004

## TELEMONITORING IN HEART FAILURE: EXPERIENCE OF A COMMUNITY-BASED HEART FAILURE SERVICE

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**Introduction** Community based models of heart failure (HF) care increasingly employ telemonitoring to improve care by reducing the risk of HF decompensation and hospitalisation. A new service was launched in Gloucestershire in 2008 covering a population of 600 000 in both rural and urban areas. Referrals were received from primary and secondary care. The service is provided by HF nurse specialists supported by four GPwSI. This study describes the population enrolled in the programme and the levels of health service utilisation that occurred.

**Method** From November 2008, patients were selected for enrolment in telemonitoring based on perceived likelihood of hospital admission and an informal assessment of patients' capacity to use the system. Enrolled patients were supplied with a Honeywell HomMed telehealth system, which measured weight, blood pressure and, if necessary, oxygen saturation. The system also asked two symptom related questions. When the measured parameters deviated from a preset range, an alert was sent to the HF team who carried out a telephone call or home visit if required and altered treatment as needed. Patient demographics, aetiology and severity of heart failure, hospital admissions in the 12 months prior to and during the telemonitoring period and levels of service utilisation were recorded.

**Results** Over 22 months, 121 patients were enrolled in the telemonitoring programme. 51% were referred from primary care. 69% of patients were male and the mean age was 75 (±12.9, range 20–98). The most common cause of HF was ischaemic heart disease (103, 85%). 42% had severe left ventricular systolic impairment on echocardiography. The median time spent on the programme was 6 months (range 1 week–22 months). Total follow-up time available for analysis was 84 years. At the end of the period, 38% remained on telemonitoring. Of those no longer on telemonitoring, 63% were discharged from the programme as they were deemed stable, 23% had died, 4% moved out of area, 4% withdrew at patients request, 3% withdrew due to intercurrent illnesses and 3% entered palliative care.

During the follow-up period, a total of 776 home visits and 663 telephone calls were performed (table 1). Rates of HF and non-HF admissions are given in table 2. The risk of HF admission was 58% lower during the telemonitoring programme compared with the 12 months period before (p=0.0001). There was no significant change in the risk of non-HF admissions. Although there was a reduction in the total bed days from 1035 to 290, the mean length of stay for HF admission was the same in both groups (12 days).

Table 1

| | Number | Median (IQR) | Rate (Occurence per patient per year) |
|---|---|---|---|
| Home visits | 776 | 3 (1–10) | 9.3 |
| Telephone calls | 663 | 4 (1–7.5) | 7.9 |

Table 2

| | Total number | Follow-up (years) | Incidence rate (Occurrence per year) | Incidence rate ratio (95% CI) | p Value |
|---|---|---|---|---|---|
| Heart failure admissions before telemonitoring | 86 | 121 | 0.71 | | |
| Heart failure admissions during telemonitoring | 25 | 83.5 | 0.30 | 0.42 (0.26 to 0.66) | 0.0001 |
| Non heart failure admissions before telemonitoring | 45 | 121 | 0.37 | | |
| Non heart failure admissions during telemonitoring | 41 | 83.5 | 0.49 | 1.32 (0.84 to 2.06) | 0.20 |

**Conclusions** Introduction of a community based telemonitoring service for HF in one district in England was associated with with a 58% reduction in the risk of admissions with decompensation, but patients continued to require substantial nursing input for home visits and telephone calls. Such service implications need to be considered before a telemonitoring programme is introduced.