

## ABSTRACT

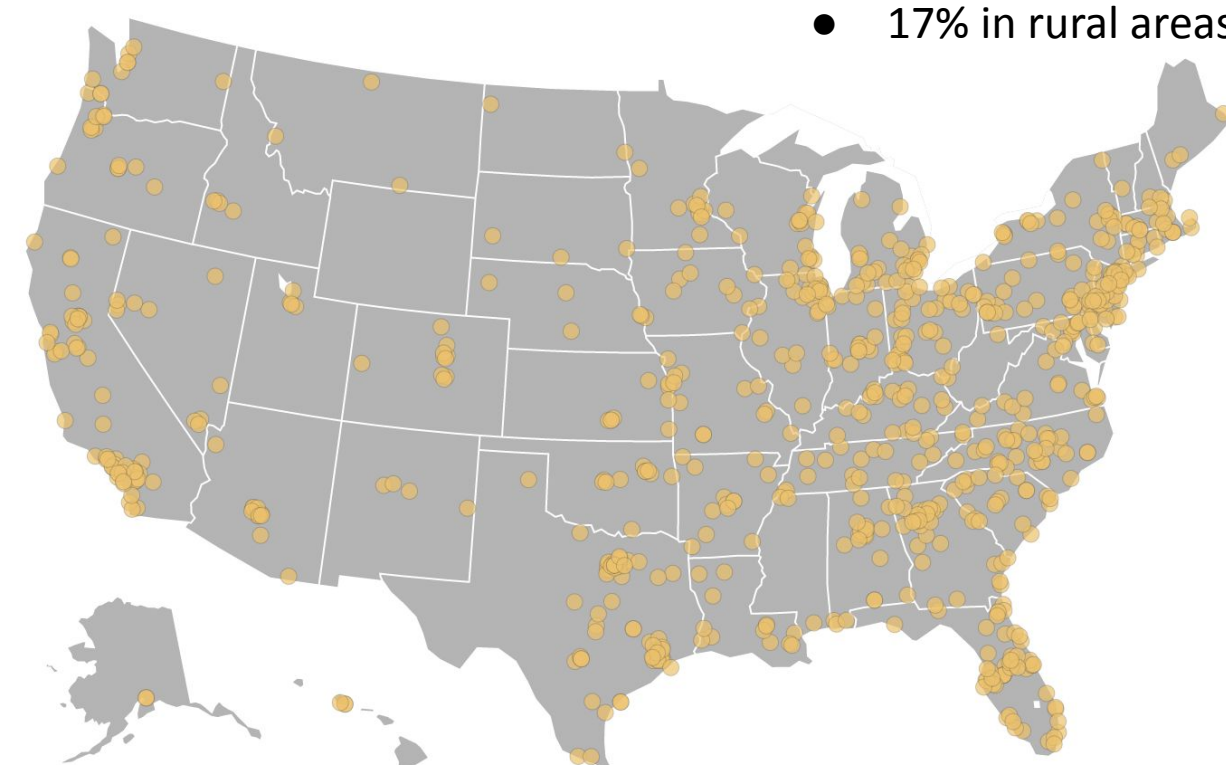
Heart Failure (HF) is a leading cause of mortality in the US. Symptoms span exercise, sleep, appetite and fatigue, and patient reported outcomes (PROs) are highly individual. We describe key insights from a foundational study with the goal of identifying unmet needs of HF patients. We then introduce a novel virtual engagement program using PROs and person-generated health data (PGHD) from commercial wearable sensors to understand and help improve the patient experience.

## METHODS

We conducted a cross-sectional study of 822 patients with self-reported HF. This study was demographically (30% non-white, 67% female), geographically (50 states; 17% rural) and socioeconomically (\$42.5K median annual income) diverse. Patient journey insights derived from this study, along with qualitative patient and clinician interviews were used to assess unmet needs and define program features. We recruited participants from the study into a pilot program, established core metrics and collected initial participant feedback.

50 states covered.

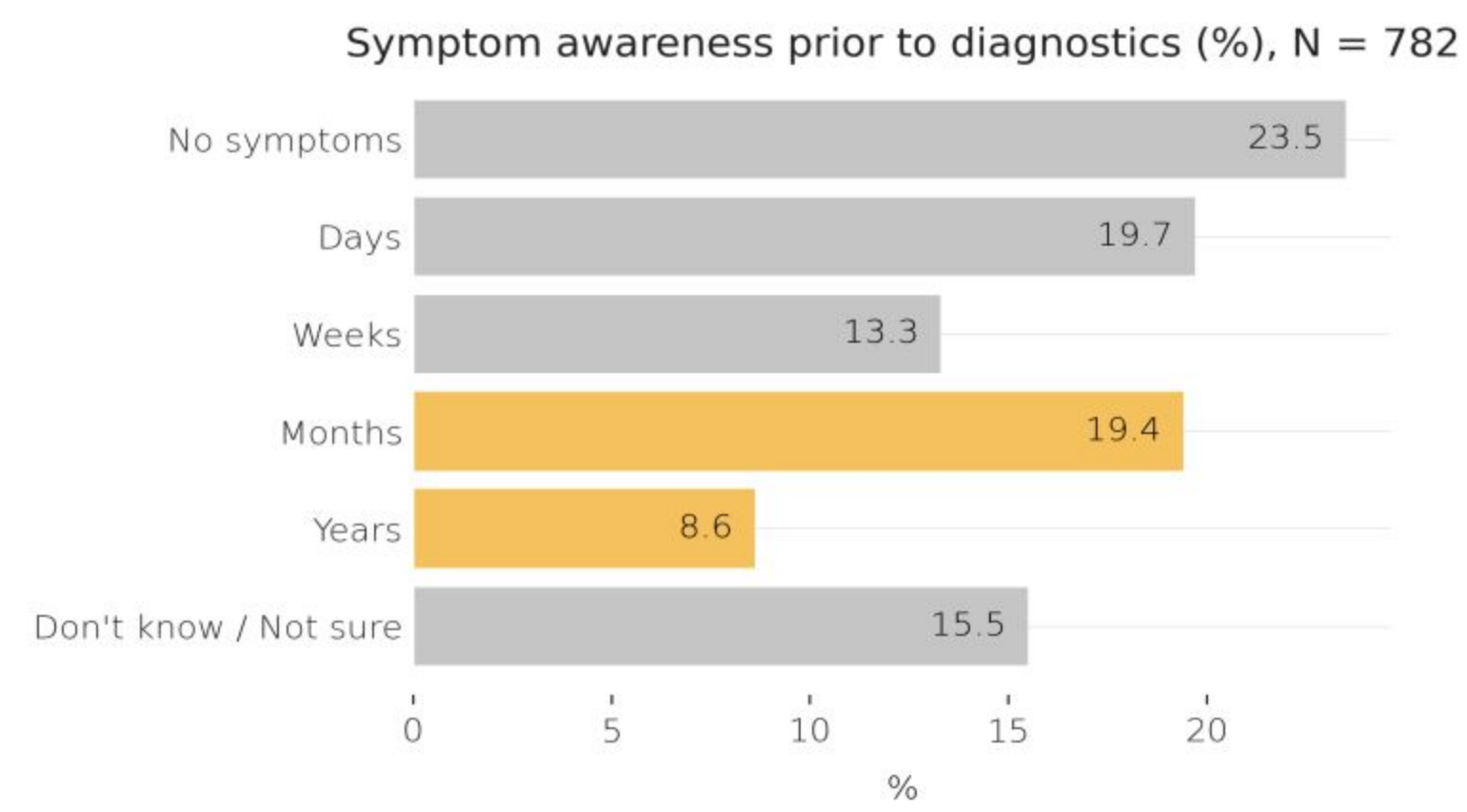
- 83% in urban areas
- 17% in rural areas



## RESEARCH INSIGHTS

### INSIGHT 1: PGHD could potentially be used to improve time-to-diagnosis and identify groups that require greater support

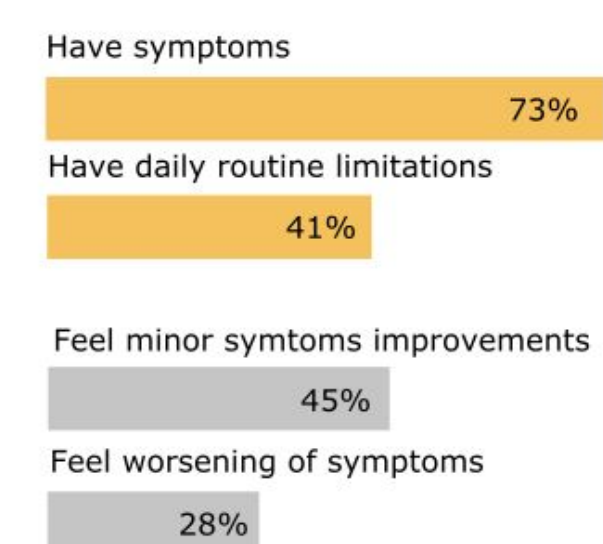
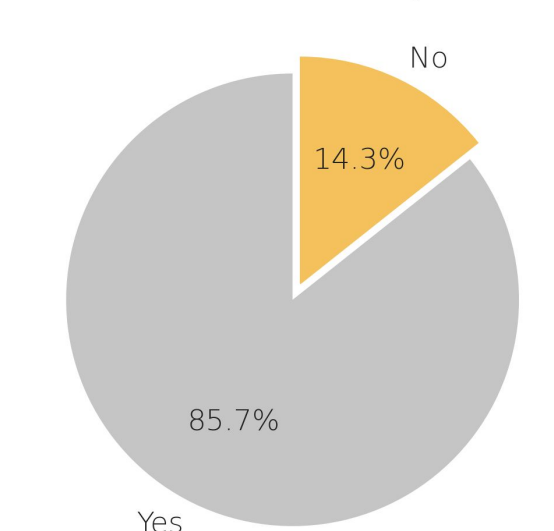
- 61% were aware of symptoms prior to their self-reported estimated date of diagnosis.
- 28% report symptoms months or years before diagnosis.



### INSIGHT 2: Treatment is important, however many patients report not being on treatment or receiving little benefit from their current treatment

- 14% of patients report not taking any medications for heart failure, despite having symptoms (73%) and more than occasional routine limitations (41%).

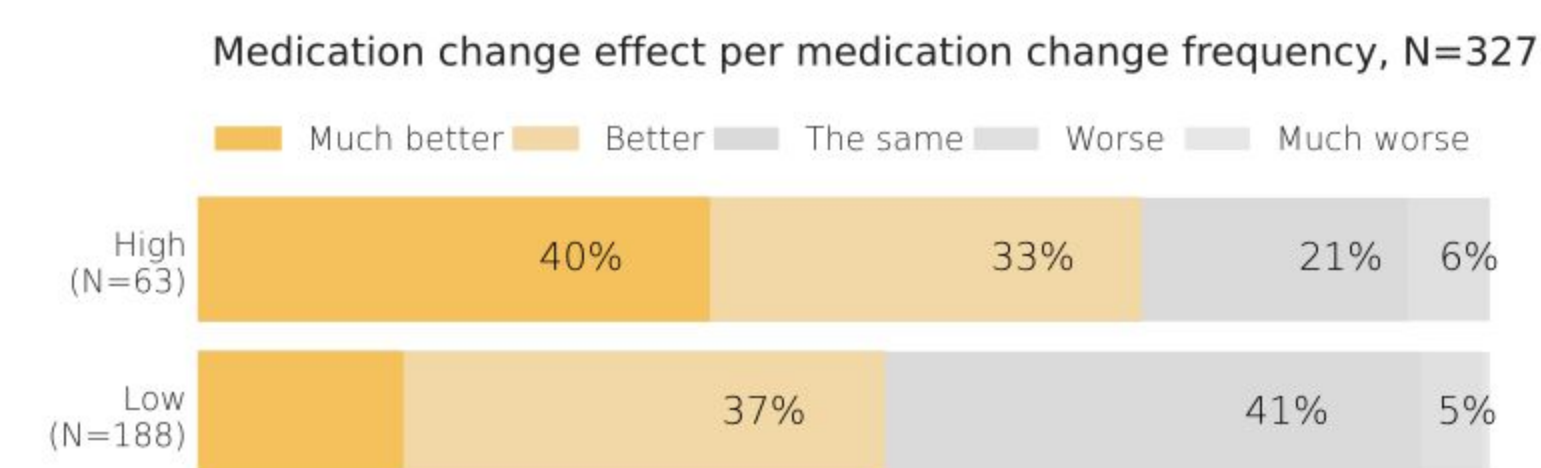
On treatment for HF?, N=719



- From those on treatment, 28% perceive some worsening symptoms after starting medication. 45% report only limited improvements.

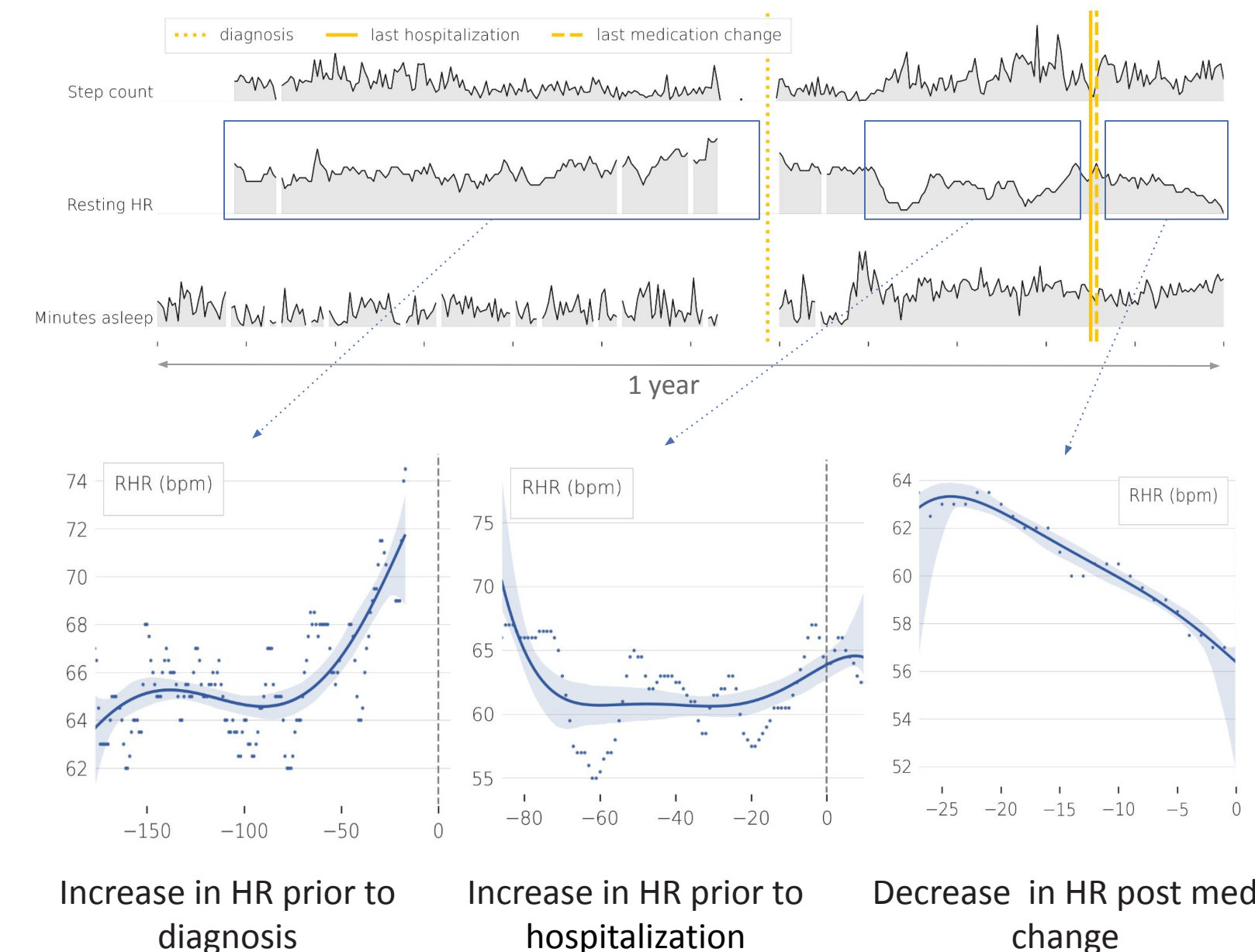
### INSIGHT 3: Medication change correlates with improved symptoms, but the majority of patients have not had their medication changed

- 55% of patients report never having changed their medication(s) for heart failure. Of those, 31% report severe symptom burden.
- Patients could benefit from more frequent changes in medication(s). 73% of the patients that switch medication with a higher frequency tend to feel better or much better.



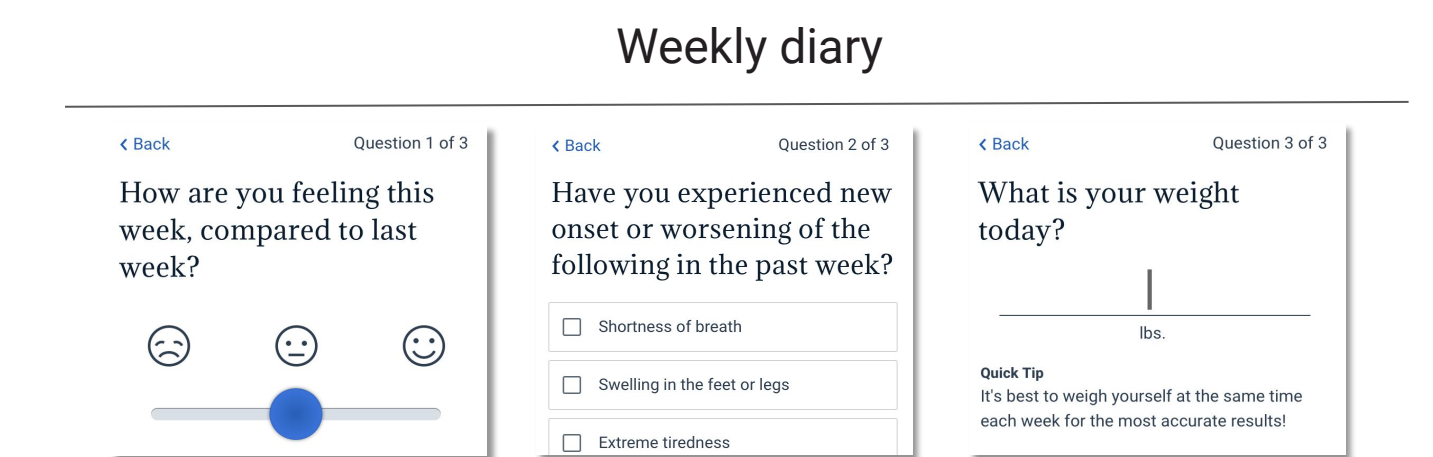
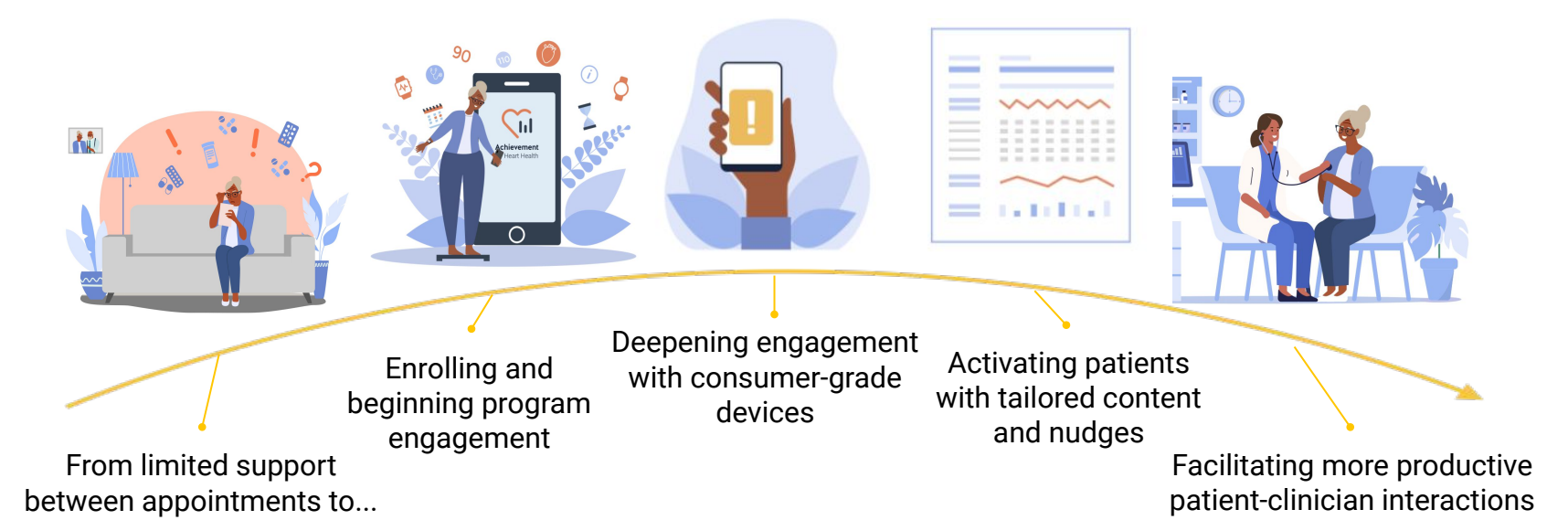
### INSIGHT 4: Activity data can provide signal around key patient events

- Measures from consumer wearable sensors (e.g., heart rate, steps and sleep variables) can demonstrate changes in individual patterns around key patient events.



## Evidation - ACC's HEART HEALTH PROGRAM

Evidation Health, in collaboration with the ACC, developed "Heart Health on Evidation", an opt-in program for patients with HF and related comorbidities. Features include curated, tailored content (e.g., ACC's CardioSmart library, program insights), a weekly symptom diary, a custom summary report of activity and symptoms to share with clinicians, and nudges to engage the care team when appropriate.



### Program monitoring dashboards

