Evaluating Heartfelt's predictive utility in heart failure: insights from the FOOT multicentre trial

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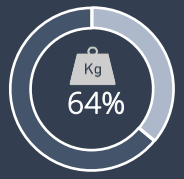
Introduction

Standard care recommendations **include the monitoring of symptoms** and daily weighing at home



of **patients do not weigh themselves or monitor symptoms** in the 2 weeks prior to admission[1]

of admission are associated with **peripheral oedema**[2]

oedema is **strongly associated** with subsequent prognosis[2]

Is there a missed opportunity for clinicians to respond rapidly to early changes in congestion?

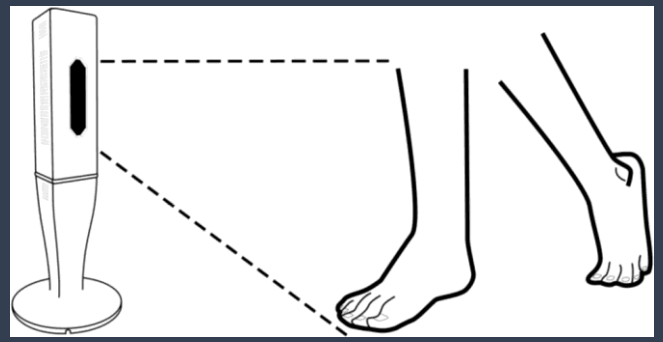
Hypothesis

Our hypothesis is that the Heartfelt device can directly detect the increase in peripheral oedema associated with heart failure (HF) decompensation and that, on average, the number of days with missing data collected by the Heartfelt device will be lower than that of the weighing scales.

Methods

31 patients were recruited to the study and 26 provided with connected weighing scales and the Heartfelt device (+4G internet dongle if required) from 5 hospital trusts in the UK. Many patients lived in areas with high deprivation levels. We looked at the acceptability and usage of the devices during the 6 month observational study.

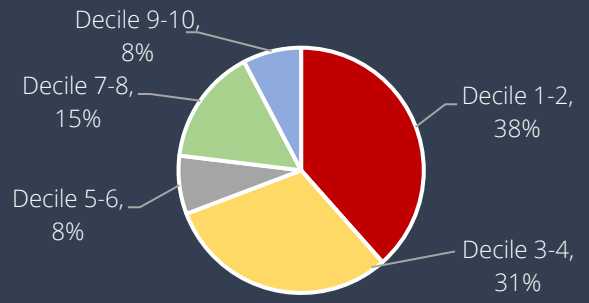
Methods cont.



Inclusion criteria: Patients age 18 years or older; Patient with any HF diagnosis; Patient with one prolonged inpatient stay; Patient with significant peripheral oedema at admission; Patient with significant weight loss following admission (at least 5kg weight loss); Patient has been discharged on at least Furosemide 80mg or Bumetanide 2mg/d.

Exclusion criteria: Patient has bandages every day; Patient has an amputation of the foot; Patient lacks capacity to consent; Patient is of no fixed abode; Patient has plans for intervention (CRT, Valves); Patient taking part in another study.

Health Deprivation and Disability Index



Distribution of the locations of study participants: from 10% most deprived areas (Decile 1) to the least deprived areas (Decile 10) in the UK.

CONSORT Diagram

31 patients recruited

- *1 **withdrew**: "patient feeling depressed, not wanting commitment of a trial"*
- *1 **end of life:** relative against trial participation*
- *1 **died** before discharge*
- *1 **died** before installation*
- *1 **could not have device installed** due to prolonged use of large leg bandage*

26 patients with device installed

Results

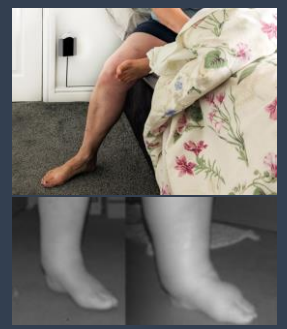
	All Patients N=26	*Patients with Events* N=8
Median Age	76.8 (70.4-83.8)	82.3 (76.3-84.7)
Gender	35% female	38% female
LVEF >50%	30%	25%

	# of Events	*# Alerted*
Outpatients	2	0
Hospitalisations	6	5
Deaths	1	1

#Alerted is number of events for which the alert was raised in the prior 2 weeks

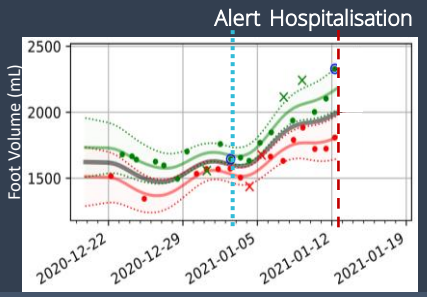
<u>Weighing Scales:</u>
Median patient has **1.1** day/week of data [0.3-4.1]

<u>Heartfelt Device:</u>
Median patient has **5.9** day/week of data [4.9-6.6]



Baseline Scan *Patient hospitalised next day*

Data leading up to hospitalisation for one of the trial participants



<u>Heartfelt Device:</u>
13 days advance warning on hospitalisation/ worsening [6.5-20]

Conclusion

The Heartfelt device can directly detect the increase in peripheral oedema associated with HF decompensation and provides significantly more days with data than weighing scales, thus predicting more HF events.

References: 1: Ziaeian B et al. 2016 2: Shoaib A et al. 2019