

# Moving the Needle on HF Prevention: The Use of a Non-invasive Sensor for the Early Detection of Volume Overload in Stage A HF Patients

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## BACKGROUND

Heart failure carries a significant morbidity and mortality burden. Recent guidelines have emphasized early detection and treatment for patients with Stage A (risk factors but no symptoms) and Stage B (asymptomatic cardiac structural changes) HF to slow or prevent the development of clinical HF (Stages C & D).

The Ventric Health Vivio device is an FDA-approved device that has been shown to accurately and quickly estimate LVEDP noninvasively using an ECG patch and an arm cuff in an office setting.

## GOAL OF STUDY

To noninvasively assess the prevalence of hemodynamic congestion in an ambulatory population of Stage A HF patients for earlier detection of Stage B/C HF.

## METHODS

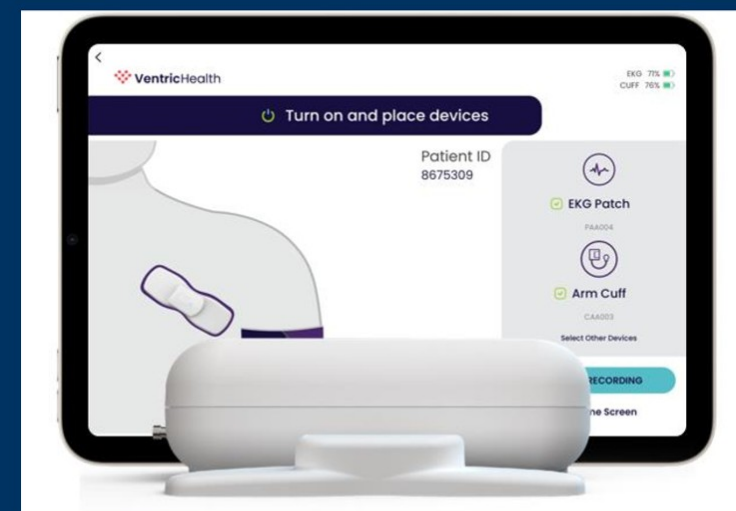
During a pilot period between September 17, 2024 – March 1, 2025. Over 10,000 patients age 65+ presenting to affiliated practices in Akron, OH for routine PCP appointments were pre-screened for Stage A HF.

For the purpose of this study, patients qualified for Stage A HF if they were free of HF symptoms/diagnosis and had DM2 or CKD  $\geq 3$ .

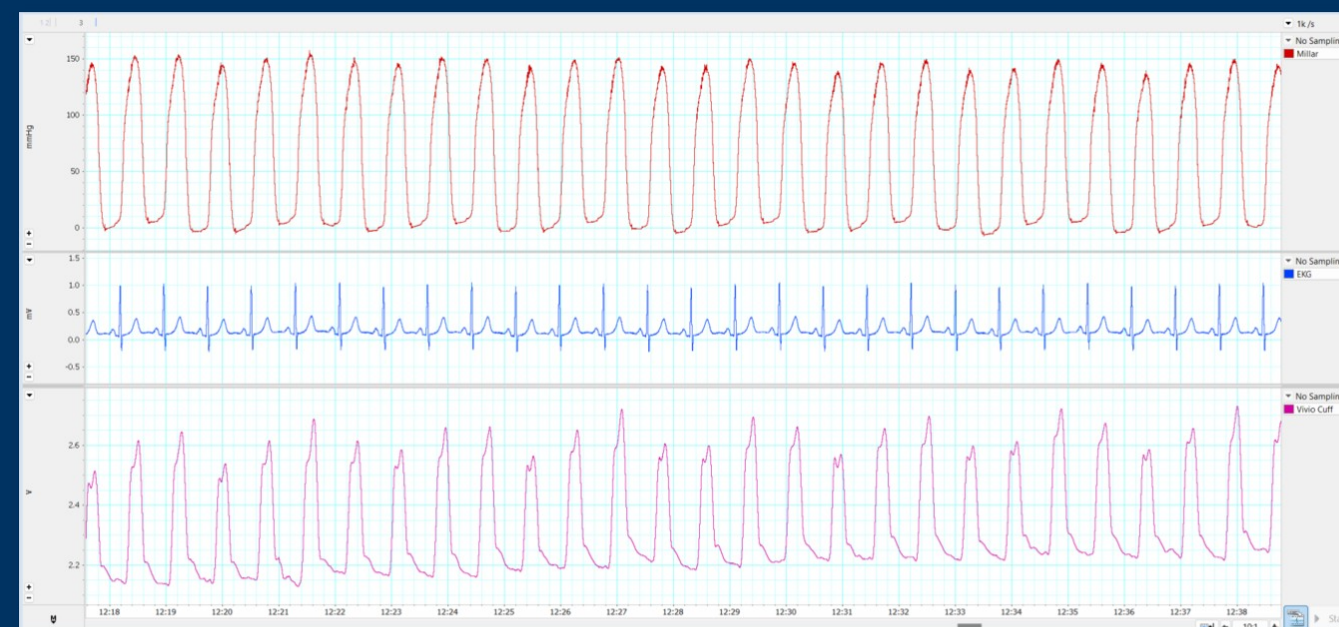
1,179 patients were identified and underwent testing with the Ventric Vivio device as part of the check-in process for their routine PCP visit. Patients with a positive Ventric congestion measurement (LVEDP  $\geq 18$ ) were referred for further testing with BNP and echocardiography.

For patients with an elevated Ventric congestion measurement, we also conducted follow-up KCCQ-12 testing to re-assess for potential HF symptoms.

Follow-up chart reviews were performed on 100 randomly-selected patients with positive Ventric testing to correlate readings with findings on follow-up echocardiography.



Ventric Health Vivio System  
Non-invasively estimates LVEDP in < 5 minutes



## RESULTS

1,179 patients age 65+ with DM<sub>2</sub> and CKD  $\geq 3$  underwent screening for an elevated LVEDP with the Vivio Device as part of a routine PCP visit

- 47% (n=555; 53% F, 47% M) tested positive with estimated LVEDP  $\geq 18$  & were referred for further testing with BNP, echo & KCCQ
- 71% of previously “asymptomatic” Stage A patients who tested positive for elevated LVEDP reported symptoms concerning for HF on KCCQ-12 & were reclassified as Stage C HF patients
- In a follow-up chart review of 100 randomly-selected patients with positive testing, 85% were found to have clinically significant findings on echo (LVH, LAE, LV dysfunction, aortic stenosis)

1,179 patients with HF risk factors tested with Ventric Vivio

555 had LVEDP  $\geq 18$

71% were symptomatic (40% NYHA Class II+) based on KCCQ-12 scores

Up to 85% of follow-on echos already showed clinically significant findings

## SUMMARY / CONCLUSION

Asymptomatic (and/or underrecognized) hemodynamic congestion was highly prevalent in an elderly population with Stage A HF presenting for routine PCP visits. Screening programs using non-invasive technology to detect subclinical congestion can lead to earlier diagnosis and treatment of patients with clinical HF.