Background
Evidence that home telemonitoring (HTM) for patients with chronic heart failure (CHF) offers clinical benefit or a health economic advantage over usual care is controversial. Therefore the CardioBBEAT trial was designed to prospectively assess simultaneously the benefit and the health economic impact of a dedicated home monitoring system for patients with CHF based on actual costs directly obtained from patients’ health care providers.

Methods
Between January 2010 and June 2013, 621 patients (mean age 63.0 ± 11.5 years, 88% male) with a confirmed diagnosis of CHF (LVEF ≤ 40%) were enrolled and randomly assigned to two study groups (Tab. 1 + 2) comprising usual care with and without an interactive bi-directional HTM (Motiva®). Patients measured their vital signs (blood pressure, heart rate and weight) every day and Motiva® transferred the data to the telemonitoring center. A call was made if patients gained more than 2 kg within 3 days, if their systolic blood pressure exceeded 140 mmHg or was lower than 90 mmHg, or their resting heart rate exceeded 80 bpm or was lower than 50 bpm.

Cost data were obtained from patients health insurance companies subdivided into cost of inpatient and outpatient care, rehabilitation, nursing, medication and life-saving appliances. The primary endpoint was the Incremental Cost-Effectiveness Ratio (ICER) established by the groups’ difference in total cost and in the combined clinical endpoint “days alive and not in hospital nor inpatient care per potential days in study” within the follow up of 12 months (dichotomy intervention minus control).

Secondary outcome measures were total mortality and health related quality of life (SF-36, WHO-5 and KCCQ).

Results
Total mortality (HR 0.81; 95% CI [0.45, 1.45]) and days alive and not in hospital (HTM mean days 340.8, 95% CI [−1680.6, 1626.0/day]) (Fig. 2).

It was possible to gather cost data from 38 out of 55 health insurances for 492 patients. The resulting primary endpoint ICER was neutral (−171.3, 95% CI [−1680.6, 1626.0/day]) (Fig. 2).

Figure 2: Cost effectiveness of telemonitoring: observed ICER (red) and bootstrap samples (black)

It is not possible to define a recent health care setting remains to be defined.

Conclusions
Simultaneous assessment of clinical and economic outcome of HTM in patients with CHF showed no incremental cost effectiveness, but an improved quality of life compared to usual care without HTM. The place of the tested HTM solution in the recent health care setting remains to be defined.