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Conference Abstract

## Home Telemonitoring reduces hospitalization for Heart Failure in an NHS service: a Propensity-Matched Analysis

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### Abstract

**Purpose:** Several reports suggest that Home Telemonitoring (HTM) may reduce mortality and possibly hospitalizations for heart failure (HF) but others have not confirmed this. Whether HTM is more or less effective in clinical practice than in clinical trials is uncertain. This analysis investigated variations in outcome of patients with Chronic Heart Failure (CHF) receiving HTM in a clinical service compared to those receiving conventional care.

**Purpose:** Several reports suggest that Home Telemonitoring (HTM) may reduce mortality and possibly hospitalizations for heart failure (HF) but others have not confirmed this. Whether HTM is more or less effective in clinical practice than in clinical trials is uncertain. This analysis investigated variations in outcome of patients with Chronic Heart Failure (CHF) receiving HTM in a clinical service compared to those receiving conventional care.

**Methods:** As part of the local heart failure service provision for the City of Kingston-upon-Hull (population circa 288,000), 225 patients were enrolled in the HTM service between April 2008 and May 2012 during which time 1822 patients had been registered in an out-patient service. A literature review was carried out, and this together with recommendations from clinicians and completeness of data resulted in 54 features that were chosen as candidate covariates for the calculation of propensity scores (PS). Key co-variates included age, sex, weight, NT-proBNP, Blood pressure, Creatinine, Urea, Heart rate, Diabetic, Hypertension, Beta blocker, etc. Outcomes of interest were (time to first

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event) all-cause hospitalization or death, cardiovascular (CV) hospitalization or death, all-cause mortality and CV mortality.

**Results:** Before PS matching, there were 645 patients in the control group and 106 patients in the HTM group, who had an ECG, Echo, blood test, medication and physical examination during a specified time window. PS was calculated using a non-parsimonious multivariable logistic regression model and 80 pairs of patients with a similar PS (to two decimal places) were matched. Risks of the four types of outcomes were then analysed using Kaplan-Meier methods and are plotted. At two year, all-cause hospitalization or death was 37.3% in the HTM group and 59.5% in the control group ( $p = 0.008$ ); CV hospitalization or death was 34.2% in the HTM group and 51.8% in the control group ( $p = 0.046$ ); all-cause mortality was 23.4% in the HTM group and 21.2% in the control group ( $p = 0.531$ ); CV mortality was 16.2% in the HTM group and in 13.9% in the control group ( $p = 0.629$ ).

**Conclusions:** In this analysis, HTM was associated with a lower incidence of (all-cause or CV) hospitalisation or death but not all-cause or CV mortality.

**Keywords:**

**chronic heart failure, home telemonitoring, propensity scores**

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