bui AL, Horwich TB, Fonarow GC. Epidemiology and risk profile of heart failure. *Nat Rev Cardiol*. 2011;8(1):30-41.

⁴ Heidenreich PA, Albert NM, Allen LA, et al. Forecasting the impact of heart failure in the United States: a policy statement from the American Heart Association. *Circ Heart Fail*. 2013;6(3):606-619.

⁵ Costanzo MR, Ronco C, Abraham WT, et al. Extracorporeal Ultrafiltration for Fluid Overload in Heart Failure: Current Status and Prospects for Further Research. *J Am Coll Cardiol*. 2017;69(19):2428-2445.

⁶ Fonarow GC, Abraham WT, Albert NM, et al. Factors identified as precipitating hospital admissions for heart failure and clinical outcomes: findings from OPTIMIZE-HF. *Arch Intern Med*. 2008;168(8):847-854.

⁷ Khan MS, Sreenivasan J, Lateef N, et al. Trends in 30- and 90-Day Readmission Rates for Heart Failure. *Circ Heart Fail*. 2021;14(4):e008335.

⁸ Setoguchi, Soko et al. "Repeated hospitalizations predict mortality in the community population with heart failure." *American heart journal* vol. 154,2 (2007): 260-6.

⁹ Desai AS, Stevenson LW. Rehospitalization for heart failure: predict or prevent?. *Circulation*. 2012;126(4):501-506.

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CONTACT:

Caitlyn Doyle
ZOLL Medical Corporation
+1 (412) 334-4501
cdoyle@zoll.com