

## Background

- 6.5 Million Americans with Heart Failure(HF)(1)
- Mortality 50% in 5 years after first hospitalization(2)
- Cost: 30.7 billion (National cost of HF)(3)
- HF Rehospitalization Rate National Average 21.6%, Einstein 23.6% (2018)(4)
- Current Technology: Telehealth, Pulmonary Artery Pressure Monitoring, and Remote Dielectric Sensing **(ReDS) Technology by Sensible Medical (Netanya, Israel):**
  - **FDA approved portable vest measuring % lung fluid in 90 seconds at CT level accuracy**

## Objectives

- Prevent 30 day rehospitalization of the post discharge HF patient
- Utilize newest technology: (ReDS) in outpatient HF clinic setting
- Provide Actionable Accurate measurement of Right middle lobe fluid to assist in directing medical therapy

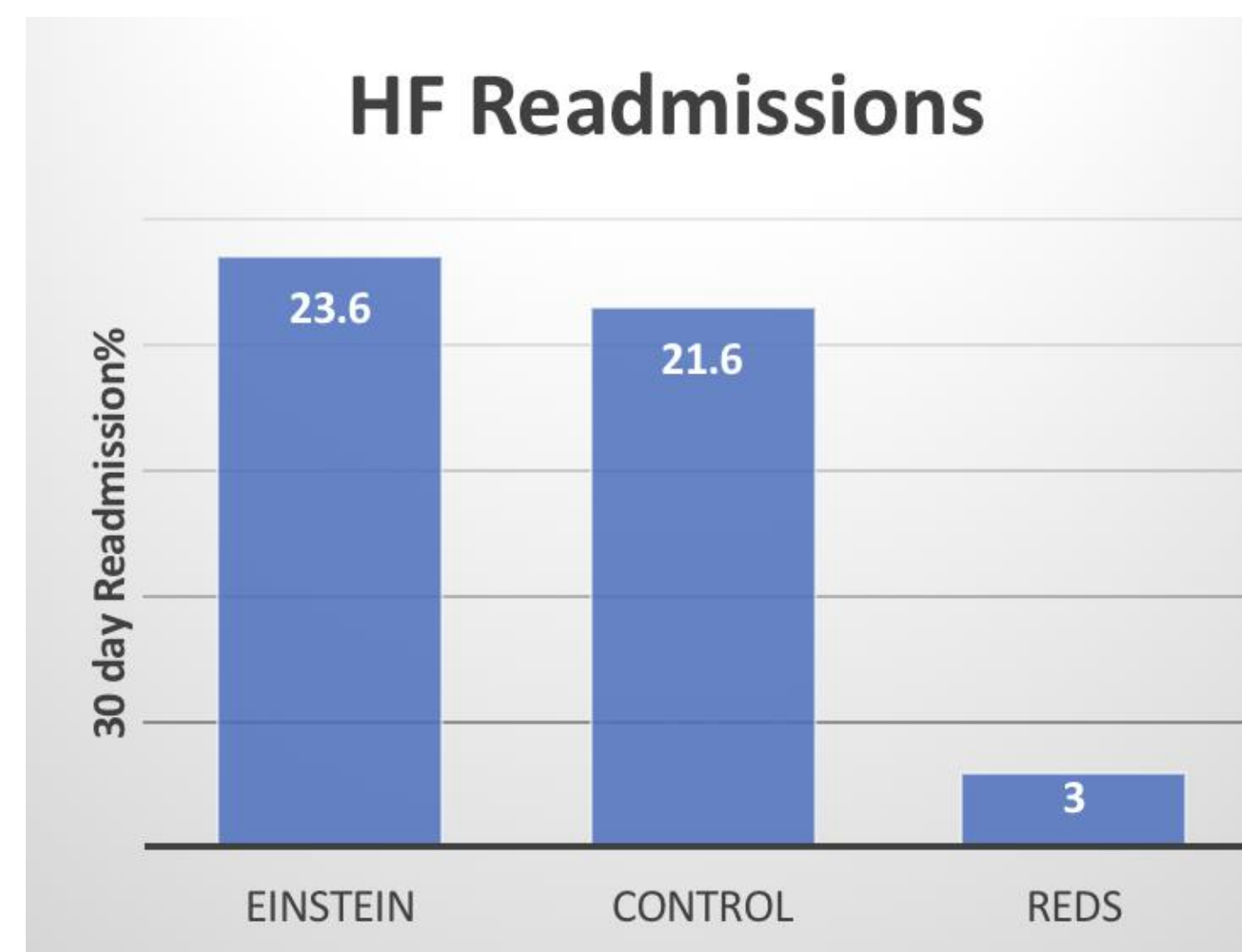
## Methods

- Patient Selection
  - BMI (22-38) or chest size (80cm-115 cm)
  - Recent HF Hospitalization
  - Voluntary participation
  - Exclusion criteria (right sided implanted device)
- Provide patient interventions regarding fluid accumulation and options
  - Adjust diuretic/ medical therapy
  - Consider outpatient diuresis
  - Consider timing of subsequent follow-up appointment/ phone call
  - Rehab
- Follow patients post hospitalization to determine % rehospitalization when ReDS vest was utilized in the outpatient HF Clinic setting compared with Control (National non-ReDS) readmission average) and Einstein non-ReDS readmission average

## Results

### Characteristics of Population (N=31)

N=31	
Age	62 (45-84)
Gender	F=22.5%(N=7)
BMI	29.2(19-47)
EF	HFpEF >50% 6%(N=2) HFrEF 35-50% 3%(N=4) HFrEF <35% 81%(N=25)
30 Day Readm	With ReDS: 3%(N=1) Control 21.6% Einstein 23.6%
Fluid Volume ReDS	Normal 20-35% 68%(N=21) High >35% 9% (N=9) Low <20% 3%( N=1)
Interventions	1: 13%(N=4) 2: 42%(N=13) 3-4: 39%(N=12)



## Conclusions

- ReDS technology use post HF hospitalization in the Outpatient HF Clinic significantly reduced 30 day rehospitalization rates compared to general HF population without use of ReDS technology, regardless of sex, age, BMI or ejection fraction.
- Subjects utilizing ReDS technology had an all cause readmission rate of 3% compared with 23.6% organizational rate during the same time.

## Future Applications

- Pre-discharge from hospital to evaluate volume readiness for discharge, plan for outpatient diuresis
- Use in Emergency Department to assess volume overload or dehydration, appropriate treatment
- Use in collaboration with homecare or EMS evaluation of symptomatic HF patients at home



- Special Thanks to the Albert Einstein Society for this Innovative Grant providing cost effective state of the art care to as many as we can reach.

### References:

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2. Bytyci, I., & Bajraktari, G (2014). Mortality in heart failure patients. *Annals of translational medicine*, 6(15), 298.
3. Kilgore, M., Patel, H.K., Kielhorn, A., Maya, J.F., & Sharma, P. (2017). Economic burden of hospitalizations of Medicare beneficiaries with heart failure. *Risk management and healthcare policy*, 10, 63-70. doi:10.2147/RMHP.S130341
4. Crimson Continuum of Care Einstein Medical Center 2018