Purpose: Ambulatory patients with advanced heart failure (HF) are increasingly being considered for mechanical circulatory support. INTERMACS patient profiles are a commonly used short-hand for HF disease severity and describe clinical trajectory, but have not been validated for use in ambulatory patients on oral medical therapy.

Methods: REVIVAL, a prospective, observational study, enrolled 404 outpatients from 21 VAD/transplant centers in 2015-16. Subjects had NYHA Class II-IV systolic HF despite optimal medical and electrical therapies, as well as a recent HF hospitalization, transplant listing, functional limitation, or evidence of high neurohormonal activation. Exclusion criteria included inotropes, dialysis or creatinine ≥ established upper limit of normal) predicted a PCWP > 15 mmHg. A strong correlation was found between ReDS values and PCWP (r = 0.87, sensitivity of 84% and specificity of 88%). There were progressive increases in ReDS (Figure 1B) when only CVP was elevated (RVF), only PCWP was elevated (LVF) or both were elevated (BiV). ROC curve analysis revealed that a ReDS value > 3.4% (the previously established upper limit of normal) predicted a PCWP ≥ 18 mmHg with an AUC of 0.87, sensitivity of 84% and specificity of 88% (Figure 1A). There were progressive increases in ReDS (Figure 1B) when only CVP was elevated (RVF), only PCWP was elevated (LVF) or both were elevated (BiV)(p<0.001 for trend).

Conclusion: Lung fluid percentage measured by ReDS has a strong correlation with CVP and PCWP in heart transplant recipients. In conjunction with the clinical assessment, a noninvasive ReDS measurement post transplant can guide diuretic therapy and the need for invasive assessment, including biopsy.