

Managing Heart Failure Patients in Knowsley

Authors: Darren Persand & Carole Bayliss Knowsley MBC & NHS Knowsley, Neil Powell, Knowsley PCT, Elaine Gossage Liverpool Heart & Chest Hospital, Patrick Walsh & Michael Rooney, University of Chester. For further info contact: Elaine Gossage Elaine.Gossage@lhc.h.nhs.uk or Darren Persand Darren.Persand@knowsley.gov.uk

Between March 2009 to March 2010, patients with heart failure who took part in the pilot showed savings of around £5,600 per patient, with an overall cost saving of the full project £185,000.

Abstract

Telemonitoring allows a clinician to monitor, on a daily basis, physiological variables measured by patients at home. A 12 month pilot commenced in the Metropolitan Borough of Knowsley (KMBC) in partnership with Knowsley NHS using Telehealth monitoring devices.

8 patients with complex heart failure were identified to be part of the pilot and shown how to use state-of-the-art ECG technology to record their own vital signs including daily blood pressure, weight and blood oxygen readings remotely. These were monitored daily by a call centre for non-clinical triage with alerts sent to the clinicians. The information was then used to assess the patient's condition and determine the need for a full ECG, nurse visit, with the aim of cutting down on unnecessary visits to outpatient clinics and emergency hospital admissions.

The study evaluated the effectiveness of remote vital sign monitoring, and its possible impact on the use of health and social care resources more effectively and efficiently.

This pilot study assessed cost effectiveness, (emergency admissions $p < 0.05$) and health benefits, (Mean Arterial Pressure $p < 0.05$), in Knowsley using the Docobo hub system.

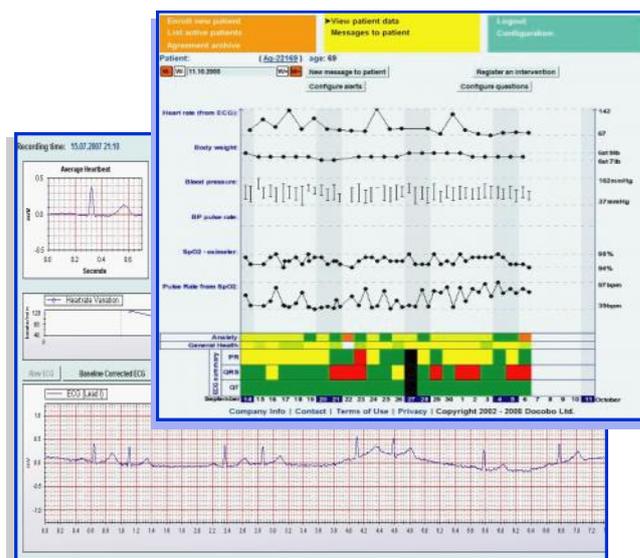
Results showed a significant improvement in the "In Patient" admissions group in the telehealth group in both cost effectiveness, ($p = 0.03$) and overall Mean Arterial Pressure and quality of life.

Methodology

Patients randomised for the pilot recorded their own vital signs remotely at pre-determined times during each day and these results were monitored by a call centre for non-clinical triage. Clinicians were then pro-

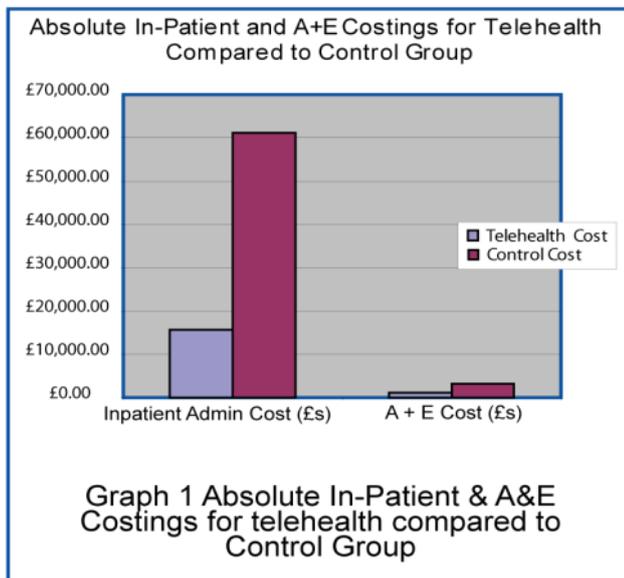
vided with results for clinical triage. Alerts were managed by both clinicians and the call centre, following a set of pre-defined set of alert responses. The 12 month study was undertaken to evaluate the effectiveness of remote vital sign monitoring in response to the second phase of the NHS Plan (2006) which focuses on the increasing need to utilise health and social care resources more effectively and efficiently. Qualitative data was collected from participants using appropriate patient, clinician and carer questionnaires together with semi-structured interviews. Quantitative physiological data was gathered from the on-line resource.

A group of patients with similar complex heart failure needs were randomised as the control group and received usual care.



Viewing patient data and an example of stored

evidence based telehealth



Benefits from remote monitoring:

Optimised for Patients

- User friendly - large buttons, clear display, ease of use
- Small footprint - Easy to integrate into daily life
- Greater understanding of managing condition—Better medication concordance
- Use anywhere, anytime

Optimised for communications

- Storage of acquired data
- Automatic dial-up modem – via free phone 0800—server connectivity via the Internet
- Nurse and GP could monitor patient jointly
- Messages could be sent through the hub to patients

Optimised for information

- Integral lead-I ECG - Vital Signs – (e.g. SpO2- PEF- FEV1- BP, weight) - Symptoms and side effects
- Life style measures • Quality of Life factors
- Programmable • Optimised for security • High level data encryption • Data protection directive

Discussion

Overall self monitoring allowed for better management of heart failure including control of blood pressure and fluid overload. In- patient costs were significantly lower for the telehealth group compared to those with standard "usual" care. In this evaluation there was an aver-

age saving of £5776.75 which has a significant impact on reaching Government cost cutting targets. However for future research larger cross sectional groups need to be evaluated to gain a full insight into the potential cost savings that could be made using this equipment. Overall the results of this small sample is promising. Knowsley Health and Wellbeing in partnership with Liverpool Heart & Chest Hospital is currently rolling out the telehealth programme to include patients with other long term conditions, including palliative care, COPD, and mental health patients.

Outcomes

- ◆ Patient were managed effectively & safely at home
- ◆ Hospital admissions were significantly reduced
- ◆ Medication changes were easily & safely monitored - trends were noticed and dealt with more easily
- ◆ Early intervention possible if condition deteriorated
- ◆ Medication compliance greatly improved
- ◆ Patients and carers were more empowered to self manage, reducing reliance on NHS Services
- ◆ Evidence of reduced unit costs in reduction in travel to patients home, reduction in CO2 emissions,
- ◆ Ability to assign remote monitoring to Health Care Assistant.
- ◆ Increased capacity in heart failure nurse time to care through reduction in patient contact time

Conclusion

Initial results are very promising from this small study. In conclusion the results here show great promise for the use of telehealth in the management of complex heart failure patients in the community.

The Community Cardiovascular Service plans to use the telehealth as a way of monitoring home exercise rehabilitation for heart failure patients who can not attend a formal cardiac rehabilitation programme. Further research is currently being considered to capture both the patient, carer and staff experience in using this technology along side existing technologies.

Other application of using this technology will also be explored in the cardiovascular rehabilitation setting.